

ATTITUDES AND BEHAVIOUR OF RESIDENTS  
IN THE QUEBEC CITY REGION TOWARDS  
URBAN WILDLIFE

by

Maria Shaar

A Practicum Submitted in Partial Fulfillment  
of the Requirements for the Degree, Master  
of Natural Resource Management

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## ABSTRACT

In recent years, the growth of non-consumptive use of wildlife and hunting opposition and other factors are indicating changing values of wildlife. The perceptions and attitudes of people towards wildlife must first be understood for wildlife management to be in the best interest of the public.

Canada is becoming increasingly urbanized. The Quebec Region of the Canadian Wildlife Service is interested in attitudes towards the wildlife resource of Quebec City. Four hundred and two visitors to four urban parks were interviewed to determine the attitudes and behaviour of residents of the Quebec City region towards wildlife in urban parks and around homes.

Park visitors prefer native avian species (with the exception of blackbirds and crows), squirrels and chipmunks. Urban wildlife species are liked for their attractiveness as well as for the nature, added life and enjoyment they bring to the city. Park visitors exhibit a lower affect for certain species around homes than in parks due to fear or a concern about uncleanness or damage to personal property.

The results show high participation in urban wildlife-related activities. Eighty-six per cent of the

respondents have actively observed wildlife either in an urban park or around home. Almost two-thirds of the respondents fed birds and one out of five respondents fed squirrels or chipmunks around homes. Some attachment to wild birds must exist since 27% of all respondents fed birds throughout the whole year and 43% of all respondents fed birds a few times a week or on a daily basis.

Wildlife was not found to be a major reason for visiting urban parks although there are several indications that wildlife adds to the enjoyment of the park visit.

This practicum includes seven recommendations to enhance wildlife and wildlife-viewing opportunities in urban areas.



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LES ATTITUDES ET LE COMPORTEMENT DES RESIDENTS  
DE LA COMMUNAUTE URBAINE DE QUEBEC ENVERS LA  
FAUNE URBAINE-RESUME

Introduction

Au courant de l'histoire nord-américaine, les ressources fauniques furent utilisées et estimées de maintes façons. Aux origines, lorsqu'il y avait peu de gens et la faune était abondante, elle servait comme nourriture, pour sa fourrure et comme d'autres produits, ou était vue comme menace au bétail, aux récoltes ou à la sauvegarde humaine.

Vers le début du siècle, les aspects utilitaires et menaçantes de la faune diminuèrent comme de grandes concentrations d'animaux furent éliminés. Avec la venue des lois protectrices et de la science de l'aménagement de la faune, les surplus de plusieurs espèces ont put être chassés ou pêchés, pour fins récréatives. Plusieurs facteurs ont récemment contribué à changer la signification nord-américaine de la faune. La population globale et la consommation de la terre pour utilisation humaine augmentent tous deux aux dépens des populations et de l'habitat fauniques. Il semble donc que les aspects esthétiques de la faune et le sentiment éprouvé par "l'existence" des espèces fauniques commencent à remplacer la consommation récréative (chasse, pêche) comme utilités primaires de la faune (Shaw, 1974). La dernière enquête nationale du Service Américain de la Faune, effectué en 1975, démontre que 50 millions d'américains ont participé dans l'observation de la



faune dans l'année, une activité se classifiant deuxième après la pêche (U.S. Dept. of the Interior, 1977a). L'observation de la faune se range première si l'on considère le nombre de jours entrepris dans l'activité: les Américains ont passé 1.5 billion de jours à participer dans l'observation de la faune (idem).

Il est compris que l'aménagement de la faune doit avant-tout bien saisir l'évolution des attitudes envers la faune pour servir les meilleurs intérêts du public (Shaw, 1974; U.S. Dept. of the Interior, 1977b). Puisque la grande majorité de la population du pays habite des régions urbaines, il est important de connaître la perception de la faune urbaine afin d'aménager cette ressource en fonction des besoins de la population. Ceci fut reconnu aux Conférences suivantes: 'Wildlife in an Urbanizing Environment' (Noyes and Progulske, eds., 1974), 'Wildlife in Urban Canada' (Euler et al., eds., 1975) et la 39ième Conférence Fédérale-Provinciale sur la Faune (Environment Canada, 1975).

#### L'énoncé du Problème

Le Service Canadien de la Faune - Région du Québec - s'intéresse aux attitudes envers la ressource faunique vivant dans la Communauté Urbaine de Québec. Cette étude analysera donc les attitudes et le comportement des résidents de la Communauté Urbaine de Québec envers la faune urbaine. L'étude se concentra sur les espèces familières aux citoyens. Puisque les parcs urbains et la végétation autour des demeures constituent une part considérable de l'habitat de la

faune urbaine, les espèces vues à ces endroits feront l'objet de cette étude.

#### Buts

1. Déterminer l'importance relative qu'occupe la faune comme raison de fréquenter les parcs urbains.
2. Découvrir les attitudes et le comportement des résidents de la Communauté Urbaine de Québec envers la faune dans les parcs urbains.
3. Découvrir les attitudes et le comportement des résidents de la Communauté Urbaine de Québec envers la faune autour de leur demeure.
4. Déterminer les espèces fauniques préférées par les résidents de la Communauté Urbaine de Québec.
5. Recommander des projets et/ou des programmes pour accroître le nombre d'observations des espèces fauniques préférées dans la région.

## Méthodologie

Un sondage de 402 entrevues fut effectué dans quatre parc situés dans la Communauté Urbaine de Québec, du 2 juillet au 10 août, 1978.

Des entrevues furent préférées à une enquête avec questionnaires auto-administrés car ceux-ci étaient souvent remis incomplets. Une enquête postale ne s'apprête pas aux visiteurs de parcs car ceux-ci ne s'enregistrent pas.

La questionnaire fut construit après consultation de fonctionnaires, des académiques et de certains membres du public (sous la forme de deux prétests). Le questionnaire fut formulé de telle façon à répondre aux trois premiers objectifs de l'étude. Des caractéristiques démographiques des répondants furent aussi obtenus. Les questionnaires furent écrits en français et en anglais. Les termes "oiseaux et animaux non-domestiques" furent employés au lieu de "faune" qui portait souvent à confusion pour des répondants. Une copie du questionnaire se trouve à la fin du résumé.

Les parcs furent choisis à ce que:

- chaque parc possède un taux élevé de fréquentation,
- chaque parc est assez grand et assez diversifié pour posséder de la faune résidante,
- des visiteurs de toutes les classes socio-économiques soient représentés dans la combinaison des parcs.

Quatre parcs urbains furent donc choisis comme sites d'étude: le parc des Champs de Bataille Nationaux, la Base de Plein Air de Ste.-Foy, le Bois de Coulonge et le parc

historique national Cartier-Brébeuf. Ainsi 145, 99, 88 et 70 visiteurs aux quatre parcs respectivement mentionnés ci-dessus furent interviewés.

Une méthode d'échantillonnage fut conçue afin d'obtenir un échantillon représentatif des visiteurs de parcs urbains. L'échantillonnage a été fait selon l'heure de la journée (tôt le matin, matin, après-midi, soir), selon la densité des gens dans des zones prédéterminées dans les parcs et dépendant des jours, soit sur semaine soit sur fin de semaine. Les visiteurs interviewés étaient aussi résidents de la Communauté Urbaine de Québec.

Les données de l'enquête furent analysés à l'aide du programme SPSS (Nie et al., 1975).

## Résultats et Discussion

Les résultats de l'enquête seront présentés et discutés dans l'ordre suivant:

- caractéristiques de l'échantillon,
- la faune comme raison de fréquenter les parcs urbains,
- le comportement envers la faune urbaine, et
- les attitudes envers la faune urbaine.

### Caractéristiques de l'Echantillon

Les caractéristiques suivantes de l'échantillon de visiteurs aux parcs urbains furent obtenus: l'âge, le sexe, l'état matrimonial, le type de logement, l'éducation, le taux d'activité de la population, la profession et la fréquentation d'autres parcs. Des comparaisons démographiques et de logement entre les répondants et la Région métropolitaine de recensement (RMR) de Québec furent faites afin d'établir les différences, s'ils ont lieu, qui existent entre la population de visiteurs de parcs urbains et celle de la RMR de Québec.

Admettant que l'échantillon est représentatif de tous les visiteurs des quatre parcs étudiés, les caractéristiques démographiques et de logement obtenus démontrent que la population de visiteurs de parcs urbains vivant dans la Communauté Urbaine de Québec est, en effet, différente de celle de la RMR de Québec. La majorité des visiteurs des parcs urbains ont entre 15 et 34 ans (62%), sont célibataires (61%) et vivent en appartements (55%). La moitié des

visiteurs est incluse dans la population active occupée duquel la forte majorité (88%) fait partie de deux grands groupes professionnels (direction, administration, professionnel; et les occupations commerciales, de service et de travail administratif). La population de visiteurs des parcs a, en général, atteint un niveau d'éducation plus élevé que la population de la RMR de Québec. La majorité (61%) des visiteurs de parcs urbains fréquente rarement ou jamais des parcs à l'extérieur de la ville.

#### La Faune comme Raison de Fréquenter les Parcs Urbains.

Les répondants furent priés de donner leurs raisons de fréquenter le parc dans lequel ils se trouvaient. Ils classèrent ensuite ces raisons d'après une échelle de "très important" (valeur 5) à "très peu important" (valeur 1). Un indice fut dérivé afin de ranger les raisons par ordre d'importance. Les répondants furent aussi priés d'évaluer l'importance relative de l'air pur, du soleil, de la verdure, de la nature et de la faune comme raisons de fréquenter le parc. Les deux méthodes d'obtenir l'opinion des répondants démontrent que la faune se range bien inférieur à l'air pur, le soleil, la verdure et la nature comme raison de fréquenter le parc. Cependant, il y a des indications que la faune ajoute du plaisir et de la gaieté à la visite au parc; ceci sera élaboré dans une section subséquente.

#### Le Comportement envers la Faune Urbaine

Le taux de participation aux activités d'observation,

de photographie, d'art et de nourrissage de la faune urbaine fut obtenu. Puisque l'alimentation de la faune fut démontrée comme étant un passe-temps populaire (DeGraaf et Thomas, 1974b), des questions se rapportant à la nourriture, aux saisons, à la fréquence de nourrissage ainsi qu'aux dépenses incourus furent inclus dans l'entrevue.

Les résultats indiquent un taux élevé de participation dans les activités ayant trait à la faune urbaine. Quatre-vingt-six pour-cent des répondants ont observé de la faune soit dans un parc urbain soit autour de la maison, 20% ont photographié de la faune dans ces milieux urbains et 15% ont peint ou dessiné des espèces fauniques soit dans le parc soit à la maison.

En ce qui concerne le nourrissage des espèces fauniques, près de deux-tiers des répondants nourrissent les oiseaux et un sur cinq répondants nourrit les écureuils ou les *Tamias* autour de la maison. Parmi ceux qui nourrissent les oiseaux, 88% emploient du pain, soit seul soit en agencement avec des semences ou d'autres nourritures.

Un attachement aux oiseaux sauvages existe certainement puisque 27% des répondants nourrissent les oiseaux pendant toutes les saisons de l'année et que 43% des répondants le font au moins quelques fois par semaine, sinon tous les jours.

Des données sur des dépenses incourus pour nourrir les oiseaux sauvages et sur la possession de nichoirs et de mangeoires sont aussi présentées dans cette étude (pp. 74 et 79).

## Les Attitudes envers la Faune Urbaine

La partie de l'entrevue ayant trait aux attitudes envers la faune urbaine débuta en demandant aux répondants s'ils remarquèrent des espèces fauniques dans le parc et autour de leur demeure; si oui, ils furent priés de les nommer.\* L'entrevue procéda avec une liste des espèces fauniques relativement communs dans la région: huit espèces ou groupes d'oiseaux, cinq espèces ou groupes de mammifères ainsi que des grenouilles, des crapauds et des couleuvres. Les répondants furent priés d'indiquer s'ils avaient vu ces espèces/groupes dans le parc et furent priés de nommer d'autres oiseaux ou mammifères qu'ils avaient vu. Pour chaque observation, l'affection ou le dégoût d'une espèce fut exprimé en termes de "aime beaucoup" (8), "aime un peu" (6), "indifférent" (4), "n'aime pas tellement" (2), "n'aime pas du tout" (0) et "aime et n'aime pas" (4). Les répondants furent priés de donner leurs raisons d'aimer ou de ne pas aimer une espèce. Le même procédé fut utilisé pour les espèces autour des demeures.

La moyenne des valeurs d'appréciation pour chaque espèce est utilisée afin de ranger les espèces/groupes fauniques par ordre de préférence sur une échelle de 0 à 8. Les espèces préférées dans les parcs ainsi qu'autour des résidences, bien que l'ordre diffère aux deux endroits, sont: les écureuils, les *Tamias*, les oiseaux vus en hiver,

---

\*Une discussion sur l'importance probable de nommer des espèces fauniques spontanément se trouve dans l'étude.



les hirondelles, les merles d'Amérique, les goélands et plusieurs autres oiseaux à l'exception des "oiseaux noirs" (y compris les corneilles) et des espèces introduites, comme les moineaux domestiques et les pigeons. D'après leur position sur l'échelle d'appréciation, il semble que les moineaux, les pigeons et les marmottes soient des espèces quelque peu aimées, à la fois dans les parcs et autour de la maison. Dans les parcs, les "oiseaux noirs", les corneilles et les mammifères non nommés sur le questionnaire ("autres" mammifères) sont aussi aimés tandis qu'autour de la maison, les répondants se montrent indifférents à ces espèces. Les visiteurs de parcs urbains sont indifférents aux grenouilles, aux mouffettes, aux couleuvres et aux chauve-souris dans les parcs mais ne préféreraient pas voir ou rencontrer les trois dernières espèces autour de leur demeure.

Les raisons d'affection ou de dégoût ont été classifiées d'après les catégories d'attitudes de Kellert (1976) avec certaines variations puisque nous traitons de faune urbaine. Les raisons principales d'aimer ou de ne pas aimer chaque espèce sont présentées. En général, la faune urbaine est aimée parce qu'elle est attirante. Presque tous les oiseaux et mammifères sont considérés importants pour l'ambiance naturelle, la gaieté, la vie et "les amis familiers" qu'ils apportent à la ville. Les raisons de dégoût pour les espèces fauniques urbaines varient d'une espèce à l'autre. Par exemple, les moineaux domestiques sont reprochés d'être trop communs. Les principales raisons de dégoût invoquées au sujet des chauve-souris, des mouffettes et des couleuvres

viennent de certaines caractéristiques répulsives, soit l'apparence, soit les odeurs qu'ils dégagent ou encore de la crainte qu'ils inspirent. Les indices d'appréciation de certaines espèces sont notamment inférieurs autour de la maison que dans le parc. Ceci s'explique par la notion de propriété privée: les gens craignent voir certaines espèces d'animaux autour de la maison car ils les trouvent endommageants ou salissants. C'est le cas des marmottes, des pigeons et des mammifères inclus dans la catégorie "autres mammifères".

Etant donné que toutes les espèces fauniques sont aimées dans les parcs (à l'exception des mouffettes, des grenouilles, des couleuvres et des chauve-souris envers lesquels les gens sont indifférents), on peut conclure que la faune urbaine ajoute du plaisir et de la gaieté à la visite au parc urbain même si la faune n'est pas une raison primordiale de visiter les parcs. Ceci est appuyé par la raison de fréquenter le parc "beau, plaisant", qui possède un indice de haute importance, suggérant que le parc possède plusieurs agréments parmi lesquels la faune pourrait en être un.

## Conclusions et Recommandations

Les visiteurs de parcs urbains situés dans la Communauté Urbaine de Québec possèdent un comportement et des attitudes favorables à la plupart des espèces fauniques, aussi bien dans les parcs qu'autour des demeures. L'appréciation inférieure de certaines espèces fauniques lorsqu'elles sont autour de la maison est dû à la crainte ou au souci pour la propriété privée (dégâts ou saleté).

Tenant compte de mes résultats et d'autres études sur la faune urbaine, les sept recommandations suivantes sont faites pour augmenter le nombre d'observations d'espèces fauniques en milieu urbain:

1. L'utilisation d'arbustes, de façon regroupée, spécifiquement dans les espaces verts et les parcs (DeGraaf, 1978; Hooper et al., 1973).
2. L'utilisation plus répandue de conifères (arbres et arbustes).
3. L'application des recommandations 1 et 2 dans les parcs urbains et les espaces verts.
4. La conservation des espaces verts existants plutôt que d'en développer des nouveaux (DeGraaf, 1978; Geis, 1974; Shoesmith, 1978).
5. Une plus grande disponibilité aux propriétaires de mesures à prendre afin d'augmenter le nombre d'observations fauniques.
6. Qu'un résumé des attitudes et du comportement des citoyens envers la faune urbaine soit circulé aux planificateurs urbains et aux architectes.
7. Plus de contacts interprétatifs en milieux urbains.

# \_\_\_\_\_

Jour: semaine \_\_\_\_\_ (1)

Parc: Plaines \_\_\_\_\_ (1)

Fin de semaine \_\_\_\_\_ (2)

Bois \_\_\_\_\_ (2)

Date: \_\_\_\_\_

Cartier-Brébœuf \_\_\_\_\_ (3)

Heure: \_\_\_\_\_

Base plein air \_\_\_\_\_ (4)

Endroit \_\_\_\_\_

Pourriez-vous me dire pour quelles raisons vous fréquentez ce parc, que ce soit aujourd'hui ou avant?

- |                                  |   |
|----------------------------------|---|
| 1. Beau, plaisant _____          | 8. Proximité _____                          |
| 2. Voir, admirer l'endroit _____ | 9. Activité récréative (sports, jeux) _____ |
| 3. Dehors, air pur, soleil _____ | 10. Activité sociale (amis, célébrer) _____ |
| 4. Espace vert _____             | 11. Manger, pique-nique _____               |
| 5. Nature _____                  | 12. Tranquillité, peu de gens _____         |
| 6. Faune _____                   | 13. Solitude _____                          |
| 7. Détente _____                 | 14. Ne sais pas _____                       |
| 15. Autre _____                  |   |

(fiche A) Veuillez m'indiquer l'importance relative de chacune des raisons que vous m'avez nommée parmi les 5 catégories suivantes: Ex: Est-ce que x est très important, important ou d'une importance moyenne comme raison de visiter ce parc?

5: très important

2: peu important

4: important

1: très peu important

3: d'une importance moyenne

(0: pas une raison)

16. Considérez-vous l'air pur, le soleil et la verdure comme une raison de fréquenter ce parc? En vous servant de la même fiche, quelle importance est cette raison? \_\_\_\_\_
17. Venez-vous ici pour vous rapprocher de la nature? Veuillez m'en indiquer l'importance relative: \_\_\_\_\_
18. Venez-vous ici pour voir les oiseaux et les animaux non domestiques du parc? Veuillez m'en indiquer l'importance relative: \_\_\_\_\_

Avez-vous remarqué ou entendu des oiseaux et des animaux non domestiques dans ce parc?

Oui (1) Non (2) Lesquels? (Ecrire +1 aux oiseaux remarqués et ensuite aller à la page suivante).

Je vais vous nommer des oiseaux et des animaux non domestiques que vous avez peut-être vu dans ce parc; veuillez me dire si vous les avez remarqués ou non dans ce parc.

- (fiche B) Veuillez me dire si vous les 8: aimez beaucoup  
6: aimez un peu  
4: aimez et n'aimez pas  
4: êtes indifférent  
2: n'aimez pas tellement  
0: n'aimez pas du tout

En même temps, veuillez me dire pour quelles raisons vous les aimez ou pas.

	(spontané) (+1)	Aime ou pas	Raisons
19. Merles (Rouge-gorge)			
20. Hirondelles			
21. Oiseaux noirs			
22. Moineaux			
23. Pigeons			
24. Goélands			
25. Corneilles			
26. Oiseaux d'hiver			
27. _____			
_____			
_____			
_____			
28. Ecureuils			
29. Tamias (Suisse)			
30. Marmottes (Siffleux)			
31. Mouffettes			
32. Chauve-souris			
33. _____			
_____			
34. Grenouilles			
35. Crapauds			
36. Couleuvres			

Quels oiseaux ou animaux non domestiques avez-vous remarqué autour de votre maison et dans votre cour? (Ensuite retourner à la page précédente)

Autour de votre maison et dans votre cour, avez-vous remarqué des...

- (fiche B) Veuillez me dire si vous les aimez :
- 8: aimez beaucoup
  - 6: aimez un peu
  - 4: aimez et n'aimez pas
  - 4: êtes indifférent
  - 2: n'aimez pas tellement
  - 0: n'aimez pas du tout

En même temps, veuillez me dire pourquoi vous les aimez ou pas.

	(spontané) (+1)	Aime ou pas	Raisons
37. Merles (Rouge-gorge)			
38. Hirondelles			
39. Oiseaux noirs			
40. Moineaux			
41. Pigeons			
42. Goélands			
43. Corneilles			
44. Oiseaux d'hiver			
45. _____			
_____			
_____			
_____			
46. Ecureuils			
47. Tamias (Suisse)			
48. Marmottes (Siffleurs)			
49. Mouffettes			
50. Chauve-souris			
51. _____			
_____			
52. Grenouilles			
53. Crapauds			
54. Couleuvres			

55. Avez-vous déjà nourri les oiseaux dans ce parc? Non\_\_\_\_(1) Oui: Est-ce que vous les nourrissez souvent\_\_\_\_(4)  
occasionnellement\_\_\_\_(3)  
rarement\_\_\_\_(2)
56. Avez-vous déjà nourri les écureuils ou les suisses dans ce parc? Oui\_\_\_\_(1)  
Non\_\_\_\_(2) Et chez vous? Oui\_\_\_\_(3) Non\_\_\_\_(4)
57. Nourrissez-vous les oiseaux autour de votre maison? Oui\_\_\_\_(1) Non\_\_\_\_(2)  
(Non: passer à la question #62).
58. De quoi les nourrissez-vous? Graines\_\_\_\_(1)  
Miettes de pain\_\_\_\_(2)  
Autre nourriture\_\_\_\_(3)
59. Pendant quelles saisons les nourrissez-vous?  
Les 4 saisons\_\_\_\_(1) L'été seulement\_\_\_\_(5)  
Les 4 saisons moins l'hiver\_\_\_\_(2) L'hiver seulement\_\_\_\_(6)  
Les 4 saisons moins l'été\_\_\_\_(3) Le printemps seulement\_\_\_\_(7)  
Le printemps et l'été\_\_\_\_(4)
60. A peu près combien de fois les nourrissez-vous?  
Quelques fois                  Quelques fois                  Quelques fois                  Chaque jour  
par année\_\_\_\_(1)                  par mois\_\_\_\_(2)                  par semaine\_\_\_\_(3)                  \_\_\_\_ (4)
61. Combien dépensez-vous approximativement par année pour nourrir les oiseaux?  
\_\_\_\_ Restants\_\_\_\_(1) Moins de \$\_\_\_\_(2) \_\_\_\_ (3) \_\_\_\_ (4)
62. Possédez-vous un (des) nichoir(s) à oiseaux autour de votre maison? Oui\_\_\_\_(1)  
Non\_\_\_\_(2)
63. Une mangeoire d'oiseaux? Oui\_\_\_\_(1) Non\_\_\_\_(2)
64. Dans ce parc ou chez vous, avez-vous déjà?  
- photographié des oiseaux ou des animaux non domestiques? Oui\_\_\_\_(1) Non\_\_\_\_(2)
65. - peint ou dessiné des oiseaux ou des animaux non domestiques?  
Oui\_\_\_\_(1) Non\_\_\_\_(2)
66. - observé des oiseaux ou des animaux non domestiques?  
Oui\_\_\_\_(1) Non\_\_\_\_(2)

Veillez répondre à ces questions qui vous concernent personnellement.

67. Dans quelle ville habitez-vous? \_\_\_\_\_

68. Habitez-vous une maison \_\_\_\_\_(1) ou un appartement \_\_\_\_\_(2)?

69. Quelle distance avez-vous parcouru pour vous rendre à ce parc? \_\_\_\_\_

70. Visitez-vous d'autres parcs en ville?  
Les visitez-vous:

Souvent \_\_\_\_\_(4)

Occasionnellement \_\_\_\_\_(3)

Rarement \_\_\_\_\_(2)

Non \_\_\_\_\_(1)

71. Visitez-vous des parcs en dehors de  
la ville? Les visitez-vous:

Souvent \_\_\_\_\_(4)

Occasionnellement \_\_\_\_\_(3)

Rarement \_\_\_\_\_(2)

Non \_\_\_\_\_(1)

72. Sexe: Mâle \_\_\_\_\_(1) Femelle \_\_\_\_\_(2)

73. Est-ce que votre état civil est:

Célibataire \_\_\_\_\_(1) Marié(e) \_\_\_\_\_(2) Autre \_\_\_\_\_(3)

74. Dans quelle catégorie d'âge vous trouvez-vous? (fiche C)

En bas de 10 ans \_\_\_\_\_(1)

10 - 15 ans \_\_\_\_\_(2)

15 - 20 ans \_\_\_\_\_(3)

20 - 25 ans \_\_\_\_\_(4)

25 - 30 ans \_\_\_\_\_(5)

30 - 35 ans \_\_\_\_\_(6)

35 - 40 ans \_\_\_\_\_(7)

40 - 45 ans \_\_\_\_\_(8)

45 - 50 ans \_\_\_\_\_(9)

50 - 55 ans \_\_\_\_\_(10)

55 - 60 ans \_\_\_\_\_(11)

60 - 65 ans \_\_\_\_\_(12)

65 - 70 ans \_\_\_\_\_(13)

70 et plus \_\_\_\_\_(14)

75. Jusqu'où avez-vous poursuivi vos  
études? (fiche D)

Moins que l'école secondaire \_\_\_\_\_(1)

Ecole secondaire \_\_\_\_\_(2)

Ecole technique \_\_\_\_\_(3)

CEGEP \_\_\_\_\_(4)

Un nombre d'années d'université \_\_\_\_\_(5)

Gradué d'université \_\_\_\_\_(6)

76.a) Quelle est votre présente  
occupation? (fiche E)

Employé \_\_\_\_\_(1)

Travailleur à propre compte \_\_\_\_\_(2)

Retraité \_\_\_\_\_(3)

Ménagère \_\_\_\_\_(4)

Etudiant \_\_\_\_\_(5)

Chômeur \_\_\_\_\_(6)

76.b) Quelle est votre profession? \_\_\_\_\_

Décrivez brièvement votre travail: \_\_\_\_\_



## Chapter 1

### INTRODUCTION

An important function of natural resource planning is to adapt management policies to change in both resource and resource demand factors. The various social processes that determine the demand for different uses of a resource are subject to constant change. If wildlife managers are to serve the best interests of the public, they must attempt to understand how wildlife attitudes evolve, and respond appropriately. To understand how and why policies should be changed, we must look beyond the resource itself and give more attention to the human factors which determine the demand for different types of use and management policies.

William W. Shaw, 1974, p. 151.

#### Changing Values of Wildlife

Throughout North-American history, wildlife resources have been used and valued in different ways. Originally, when wildlife was numerous and people were few, wildlife was a source of food, fur and other products, or was seen as a threat to livestock, crops, or human safety (Shaw, 1974). The supply of wildlife seemed boundless and several species were intensely exploited. At the turn of this century, the utility and nuisance values of wildlife declined as large concentrations of animals were eliminated. With

protective legislation and the advent of the science of wildlife management, the surplus of several species became harvestable at certain periods of the year. The greatest products derived from wildlife became intangibles: recreational benefits of sport fishing and hunting. Expenditures for this type of consumptive use of wildlife (sport fishing and hunting) were the basis for wildlife management policies.

In recent years, several factors have contributed to a change in the meaning of wildlife to North Americans. World population and the consumption of land for human use are both increasing at the expense of wildlife habitat and numbers. The memberships of nature-oriented organizations, the amount of time people devote to bird watching and other wildlife-oriented activities (exclusive of hunting and trapping), the popularity of wildlife TV programs and the number of wildlife and nature-oriented articles are all on the increase. Present trends indicate that the aesthetic value of wildlife and the satisfactions derived from simply knowing wildlife exists are replacing consumptive recreation as the most important uses of wild animals (Shaw, 1974). The 1975 United States Fish and Wildlife Survey shows that 50 million Americans participated in wildlife observation in that year, ranking second in activity to fishing (approximately 54 million participants) (U.S. Dept. of the Interior, 1977a, p. 2). Wildlife

observation ranks first when considering the number of days involved in a wildlife-related activity: 1.5 billion days were spent by Americans participating in wildlife observation (U.S. Dept. of the Interior, 1977a, p. 2). Fifteen million Americans participated in wildlife photography in 1975, another non-consumptive use of wildlife.<sup>1</sup> This and similar studies have made the U.S. Fish and Wildlife Service realize that people's interests and needs concerning wildlife are changing. To understand this trend in greater depth, the Service sponsored a study on the "Perception of Animals by Americans."<sup>2</sup> This was followed in 1977 by the decision to sponsor a major study of American attitudes toward wildlife and natural areas. "This is a bold new step for the Fish and Wildlife Service," Director Lynn A. Greenwalt said.

Never before have we undertaken such a large scale effort to determine the human dimension that affects wildlife management. The results of this investigation will help us to promote greater citizen participation in the decision-making process and in our future plans to manage wildlife for the benefit of all Americans. (U.S. Dept. of the Interior, 1977b).

Such a study will indeed be very valuable in understanding the growing importance of non-consumptive use of

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<sup>1</sup>Other activities listed in this survey include clamming, crabbing and shell collecting, hunting, recreational shooting and archery.

<sup>2</sup>By Stephen R. Kellert, submitted in 1974.

wildlife and the changes in wildlife values among people so that policy may better reflect these changing values.

This changing role of wildlife seems to be concurrent with a shift in population distribution. The world is experiencing a rapid growth in urbanization. By 1981 it is projected that 85% of Canadians will be living in urban centres (Systems Research Group, 1970 in: MacNeill, 1971, p. 40). More and more people are realizing the value of natural areas in cities. Urban land is being set aside for natural parks and nature centres.<sup>3</sup> Since wildlife is an integral part of nature, do city dwellers wish to see wildlife only in parks and nature centres or would they enjoy seeing them around home? What kind of wildlife management, and for which species, is then needed in cities?

Urban wildlife studies are rare compared to other studies in the wildlife field. Two research biologists of the USDA Forest Service conceive three main problem components for research in urban wildlife (DeGraaf and Thomas, 1974a). These are:

1. human preference for wildlife species,

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<sup>3</sup>In the United States, as early as 1966, the Nature Centers Division of the National Audubon has helped in the planning of nature centres in 200 cities, of which at least fifty-five were then operated full-time. Public involvement in the creation of natural urban parks is becoming more widespread today. Calgary's natural urban park of Fish Creek Valley and the Toronto Waterfront are examples.

2. habitat requirements of wildlife species, and
3. wildlife-human interaction.

The need to discover the attitudes and perceptions of urban people towards wildlife was recognized at the 1975 Federal-Provincial Wildlife Conference. It was recommended that the Canadian Wildlife Service and the provinces investigate the feasibility of planning and implementing a sociological study to determine the perceptions and attitudes of urban people towards wildlife (Dean & Fillion, 1976). Such a survey would be very valuable for wildlife management policies.

There thus exists a need to determine the value people place upon urban wildlife in order to determine whether future expenditures of time, energy and money are justified to preserve and/or enhance wildlife in urban centres.

### Problem Statement

The Quebec Region of the Canadian Wildlife Service is interested in attitudes towards the wildlife resource of Quebec City. This practicum will study the attitudes and behaviour of residents of the Quebec City region towards urban wildlife. It focuses particularly on the species with which urban dwellers have contact. Since urban parks and the vegetation around private dwellings constitute a large proportion of the wildlife habitat in a city, the wildlife species seen in these

areas will be considered in this practicum. The results of this study will be especially useful for wildlife management and interpretive planning in the city, surrounding areas and nature centres.

### Objectives

The objectives of this study are:

1. To determine the relative importance wildlife holds among the reasons for visiting urban parks.
2. To assess the attitudes and behaviour of residents of the Quebec City region towards wildlife in urban parks.
3. To assess the attitudes and behaviour of residents of the Quebec City region towards wildlife around their homes.
4. To determine what species of wildlife are preferred in the Quebec City region.
5. To suggest projects and/or programs that would enhance the preferred wildlife species of the Quebec City region.

### Methodology

Wildlife species in urban areas are most often viewed within or close to their habitats which meet the species' requirements of food, cover and breeding habitat. Backyards in residential areas and green spaces (including

parks, golf courses, cemeteries, road verges, etc.) constitute wildlife habitat in cities (Thomas et al., 1973; Kelcey, 1975; Koonz, 1978). To obtain the opinions of people of various socio-economic backgrounds concerning the wildlife resource found at a few sites in the city, it was necessary to sample visitors to Quebec City region's urban parks.

Survey research in the form of interviews was preferred over self-administered questionnaires because of the higher response rate and the greater involvement of the respondents with the subject matter. The questionnaire was constructed with the advice of the civil servants, academics and members of the public (in the form of two pretests). The questionnaire, written in English and French, was formulated directly in accordance with the first three objectives of the study; personal and demographic characteristics of respondents were also included.

Parks within the Quebec City region were chosen so that:

- each park showed a high visitation rate,
- each park was large and diverse enough to possess a resident wildlife population,
- the combination of parks would include all socio-economic classes.

Visitor sampling within the chosen parks depended on the time of day, the type of day (weekday or weekend) and

the density of people in predetermined zones of each park. Only residents of the Quebec City region were eligible to be interviewed.

The survey data are analyzed using the Statistical Package for the Social Sciences (Nie et al., 1975).

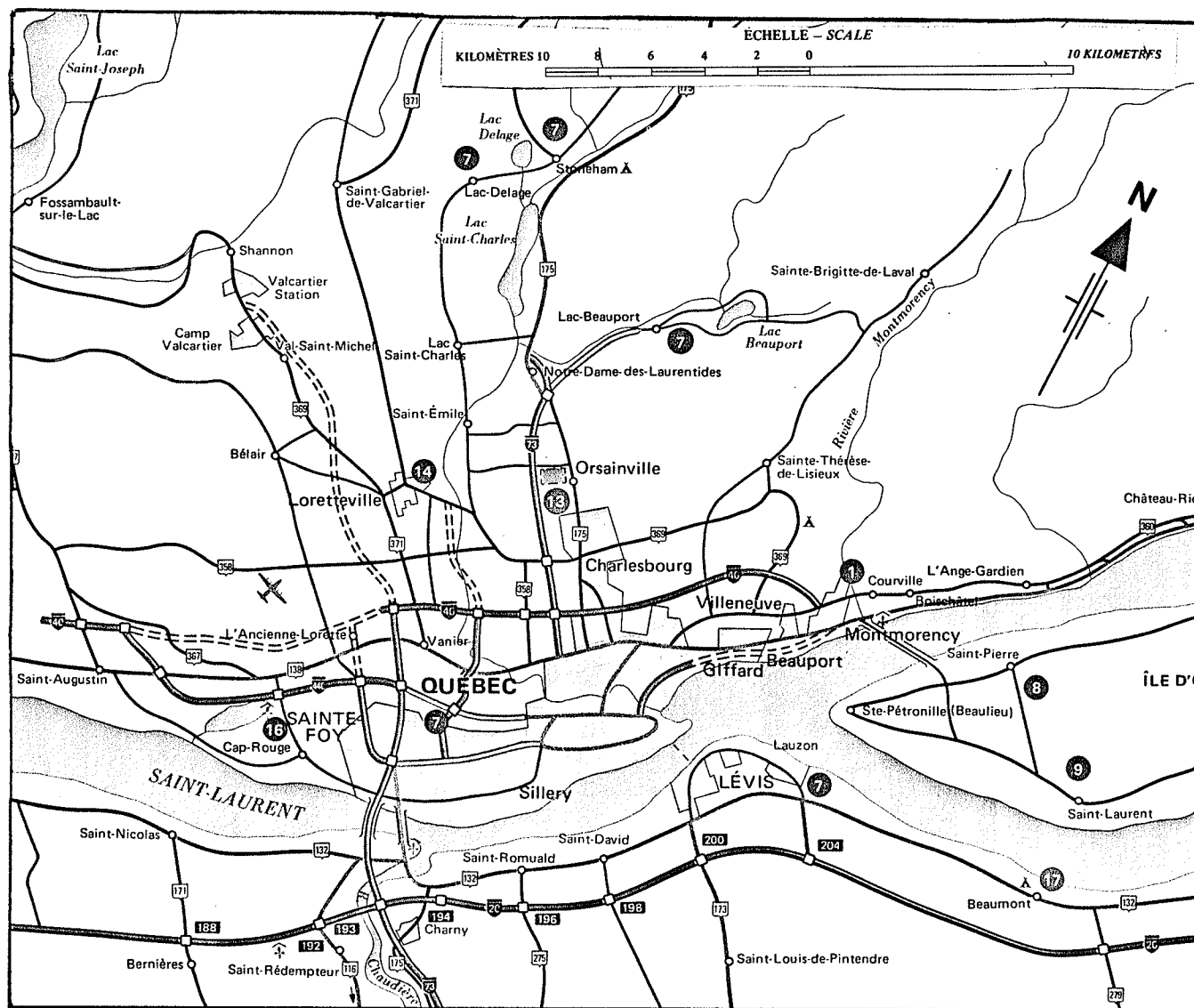
### Definition of Terms

- Wildlife:** All native animals naturally found in a wild state. Starlings, house sparrows and pigeons, although introduced species, will also be considered as wildlife.
- Native:** Naturally occurring in Canada, which is part of the New World.
- Introduced:** Naturally occurring in the Old World and brought to the New World by humans.
- Urban:** Pertaining to a city.
- Green space:** A public green area, whether forests, nature parks or 'manicured' parks, where vegetation is the dominant feature. Several historic sites of the Quebec City region are also green spaces.
- Visitor:** Any person who is present in the green space. This includes residents of the Quebec City region and tourists.
- Resident of the Quebec City region:** A resident of the Quebec Urban Community which includes the following municipalities: Ancienne-Lorette, Beauport, Bélair, Charlesbourg, Courville, Giffard, Lac Saint-Charles, Loretteville, Montmorency, Notre-Dame-des-Laurentides, Orsainville, Québec, Saint-Emile, Ste. Foy, Sainte-Thérèse-de-Lisieux, Sillery, Val St-Michel, Vanier, Villeneuve (see Figure 1.1).<sup>4</sup>

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<sup>4</sup>The Quebec Urban Community was formed relatively recently.





Source: Quebec Urban Community.

Figure 1.1

Municipalities of the Quebec Urban Community

- Tourist: A person living outside the boundaries of Quebec Urban Community.
- Attitude: Degree of positive (favourable) or negative (unfavourable) affect (feeling) toward some psychological object. (Thurstone, 1946 A.J.S.).
- Behaviour: The actions or conduct of a person.
- Preferred: Most desirable, liked.

### Hypotheses

Based on the growth of non-consumptive use of wildlife and on surveys of attitudes towards urban wildlife (Brown and Dawson, 1978; Dagg, 1970), the author is hypothesising that urban dwellers like and enjoy urban wildlife, both in parks and around homes. A second hypothesis in this study is that wildlife adds to the park visitor's experience of urban parks.

Two assumptions underlying the survey is that respondents expressed their true feelings and that interviewers were unbiased.

### Limitations

#### Study Sites

Due to limited time, only four parks of the Quebec City region were considered as the study sites for interviews.

#### Number of People Interviewed

Due to time constraints, an objective of 400

interviews was set to obtain sufficient representation from each of the four parks considered.

Length of the Questionnaire

Since the interview generally infringes on the leisure time of the respondent, the number of questions in the interview schedule was kept to a minimum so that the duration of the interview was short.

## Chapter 2

### LITERATURE REVIEW

As indicated in the introductory chapter, the values placed upon wildlife are currently changing in our society. It has been stated that the way in which man has viewed his relationship with the world around him is responsible in shaping his attitude towards wildlife (Tocher and Milne, 1974). The sociologist Kluckhohn finds that culture provides a framework for predicting behaviour and attitudes (Kluckhohn, 1962 in: Tocher and Milne, 1974). Eastern cultures tend to view man as a part of nature, in harmony with all other living creatures. In these oriental cultures, wild animals are regarded as peers and are harvested only as need dictates. In western cultures and industrial societies, the entire universe is seen to exist for man: man is entitled to dominate and exploit other living creatures. The emphasis here is upon the challenge of the hunt and the prestige of the trophy. Tocher and Milne (1974) found that the western attitude where the needs of man take precedence over those of wild animals still persists today, but that the emphasis is shifting toward attitudes typical of eastern societies.

It is apparent that while wildlife will continue to be sought for trophy and food and resisted in agricultural regions, the trend is toward non-consumptive use. Urban citizens appear to seek the psychic gratification of observing wild animals. . . . Wildlife is more important now as a way of understanding the interrelationship of nature and as a way of enjoying leisure through observing animals and birds (Tocher and Milne, 1974, p. 149).

Shaw (1974, p. 153) considers that there are three ways in which Americans have used and valued wildlife resources:

1. Utility or nuisance value (meat, furs, crop and livestock depredation, etc.).
2. Consumptive recreational value (sport hunting).
3. Aesthetic or existence value (viewing, studying, photographing, satisfactions from just knowing wildlife exist, recognition of ecological importance of wildlife, etc.).

Current studies on attitudes of people towards the various uses of wildlife show that there is opposition to hunting among North Americans, and that non-consumptive uses of wildlife are becoming more important (Kellert, 1978; Linder et al., 1974; Pirt, 1976; Shaw and Gilbert, 1974; Shaw et al., 1978).

Davey (1967) discusses how wildlife is appreciated more and more as a recreational and aesthetic resource and as an integral element of man's total environment. He notes the increasing public interest in just observing and protecting wildlife, and reports on the increased birdwatching, wildlife photography and sales of wild bird seed to homeowners. He also points

out the opportunities available for such non-consumptive uses of wildlife in urban areas.

The 1975 U.S. Fish and Wildlife Survey (1977) mentioned in the first chapter clearly shows an increase in non-consumptive uses of wildlife. DeGraaf and Payne (1975) have attached an economic value to the enjoyment of non-game birds. Based on various sources, the total direct expenditures in 1974 for the enjoyment of non-game wildlife were estimated at \$500 million, of which 95% is attributable to photographic equipment and services, bird seed and binoculars. This \$500 million a year is an indication of the economic importance of non-game birds, especially when compared to expenditures of waterfowl hunters. In 1970, waterfowl hunters spent \$180 million (excluding transportation, lodging, food and alcoholic beverages, as in the non-game expenditure measurements). Allowing for inflation and an increase in hunting by 1974, a total of \$300 million for waterfowl hunting expenditures is still far below the total for non-game expenditures. The "Economic Survey of Southeastern Wildlife and Wildlife-Oriented Recreation" of more than 12,000 U.S. Southeastern households proves that non-consumptive use of wildlife resources possesses a higher monetary value than hunting or fishing (Horvath, 1974). Shafer and Moeller (1974) predict that, as we approach the year 2000, non-consumptive uses of wildlife will be the primary social value of wildlife, and that:

the shrinking acreage of land resources available for people-wildlife interaction particularly near urban areas, will require that cemeteries and other open space in urban areas be managed intensively for wildlife habitat and for observation of wildlife in the urban environment.

Benefits derived from wildlife in cities were expressed in general terms at a 1968 Symposium sponsored by the Bureau of Sport Fisheries and Wildlife of the U.S. Department of the Interior (MacMullan, 1968; Strainbrook, 1968). Wildlife management in metropolitan and suburban areas was also discussed at the Thirty-second North American Wildlife Conference (Davey, 1967; Stearns, 1967; Twiss, 1967).

By the early 1970's, the need to examine wildlife as well as other natural aspects of urban areas became accentuated. In 1971, a Symposium on "Trees and Forests in an Urbanizing Environment" was held at the Holdsworth Natural Resources Center (University of Massachusetts), as part of the Planning and Resource Development Series. In 1973, a Symposium of the same series, "Wildlife in an Urbanizing Environment", included a total of 34 papers presented within the main categories of philosophy of urban wildlife, public and private roles in urban wildlife management, studies in urban wildlife and people in urban wildlife (Noyes and Progulske, eds., 1974).

Each of the subsequent three years saw Canadian conferences pertaining to nature in cities: in 1974, "Nature and Urban Man", a Canadian Nature Federation

Conference (McKeating, ed., 1975a); in 1975, the Symposium on "Wildlife in Urban Canada", sponsored by the University of Guelph and the Ontario Ministry of Natural Resources (Euler et al., eds., 1975); and in 1976, the meeting of the Canada Committee on Ecological (Biophysical) Land Classification entitled "Ecological (Biophysical) Land Classification in Urban Areas" (Wiken and Ironside, eds., 1977).

At the Thirty-ninth North American Wildlife and Natural Resources Conference (1974), attitudes towards wildlife (Shaw and Gilbert, 1974; W. W. Shaw, 1974; Tocher and Milne, 1974) and wildlife benefits (Horvath, 1974; Shafer and Moeller, 1974) were debated topics. In 1976, at a conference of the same series (the Forty-first), papers related to "the input of wildlifere expected by urban and regional planners" were presented (Brush, 1976; LaNier, 1976; Longrie, 1976; Thillmann and Monash, 1976).

The key issues concerning urban wildlife brought up at the above conferences that relate to the need to undertake studies on the attitudes and behaviour of people towards urban wildlife will now be identified and discussed. At the end of this chapter, studies that have specifically dealt with the attitudes and the behaviour towards urban wildlife will be reviewed.

The main areas of concern with respect to urban wildlife are:



1. The benefits and conflicts associated with urban wildlife,
2. Research needs in urban wildlife,
3. Urban wildlife habitat, and
4. Attitudes and behaviour towards urban wildlife.

Benefits and Conflicts Associated  
with Urban Wildlife

Several kinds of benefits can be derived from urban wildlife. Davey (1967) and Geist (1975) mention the most obvious: the aesthetic and inspirational appeal several urban wildlife species have because of their colours or movements. Much pleasure is provided by observing birds and squirrels at feeders or admiring and listening to songbirds in the spring and summer time (Evenden, 1974).

Wildlife is also an indicator of the quality of the environment (Davey, 1967; Dean, 1977; Evenden, 1974). The presence of wildlife tends to indicate that the local environment has some diversity, and that the air and water quality is fairly decent (Evenden, 1974). Williamson (1974) found that the distribution of certain species in Washington, D.C., reflected the quality of the habitats present in certain areas of the city.

Urban wildlife can play an important educational role (Dean, 1977; Geist, 1975; Greenwalt, 1974;

McKeating, 1975b, 1977; Milne and Milne, 1974).

Interpreting wildlife and wildlife habitat needs in urban centres would help urban residents understand the ecological principles that govern wildlife populations. Greenwalt (1975) says that the U.S. federal government would use the wildlife at hand in urban areas to show the citizenry the aesthetic and educational values that accrue from wildlife.

Geist (1975) explains the various functional benefits that are often ignored. The availability of diverse wildlife and plant communities are significant to children during maturation e.g. it is the prerequisite to intellectual stimulation, leading to curiosity and exploration. With the increased familiarity of natural processes, analogies are easily formed leading to increased communication skills as well as a greater understanding of our culture. Geist (1975) reports studies showing that constant exposure of humans to a visual environment dominated by vertical and horizontal straight lines leads to an alteration of visual acuity. Diversity such as that provided by natural settings and wildlife would avoid this problem. Geist (1975) also reviewed studies which show that intelligence quotients are shown to depend on environmental manipulation: numerous stimuli from a diverse environment exercise the nerve fibers in the central nervous system and result in a higher I.Q.

However, wildlife in cities does not only provide benefits but can also be the source of problems (Koonz, 1978; Shoesmith, 1978; Smith, 1974). Disease transmission by wildlife to humans, e.g. rabies or histoplasmosis, in an urban situation can be quite serious (Karstad, 1975; Locke, 1974). Structural damage to buildings or cables, crop destruction in gardens as well as ornamental plant and landscape damage can arise due to rodents and certain avian species (Smith, 1974). Aesthetic degradation of certain areas can occur if the habitat is conducive for roosting birds. Birds present near airports can collide with aircrafts and constitute a threat to human safety (Solman, 1973). Courtsal (1978) concludes that many of the problems encountered with wildlife species in urban areas are "people problems" rather than "biological problems": he finds that population reduction of pest species can be obtained if people properly use the control tools available.

#### Research Needs

Howard (1974, p. 17) has delineated various steps to be taken before encouraging the establishment of any wildlife species in an urban environment:

- 1) identify correctly the animal and plant species that will be involved;
- 2) determine the size of suitable habitat that will be required;
- 3) consider the effects the target species may have on other species;
- 4) determine if there are any likely irreversible consequences;
- 5) consider all possible alternative species and habitat

developments; 6) examine thoroughly the human relationships involved; 7) establish priorities and spell out precise objectives for each species being considered; 8) determine if the species might become a nuisance, serious pest, or health problem; 9) capitalize on the rapidly growing social and recreational values that the public is placing on all wildlife; and 10) involve the widest range of other disciplines such as sociologists, planners, landscape architects and educators in this problem solving effort, for wildlife and other problems will be solved only if a multidisciplinary approach is used.

DeGraaf and Thomas (1974a) have outlined a program for research on wildlife in urban areas:

- 1) human needs and preferences for and uses of wildlife;
- 2) habitat requirements of desired species; and 3) the evaluation and enhancement of human-wildlife interaction.

The literature dealing with the first two concerns will now be reviewed.

#### Urban Wildlife Habitat

Urbanization has the effect of eliminating much of the natural landscape that previously prevailed. Wildlife species require the appropriate food, breeding and escape habitat to survive (Dean, 1977). As wildlife habitat recedes in metropolitan areas, so does wildlife (Geis, 1974; Knudson, 1978). There is a need to salvage threatened wildlife habitats in cities before it becomes too late (Stearns, 1974). Data from a 140 year period for an area on the outskirts of London, England, indicates that as urbanization progressed from 1% to 100%, breeding bird diversity decreased from 72 species to 20 species

(Batten, 1972 in: Dean, 1977).

Continued development, however, need not be synonymous with environmental degradation and the loss of natural values. . . .With careful landscaping, proper design and management of open space, and the right kind of building design, urban and suburban areas could not only be aesthetically appealing but also harbor many species of wildlife in natural settings. (Seater, 1975, p. 450).

Increasing urban land values will render several areas not traditionally considered for its wildlife (e.g. cemeteries or large building rooftops) as appropriate wildlife habitat which can be used for wildlife observation (Thomas and Dixon, 1973; Seater, 1975).

Although some knowledge of habitat requirements of non-game species does exist, the lack of information in this area is still great (Hooper and Crawford, 1969; Hooper et al., 1973; Kelcey, 1975; Thomas et al., 1974). Landscape architects and urban planners realize that they have important roles to play in the development of urban wildlife habitat and have also expressed the need for research in this area (Brush, 1976; Thillmann and Monasch, 1976). Techniques for determination of the habitat requirements of various non-game species must be developed and tested or adapted for use in urban environments (DeGraaf and Thomas, 1974a). Thomas, DeGraaf and Mawson (1974) measured the following habitat features that may influence the occurrence of urban birds: volume of deciduous trees, volume of deciduous shrubs,

volume of coniferous trees, volume of coniferous shrubs, herbaceous vegetation, volume of structures, building density, traffic, bird feeders, bird houses, cultivated fields, fallow fields, open water, woodlots, gardens, number of adults, number of children, number of cats, number of dogs. The vegetative factors were found to be the most significant in determining the kind and abundance of avian species in cities.

Urbanization greatly affects bird populations: as the intensity of development increases, the variety of species declines although the absolute number of birds usually increases due to the presence of numerous introduced species such as starlings and house sparrows (Geis, 1974).

Williamson (1974) has found that native species exhibited a distinct preference for wooded parks and residential areas with extensive woody vegetation whereas introduced species were best adapted to areas characterized by a lack of vegetation and an abundance of concrete and high density buildings. Similar results were obtained by Erskine (1975) studying winter birds of urban residential areas. He found that the number of introduced species increased with building density whereas native winter residents increased relative to tree density within the built-up areas and depended on the availability of feeding stations.

DeGraaf (1978), studying avian communities and

habitat associations in suburban Amherst and urban Springfield, Massachusetts, noticed that bird communities of urban and suburban areas are substantially different. The suburbs possessed a greater diversity of breeding bird species but total bird densities were almost three times higher in the city. Insectivorous and native cavity nesters are also more numerous in suburban than in core areas. The following factors were found to be most important for breeding birds: the deciduous tree diameter, the height to the crown, the number of feeders, the distance to the nearest woodlot, the number of coniferous trees and the amount of "weedy" growth. In the wintering bird community, two factors seemed most significant in affecting their distribution: the distance to the nearest woodlot and the number of feeders.

Providing habitat to support wildlife, and at the same time encouraging human contact with these wild populations will demand great skill of the resource manager (Stearns, 1967). In 1973, the National Wildlife Federation (U.S.) initiated a backyard wildlife program called "Invite wildlife to your backyard" (Davis, 1974; Thomas et al., 1973). The goal was to make people realize that their backyard can easily be a miniature refuge for wildlife. This program evoked the most enthusiastic response of any program ever undertaken by the Federation.

### Attitudes and Behaviour Towards Urban Wildlife

It is known that wildlife can thrive in cities only if the appropriate habitat requirements are met. It is also realized that several benefits are derived from urban wildlife but that conflicts may also occur. The two following questions have therefore arisen at numerous occasions (Davey, 1967; Dean, 1977; DeGraaf and Thomas, 1974a; Edwards, 1975; Howard, 1974; Smith, 1975):

1. Which are the desirable wildlife species in cities?
2. For which species should habitat be developed and managed in cities?

Four of the five workshops at the Symposium "Wildlife in Urban Canada" devoted much time to the issue of preference and desirability of urban wildlife species (Euler et al., eds., 1975). The authors mentioned above, as well as the participants of the Symposium at the University of Guelph, concluded that urban wildlife management greatly depends on the wants, needs, perceptions and values of people and they realized the urgent need for sociological studies in this field.

The number of studies dealing specifically with attitudes and behaviour towards urban wildlife are few. Davey (1967) searched the literature in the Wildlife Review, the Journal of Wildlife Management and in the Auk



and could not find any report papers related to desirable wildlife species in urban areas. Dagg (1970) was a pioneer in the field of attitudes of people towards urban wildlife. Fourteen hundred and twenty-one homeowners were interviewed in Waterloo, Ontario. The researchers asked:

1. What birds and mammals had been seen and in what numbers on each house's lot,
2. Whether the owners liked or disliked these animals (very much, yes, neutral, not really, no),
3. Whether the owners gardened and to what extent, and
4. Whether or not they fed birds.

Dagg's findings indicate that almost all householders liked having birds on their properties. Chipmunks were the favourite mammals, followed by squirrels and rabbits (respectively liked by 86%, 68% and 60% of those surveyed). Larger terrestrial mammals and bats were most disliked. The number of trees on each block and the nearness of the house to park, bush and/or rural areas were noted. Animals that were liked were often found near areas of trees, park or bush.

In 1973, Dagg (1974) conducted two more surveys. In the first of these, 195 Waterloo residents were asked whether they liked cardinals, starlings, pigeons, sparrows and robins. Respondents were categorized into

groups: children (ages nine to nineteen), adults who had always lived in apartments and adults living in their own houses. The five bird species were liked as follows (in decreasing order): cardinals (93% of the respondents liked cardinals), robins (92%), sparrows (73%), pigeons (50%) and starlings (32%). Homeowners liked the first three species most; children were most tolerant of the pigeons and starlings. Pigeons and starlings were accused by homeowners of making house life less pleasant. Dagg explains that children did not hold this view because they do not think of birds in relation to property.

The second survey (Dagg, 1974) tested how knowledgeable urban residents were about wildlife. Sixteen coloured pictures of wild animals were presented to 403 Waterloo residents. It was found that the best known species were not necessarily those most commonly seen in the city. The ability to recognize animals was a function of education and age.

Cauley (1974) conducted a study on the urban habitat requirements of four wildlife species (cardinal, blue jay, fox squirrel and raccoon) in Taylor, Michigan. He interviewed 25 household heads from his study site to determine attitudes towards wildlife. The following results were obtained:

- 76% of the people interviewed enjoyed seeing wildlife on their property,

- 80% placed food for wildlife at some time in the year, of which 33% bought commercial feed (the remainder would throw out table scraps),
- 32% made efforts to attract wildlife by nest boxes, feeders or water.

DeGraaf and Thomas (1974b) conducted a random survey of households in Amherst, Massachusetts, to determine the extent of wild bird feeding. Of a total of 538 households queried, 43% fed birds, mostly in the winter months until March. Fifty-eight per cent of those feeding birds provided food through April at a time when natural food is not yet available; 16% continued to feed through July. The average bird-feeding household possessed 1.7 feeders and spent \$8.80 annually on bird food. The authors found by comparing data from other metropolitan areas, the proportion of residents that feed birds is inversely correlated with population: the larger the city, the fewer the number of people that feed birds. In addition, the larger the city, the smaller the amount of feed purchased per bird-feeding household.

DeGraaf and Payne (1975) have estimated that, in 1974, approximately 20% of United States households purchase an average of 60 pounds (27.27 kg) of bird seed per year, equivalent to \$170 million (1974). Another \$9 million United States dollars were spent on birdhouses and feeders, while membership dues, gift books and field guides accounted for six million dollars.

Kellert (1976) has been working on American attitudes towards animals since at least 1973. Although his study does not deal solely with urban wildlife but with all animals (including pets, animals in zoos and wildlife in general), the typology of attitudes he has devised is particularly relevant to this study. Five hundred and fifty-three randomly selected Americans were interviewed. Nine basic attitudes toward animals were developed from the investigation. They are summarized as follows:

Naturalistic	Interest and affection for wildlife and the outdoors
Ecologicistic	Concern with the environment as a system, with wildlife species and with natural habitats
Humanistic	Interest and affection for individual animals, particularly pets
Moralistic	Concern about the right and wrong treatment of animals, with strong opposition to exploitation and cruelty involving animals
Scientific	Curiosity about the physical attributes and functioning of animals
Aesthetic	Interest in the artistic and symbolic characteristics of animals
Utilitarian	Concern with mastering and controlling animals
Dominionistic	Concern with mastering and controlling animals
Negativistic	Interest in avoiding animals, due to indifference, fear, dislike or superstition

(Kellert, 1977, p. 3).

In further research, Kellert (1978) separated the negativistic attitude into neutralistic and negativistic attitudes:

Neutralistic	Passive avoidance of animals due either to indifference or lack of concern
Negativistic	Active avoidance of animals due either to fear or dislike

The distribution of attitudes within the following eleven social-demographic variables was then analyzed: age, sex, race, education, occupation, income, childhood residence, present residence, section of the country, marital status and number of children (Kellert, 1976). Sex and education were discovered to be the two most important social differentiators of people's attitudes towards animals and the natural world. Females were more moralistic and humanistic; males were more naturalistic, utilitarian, dominionistic, scientistic and ecologicistic. People with low education manifested strong negativistic, utilitarian and dominionistic attitudes, particularly with regards to wildlife; the college-educated scored high on naturalistic and ecologicistic attitudes.

The most significant age differences found were between persons 18 to 29 and those 65 and older (people under 18 were not sampled) (Kellert, 1976). The elderly population showed itself more utilitarian and negativistically oriented and was less naturalistic and

moralistic. The largest contrast among occupational categories was between farmers and students: farmers are the most utilitarian group as well as dominionistic, whereas students are highly moralistic. In addition, students are highly naturalistic and this is shared by business executives and skilled workers. A discernible negativistic and neutralistic attitude was found among unskilled and clerical workers. Rural dwellers were more dominionistic and utilitarian than urban residents. Respondents raised in cities of one million plus were highly moralistic. The strongest naturalistic attitude revealed itself amongst people from towns of 10,000 to 50,000 in population. Kellert (1976) infers that those raised in small towns probably had the opportunity for exposure to wildlife without commercial interference, thus allowing for a naturalistic viewpoint. Income and marital status seemed to have little effect on attitudes towards animals.

The University of Waterloo Research Institute, sponsored by the Canadian Wildlife Service, studied the attitudinal orientations of Central Canadian cultures towards wildlife (Bos et al., 1977). Content analysis of four Ontario and Quebec newspapers was chosen to understand the evolution of attitudinal orientation towards wildlife. Kellert's (1976) typology was used to categorize attitudes. The study indicates that time (historical era), culture (English or French) and socio-

economic setting are the determining factors affecting attitudes towards wildlife. The attitudinal trends seemed to be different when comparing articles of urban origin to those of rural origin.

A public wildlife viewing weekend was held at Aquatic Park, the Leslie Street Spit of Toronto, on June 25th and 26th, 1977 (Wyman and McKeating, 1977).<sup>5</sup> Visitors were handed a brochure containing information about the site, its wildlife and a visitor survey. One hundred and fifty-one questionnaires were returned. Ninety per cent of the respondents felt that the event rated well (very good and good) and that their expectations had been met or exceeded. The event seemed to attract a large percentage of visitors (70%) who infrequently participated in wildlife-oriented activities, thus fulfilling a major event goal by increasing the awareness of the general public. Almost 70% of the responding visitors thought that there were not sufficient opportunities for wildlife-oriented activities in urban areas and would be willing to further participate if opportunities for wildlife viewing increased. This feeling was shared by respondents who participated in wildlife-oriented activities at different rates (from "not at all" to "more than 12 times" a year).

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<sup>5</sup> Sponsored by the Division of Fish and Wildlife, Ontario Ministry of Natural Resources and the Toronto Harbour Commission.

In 1973, the New York State Department of Environmental Conservation initiated an urban wildlife program. In preparation for a statewide survey on the needs and attitudes of the urban and suburban public in relation to wildlife, wildlife habitat and wildlife-related recreation, a mail pilot study of 1000 Albany households was carried out in 1976 (Brown and Dawson, 1977; Dawson et al., 1978). The 1977 statewide metropolitan survey included 13 residential areas from Buffalo, Rochester, Syracuse, Utica-Rome, Binghamton and New York City; 6,500 questionnaires were mailed in the statewide survey. The results of both studies are combined in a report by Brown and Dawson (1978).

The level of interest in urban wildlife (measured by the number of sightings) was high for all residence areas.<sup>6</sup> Sixty-two per cent of the respondents reported daily bird sightings and 76% of the respondents weekly sighted mammals in their everyday activities. Reptiles and amphibians were seldom or never seen by 92% of the respondents. Respondents rated a list of 20 wildlife species or groups according to whether they would like to see them around their home, in nearby parks or undeveloped areas, in the country or not at all. The most preferred wildlife species (or groups) around the

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<sup>6</sup>The non-response rate was 50%. From telephone follow-ups, non-respondents were far less interested in wildlife than respondents.



home were butterflies, robins, cardinals, sparrows, blue jays, squirrels and hummingbirds. The species with the lowest preference (to be seen either in the country or not at all) included pigeons, raccoons, foxes, skunks and snakes. Woodpeckers, blackbirds-starlings, chipmunks, ducks-geese, frogs-toads, rabbits, pheasants and turtles were preferred to be seen in nearby parks or in the country. Forty-four per cent of the respondents claimed that there should be more wildlife in their neighbourhood to give them sufficient observation opportunities. This response varied between 20% in one of the residential areas to 71% in another of the 13 residential areas considered.

Brown and Dawson (1978) also analyzed participation in the non-consumptive and wildlife-related activities of observation, feeding and photography:

Sixty four percent of the respondents observed wildlife. . . Wildlife observation was distinguished from everyday sightings by defining it as an activity in which the respondent planned to seek out and observe wildlife. . . . Wildlife were observed most often around respondents' homes; 80 percent of all activity days were spent at these sites. . . . The second most often used observation sites by respondents were urban and suburban public parks, although only eight percent of the observation days were spent at these sites. . . . Fifty percent of all respondents fed wildlife one or more days annually; . . . Wildlife were most often fed around the respondents' homes, encompassing 86 percent of all activity days. . . . Urban and suburban public parks were the second most often used sites by respondents, but only five percent of all days were spent at these sites. . . . Wildlife were photographed one or more days annually by 18 percent of the respondents; . . . The sites most often used for wildlife photography, by

proportion of activity days spent, were: around the home (33 percent), in urban and suburban public parks (21 percent), on private rural property (18 percent), and at rural public parks (15 percent). . . .The proportion of respondents who maintained wildlife habitat improvements around their home varied greatly among residence areas. Habitat improvements made, and percent of respondents involved were: bird feeders (34 percent), water structures for wildlife (16 percent), birdhouses (11 percent) and plants for wildlife (10 percent). (T. L. Brown and C. P. Dawson, 1978, pp. 14, 18 and 24).

The large majority of respondents (96%) found it important for children to take part in nature programs in addition to those offered in school or at home. Seventy-three per cent of the respondents were interested in programs encouraging wildlife to live in their backyard or neighbourhood areas. Respondents from one or two family homes expressed a slightly higher interest in such programs than did respondents from multi-family dwellings. The damages occasioned by some wildlife species (e.g. squirrels, pigeons) did not seem to hinder the interest in wildlife enhancement programs. A carefully conducted program promoting the use of cemeteries as sites to observe wildlife was acceptable to the majority of people.

Following Recommendation No. 4 of the Fortieth Federal-Provincial Wildlife Conference, the Canadian Wildlife Service contacted all provincial wildlife agencies to determine their interest in investigating the attitudes of urban Canadians towards wildlife (Filion and Dean, 1977). It seems that wildlife in urban as well as rural areas was considered. Only four agencies, Ontario,

Manitoba, Alberta and British Columbia showed their willingness to get involved. They responded to a questionnaire to help define the objectives and the type of attitudinal information desired from a survey on the attitudes and perceptions of urban Canadians toward wildlife. When asked to identify the concerns the agencies would like to have surveyed, attitudes towards wildlife in general and attitudes towards wildlife-oriented activities were checked most often by the provinces (30% each). This was followed by an interest in the perceptions of wildlife habitat (23%) and in the attitudes towards specific wildlife species (15%). Given the choice between five different attitudinal typologies for the proposed survey, attitudes in terms of Kellert's typology were preferred by the concerned agencies because of the typology's broad approach and greatest adaptability.

As seen by the literature reviewed in this chapter, both the federal and provincial levels of government currently appreciate the need for studies on the attitudes and behaviour towards urban wildlife.

## Chapter 3

### METHODOLOGY

This study on the attitudes and behaviour of residents of the Quebec City region towards urban wildlife involved a survey conducted in parks of the Quebec City region. The information was collected from a structured interview schedule administered by the author and an assistant. Four hundred and two individuals were interviewed from July 2 to August 10, 1978. The procedure followed in this survey was:

- construction of a questionnaire
- sample design and selection
- data collection
- data processing and analysis

This chapter will explain these steps.

#### Construction of a Questionnaire

Survey research based on interviews was preferred to a mail survey or to self-administered questionnaires. Parks as study sites do not allow for mailed questionnaires since people do not register their names and addresses as they enter or leave the park. Self-administered questionnaires in the park were viewed as unpleasant tasks by the respondents. This was evident

from the first pretest where incomplete or poorly answered questionnaires were common.

The duration of the interview had to be short (approximately 15 minutes) so as not to infringe upon the leisure time of individuals.<sup>7</sup> The researcher constructed a questionnaire with the advice from the public sector and academics.<sup>8</sup> Since Quebec City is predominantly French-speaking, questionnaires were written in both French and English. The first pretest of 34 parks visitors proved the questionnaire to be too long. Following further consultation with sociologists, wildlife biologists and urban foresters, the questionnaire was adjusted accordingly and a second pretest of 12 park visitors was conducted. Slight modifications of this second pretest questionnaire resulted in the interviewing schedule used in this survey (Appendix A).

#### Sample Design and Selection

This study involves the use of multistage cluster sampling.<sup>9</sup> Since the attitudes and behaviour towards

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<sup>7</sup>In practice, interviews ranged from ten to fifty minutes depending on the involvement of the respondent.

<sup>8</sup>Officials from the Federal, Manitoba and City of Winnipeg levels of government, as well as University of Manitoba professors contributed to the construction of the questionnaire.

<sup>9</sup>This sampling design involves the initial sampling of groups of elements (clusters) followed by the selection of elements within each of the selected clusters (Babbie, 1973).

wildlife found at both urban parks and around homes are desired, it was necessary to sample respondents among visitors of Quebec City region's urban parks. The criteria involved in the choice of parks for this study are discussed in the following chapter.

A method for sampling of respondents was derived with the assistance of Mr. F. L. Filion and Mr. G. E. J. Smith, both of the Canadian Wildlife Service Head Office at Hull. Due to limited resources, only certain portions or zones of each park were considered as interviewing sites. For each park, zones were chosen among park areas frequented by visitors. Some of the determined zones possessed a high visitation rate while others had a rather low rate. Portions of each park which appeared to have nil visitation were ignored. Prior to the selection of respondents, the interviewer had to count the number of visitors within the zone. To allow for this, no obstructions such as historical buildings or large monuments were present in the zones. Zone size varied according to topography and ground cover. A large treeless area permitted the delineation of a large zone; smaller zones had to be considered in areas of denser vegetative cover. Rolling topography and steep slopes also limited the range the interviewer could see, permitting only small zones.

Since reasons for visiting parks or wildlife appreciation within parks may vary on weekdays, weekends

or with time of day, allowance was made for type and time of day in the sampling of respondents. A day was divided as follows:

early morning	7:00 - 9:00
morning	9:00 - 12:00
afternoon	12:00 - 17:00
evening	17:00 - 20:00

Afternoons proved to be the busiest time in parks, followed by evenings and mornings. Equal emphasis was given to weekdays and weekends in the sampling.<sup>10</sup> To ensure a random selection of respondents within each zone, the following table (Table 3.1) was derived empirically by the author and was used on interviewing days.

Table 3.1

Selection of respondents according to density of visitors in each zone

On Weekdays		On Weekends	
Number of visitors with- in the zone	Number of visitors to interview	Number of visitors with- in the zone	Number of visitors to interview
1 - 5	1	1 - 10	1
6 - 10	2	11 - 20	2
11 - 15	3	21 - 30	3
16 - 20	4	31 - 40	4
21 - 25	5	41 - 50	5
26 - 30	6	51 - 60	6
etc.	etc.	etc.	etc.

For example, if the number of visitors within a zone

<sup>10</sup> A weekend consists of Saturday and Sunday.

totalled nine on a weekday, then two individuals were interviewed. The greater visitation of parks on weekends is accounted for in the second portion of the table. When a group of people was present in a zone, only one person from the group was selected to be interviewed. If, for example, a group of 20 people were the only visitors present in a zone, only one interview was conducted in that zone. In densely visited zones, landmarks (e.g. a bench, a garbage can, a certain tree) were identified by the interviewers. The visitor closest to each landmark was interviewed. When two visitors were equidistant from a landmark, selection of a respondent was based upon age or sex characteristics that were underrepresented in the visitor sample of a certain park.

To further ensure representativeness in sampling, interviewing frequently alternated between two or three parks in the same day. Visitors of one of the parks (National Battlefields Park) who only drove through the park were not interviewed.

A sampling schedule was established considering time and type of day and the various zones in each park (Table 3.2). The number of visitors interviewed in each park is relatively proportionate to park size, visitation rate and wildlife diversity.<sup>11</sup> This will be further explained in the following chapter.

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<sup>11</sup>Visitation statistics were regularly produced by only one of the four parks.



Table 3.2  
Sampling Schedule<sup>+</sup>

PARK Time	CARTIER BREBEUF				BASE DE PLEIN AIR				BOIS DE COULONGE			
	Early Morn- ing	Morn- ing	After- noon	Even- ing	Early Morn- ing	Morn- ing	After- noon	Even- ing	Early Morn- ing	Morn- ing	After- noon	Even- ing
Z 1	1 0	5 6	10 9	3 2	0 0	6 9	15 12	6 5	1 1	2 2	4 5	2 2
O 2	2 0	5 4	9 9	3 2	1 0	2 2	6 8	3 3	0 0	2 4	5 5	2 2
N 3					1 1	1 1	1 1	2 1	1 1	2 1	3 3	1 1
E 4									0 1	2 2	4 6	2 2
S 5									0 0	2 2	4 5	2 2

All Zones	3 0	10 10	19 18	6 4	3 2	10 13	24 22	15 10	2 3	10 11	20 24	9 9
* Total	70				99				88			

+: 

Weekday
Weekend

\*: Target goals of 100 and 90 were set for the parks "Base de Plein Air" and "Bois de Coulonge" but were not obtained due to a lack of park visitors in the early morning.

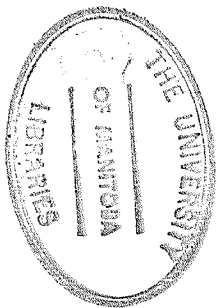
Table 3.2 Continued  
Sampling Schedule<sup>+</sup>

PARK Time	NATIONAL BATTLEFIELDS			
	Early morn- ing	Morn- ing	After noon	Even- ing
Z O N E S	1 0 / 1	1 0 / 1	2 1 / 2	1 1 / 1
	2 0 / 0	1 0 / 0	5 6 / 5	2 1 / 2
	3 0 / 1	3 4 / 3	5 4 / 5	0 1 / 0
	4 0 / 0	1 0 / 0	2 0 / 2	1 0 / 1
	5 0 / 1	3 3 / 3	10 15 / 10	2 3 / 2
	6 2 / 1	3 2 / 3	10 10 / 9	2 3 / 2
	7 0 / 1	3 2 / 3	9 10 / 9	2 3 / 2

All Zones	4 5 / 4	15 11 / 15	43 46 / 43	10 11 / 10
Total	145			

+: 

Weekday
Weekend



Data Collection

Interviews were conducted on sunny and cloudy days from July 2 to August 10, 1978. Two hundred and eighty and 122 interviews, respectively, were carried out by the author and an assistant interviewer.

Standard interviewing techniques were followed so as to remain neutral and not influence answers provided by the respondents. The interviewers' dress and grooming was simple and kept similar during the execution of the survey. Demeanor was friendly and relaxed. Question wording was exactly followed and answers recorded exactly as given. Some probing of answers did occur whenever needed; the same probes were used for all interviews.

The interview commenced with a brief statement of the purpose of the study (Appendix A). No indication was given that the study was sponsored by the Canadian Wildlife Service as this might bias the respondent's answer. Visitors were asked if they lived in the Quebec City region because they were the only ones eligible to be interviewed.<sup>12</sup> Whenever an interview had begun with a park visitor that claimed not to live in the Quebec City region, he/she was thanked and informed that the survey involved only residents of the Quebec City region. The number of "tourist" park visitors encountered during the

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<sup>12</sup> This is necessary in order to meet the second and third objectives of this study.

survey was noted as well as their place of origin. When refusals to be interviewed occurred, reasons for the refusal were asked and demographic characteristics of the individual were observed.<sup>13</sup>

Following the introduction, the interview proceeded with the listing and rating (according to a Likert scale)<sup>14</sup> of the reasons for visiting the particular park they were found in, so that the relative importance of wildlife could be determined. Index cards bearing the answers to multiple choice questions were presented to the respondents on five occasions during the interview to facilitate the response. The concern of the

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<sup>13</sup>Eighty seven park visitors were approached to be interviewed but were not interviewed. Of these 87, 65 (49 of whom were from the National Battlefields Park) were not considered eligible to be interviewed because they did not reside in the Quebec City region. Of the remaining 22, the following reasons were given when refusing to be interviewed:

- no interest in wildlife (5)
- do not like questionnaires (5)
- no time, in a hurry (5)
- do not want to be bothered to answer to some questions (5)
- jogging (1)
- too early in the morning (1)

The majority of refusals came from park visitors who were between the ages of 25 and 45, and were equally distributed between males and females.

<sup>14</sup>Likert scaling, developed by Rensis Likert, is a method that measures the intensity of a response. Due to the unambiguous ordinality of response categories, the Likert scale easily lends itself to index construction (Babbie, 1973).

interview then turned to the wildlife species noticed in the park where the interviewing was taking place and the wildlife species seen around their homes. For each sighting, attitudes towards the species were expressed in terms of affect and reasons behind this predisposition. The exact translation of the term wildlife ('faune') was confusing to French-speaking respondents. Instead, the terms birds and non-domestic animals ('oiseaux et animaux non-domestiques') were used in the French-speaking questionnaires. Since the possibility of respondents incorrectly naming or incorrectly recognizing the names of species listed to them did exist, a subsample of the four hundred respondents was asked to identify a set of wildlife species pictures after the interview was completed. Perfect and imperfect scores were noted.

Participation in urban wildlife-related activities was assessed by questions dealing with wildlife photography, art, observation and feeding. Since wild bird feeding has been shown to be a popular pastime, (DeGraaf and Thomas, 1974b) particular attention was given to food material, feeding frequency, seasons and expenses.

Demographic and personal characteristics of respondents obtained included age, sex, marital status, level of schooling, labour force participation, type of dwelling lived in and frequency of visitation of city and rural parks. Occupations were categorized into seven

groups according to Fillion's classification.<sup>15</sup> A more detailed analysis of the questionnaire is found in Chapter 5.

### Data Processing and Analysis

The data obtained from respondents were manually transcribed onto coding sheets which, in turn, were key-punched onto computer cards. A file on disc was set up within the SPSS system (Nie et al., 1975). The survey results were analyzed using frequencies and some cross-tabulations. Certain statistical tests were also undertaken when deemed necessary for this practicum.

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<sup>15</sup> A group was formed by collapsing specific occupation categories used in the Canadian Census Occupational Classification Manual 1971, volume 1, catalogue no. 12-536.

These seven groups are as follows:

- Managerial, administrative and professional (includes occupations in natural sciences, engineering, mathematics, social sciences, teaching, medicine and health sciences, managerial, administrative, artistic and recreational occupations)
- Clerical, sales and service occupations
- Primary occupations (agriculture, horticulture, forestry, mining, hunting, trapping, etc.)
- Processing occupations (processing, machining, product fabricating, assembling and repairing)
- Construction occupations
- Transportation-related occupations
- Materials handling, crafts and other occupations.

Source: Fillion, F. L. Demographic and socio-economic characteristics of Migratory Game Bird Hunting Permit Holders, Canadian Wildlife Service, unpublished report, Hull.

## Chapter 4

### STUDY SITES

Wildlife species require food, water, breeding habitat and shelter to survive (Dean, 1977). Natural environments such as forests, marshes, streams and meadows provide these essentials. In an urban environment, however, there are fewer suitable areas for wildlife to exist. Examples of areas that constitute wildlife habitat in cities are backyards, gardens, reservoirs, industrial holdings, railroad terminals, overpasses, parks, cemeteries and golf courses (Koonz, 1978; Stearns, 1967). Urban wildlife can be viewed at any of these areas or in close proximity to these areas.

Urban dwellers spend much of their daily life at home and may see several wildlife species in their backyards, gardens or front lawns (Thomas et al., 1973). However, some may not have any green space around their homes, and "city parks may provide the only [outdoor] recreational opportunities available to many city dwellers" (Davey, 1967, p. 54). Urban parks are public areas of high visitation by city residents and, at the same time, constitute urban wildlife habitat. It is for this reason that urban parks were considered as the study

sites for this survey. The attitudes and behaviour of people towards urban wildlife found around their homes and at parks can then both be assessed.

Due to limited resources, it was not possible to interview people from all parks within the Quebec City region. The following factors were taken into account in the choice of the four parks that would become the study sites. Parks chosen had to be:

- considered as important and/or attractive by the residents of the region; this can be shown by a rather high visitation rate. Such parks are usually frequented at various times of the day so that precious interviewing time is not lost waiting for potential respondents.
- relatively large in area and of diverse vegetational nature so as to possess a resident wildlife population.
- representative of one or several socio-economic classes. This was necessary so as not to bias for certain socio-economic classes.

Neighbourhood parks were omitted as potential study sites because they are small, have relatively few visitors (children mainly at after-school hours), possess little wildlife habitat and thus few wildlife species.

Quebec City is known to attract many tourists. Therefore, another factor to consider is the origin of park visitors (tourists versus residents of the Quebec City



region). Since this survey deals specifically with the opinion of residents of the Quebec City region, the green space associated with the Aquarium of Quebec was not chosen as a study site because the majority of its visitors are tourists.

The four following parks were thus chosen: the National Battlefields Park, the 'Base de Plein Air', the Bois de Coulange and the Park Cartier-Brébeuf. A description of each park, including the wildlife resource present, can be found in Appendix B.

The characteristics of the four parks that made them particularly appropriate for this study will now be discussed. All four parks considered show a high visitation rate when compared to any of the smaller neighbourhood parks in the Quebec City region.

The combination of parks studied permitted the researcher to obtain a good representation of the socio-economic classes of the Quebec City region. The Bois de Coulange was highly visited by the upper middle and high income classes. The park Cartier-Brébeuf, located in Limoilou, one of the poorer districts of Quebec City, has numerous visitors of the lower income class. The 'Base de Plein Air' and the National Battlefields receive a mix of visitors from all socio-economic classes. This is general knowledge to several residents of the Quebec City region. However, the survey results may be used to confirm some socio-economic differences between parks.

Since education, labour force participation and occupation can reflect socio-economic status, survey results for these variables will now be examined (Tables 4.1 to 4.3).

Table 4.1  
Education of Respondents from each  
of the four Parks

<u>Park</u>	<u>Education Level</u>		
	<u>High school or less (%)</u>	<u>Post-secondary non-university (%)</u>	<u>Some university or university degree (%)</u>
National Battlefields	54%	20%	26%
Bois de Coulange	31	25	44
Cartier- Brébeuf	71	20	9
Base de Plein Air	60%	24%	16%

Table 4.2  
Labour Force Participation of Respondents  
from each of the four Parks

<u>Park</u>	<u>Labour Force Participation*</u>	
	<u>Employed and Self-employed (%)</u>	<u>Unemployed (%)</u>
National Battlefields	53%	8%
Bois de Coulange	57	6
Cartier-Brébeuf	37	21
Base de Plein Air	50%	4%

\* The percentages do not total 100% because the categories retired, housewives and students have been omitted from this table.

Table 4.3

Occupation of Respondents from  
each of the four Parks

<u>Park</u>	Occupational	Categories*
	<u>1 (%)</u>	<u>2,3,4,6,7 (%)</u>
National Battlefields	43%	57%
Bois de Coulonge	67	33
Cartier-Brébeuf	39	61
Base de Plein Air	42%	58%

\* The occupational categories are as follows:

- 1: Managerial, administrative and professional
- 2: Clerical, sales and service
- 3: Primary
- 4: Processing
- 6: Transportation-related
- 7: Materials handling, crafts and other.

The high percentage of respondents with university education (44%) and the large percentage of respondents of the managerial, administrative and professional occupational category (67%) confirm that the Bois de Coulonge is greatly visited by people from the upper socio-economic classes. By contrast, visitors to the park Cartier-Brébeuf are of the lowest socio-economic class of the four parks considered: almost three-quarters of its visitors are of the high school (or less than high school) educational level and a substantial proportion (21%) of its visitors are unemployed.

Wildlife populations vary from one park to another. Wildlife viewing opportunities also vary from park to park. While the 'Base de Plein Air' always possesses some of

the wildlife species usually enjoyed in a rural setting, the birdwatcher at the park Cartier-Brébeuf would have to be satisfied with sparrows and ring-billed gulls.

Although visitation statistics are not available for the National Battlefields Park, this park is known to receive the highest visitation among all other parks of the Quebec City region. For this reason and the wildlife-viewing possibilities, the largest proportion of the 400 interviews was allotted to this park. The smallest proportion of interviews is set for the park Cartier-Brébeuf because of its size and the limited amount of wildlife present.<sup>16</sup> A quarter of the 400 interviews were to be carried out in the 'Base de Plein Air' because of the natural setting of the park and the great possibilities of viewing wildlife. The Bois de Coulange was particularly important for its visitors of the upper socio-economic class as well as for the presence of wildlife species.

Therefore, the distribution of interviews among the four parks was as follows:<sup>17</sup>

National Battlefields Park	140
Base de Plein Air	100
Bois de Coulange	90
Cartier-Brébeuf Park	70

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<sup>16</sup> Although there is a limited amount of wildlife present in the park Cartier-Brébeuf, it is still important to discover the attitudes and behaviour of visitors towards the wildlife seen in that park.

<sup>17</sup> Please refer to Chapter 3 (pp. 41-42) for the actual number of interviews obtained at each park.

## Chapter 5

### RESULTS AND DISCUSSION

The results from the survey will be presented and discussed in the following sections:

- sample characteristics,
- wildlife as a reason for visiting urban parks,
- behaviour towards urban wildlife, and
- attitudes toward urban wildlife.

#### Sample Characteristics

The following sample characteristics of residents of the Quebec City region who are also visitors to urban parks were obtained: age, sex, marital status, type of dwelling, education, labour force participation and occupation. Demographic comparisons between sample characteristics and Quebec's CMA<sup>18</sup> follow to determine the differences between the park visitor population and Quebec's CMA.

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<sup>18</sup> A Census Metropolitan Area (CMA) is defined as "the main labour market area of an urbanized core(...) having 100,000 or more population. CMAs are created by Statistics Canada and are usually known by the name of their largest city. . . .CMAs are comprised of (1) municipalities completely or partly inside the urbanized core, and (2) other municipalities, if (a) at least 40% of the employed labour force living in the municipality works in the urbanized core, or (b) at least 25% of the employed labour force working in the municipality lives in the urbanized core."

Age

Respondents revealed their age within five-year intervals between ten and seventy years; "under ten years" and "over 70 years" were also age categories. Certain categories are collapsed to facilitate comparisons with the Census data (Table 5.1). The age distribution of the park visitor population seems to differ from that of the population of the Quebec Census Metropolitan Area (Statistics Canada, 1978) (Table 5.1).

Table 5.1  
Age of Park Respondents and  
Quebec's CMA.

Age Category	Park Respondents* (%)	Quebec CMA+ (%)
0- 4 y	} 3%	7.3%
5- 9 y		7.5
10-14 y		9.2
15-19 y		10.0
20-24 y		10.4
25-24 y	31	18.2
35-44 y	10	11.8
45-54 y	8	10.5
55-64 y	5	7.9
65-69 y	2	2.8
70 and over	2%	4.4%

\* N = 402

+ Source: Statistics Canada, 1978

Fifty per cent of urban park respondents are between the ages of 20 to 34 years old while this group represents less than 30% of the population of the Quebec Census Metropolitan Area (CMA). People under the age of

fifteen and above the age of 35 are underrepresented in urban parks.<sup>19</sup>

### Sex

The number of male and female park respondents was almost equal: 51% males and 49% females. Except for the slight prevalence of males in urban parks, the sex ratio is close to that of Quebec's CMA (in 1976, there were 48.3% males and 51.7% females).

### Marital Status

There appears to exist a marked difference in the marital status of Quebec City region's urban park respondents and the population of Quebec's CMA (Table 5.2). A greater percentage of single people (61%) visit urban parks than what is found in the Quebec City region (49.9%). Married people do not seem to visit parks in proportion to their number reflected in the 1976 Census.

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<sup>19</sup>The low percentage of park respondents under the age of ten is partly accounted for by the fact that park visitors less than five years of age were not interviewed. It may also be speculated that adolescents between the ages of ten and fourteen may not always have the permission to visit urban parks as they might desire.

Table 5.2

Marital Status of Park Respondents  
and Quebec's CMA

Marital Status	Park Respondents <sup>*</sup> (%)	Quebec CMA <sup>+</sup> (%)
Single	61%	49.9%
Married	33	45.1
Other	6%	5.0%

\* N = 402

+ Source: Statistics Canada, 1978.

### Type of Dwelling

Statistics Canada (1978) reports that 52.3% of Quebec's CMA live in houses (single-detached, single-attached, duplex, movable) and that 47.7% live in apartments. The opposite trend is found among park respondents: people living in apartments visit urban parks more (55%) than people living in houses (45%).

### Education

Table 5.3 shows the level of education obtained by respondents. These results can be compared with the 1971 Census of Canada which considered the educational levels attained of Quebec's metropolitan area's population of five years and over.<sup>20</sup>

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<sup>20</sup>The 1976 Census does not allow for complete comparisons due to the exclusion of the population under fifteen years of age in their education statistics. In this study, all respondents, including students under fifteen years of age, have stated the level of education that had been attained.



Table 5.3

Education of Respondents and of  
Quebec's CMA

Category	Respondents* (%)	Category	Quebec's CMA <sup>+</sup> (%)
Less than high school	24%	Less than Grade 11	67.0%
High school	29	Grade 11	11.3
Technical school	5	Grades 12-13	12.6
CEGEP	17	Some university	4.2
Some university	9	University degree	4.9%
University graduate	15%		

\* N = 402. The percentages do not total 100% due to rounding.

+ Source: Statistics Canada, 1974.

It appears that the average park visitor has received more education than the average person of Quebec's CMA: 24% of the respondents possess some university education or at least one university degree whereas only nine per cent of Quebec's CMA are in these two categories. If technical school and CEGEP are equated with post-secondary non-university education (Grades 12-13), 22% of the respondents have post-secondary non-university education compared with 12.6% in Quebec's CMA. Thus, urban parks attract greater proportions of visitors from the higher levels of schooling than the proportions existing in the Quebec CMA.

Labour Force Participation

Tables 5.4 and 5.5 respectively reveal the labour force participation of Quebec's CMA. Calculations using the 1976 Census Statistics were necessary to create a common basis for comparison of the study results and the census material.

Table 5.4

Labour Force Participation Among Quebec's  
Urban Park Respondents (N=402)

Category	Respondents* (%)
Employed	46%
Self-employed	4
Retired	6
Housewife	11
Student	25
Unemployed	9%

\* The percentages do not total 100% due to rounding.

Table 5.5  
Labour Force Participation in  
Quebec's CMA\*

Category	% of Quebec CMA
Employed	40.9%
Unemployed	3.3
Students	32.8 <sup>+</sup>
Females, housewives or retired	19.0 <sup>**</sup>
Males, retired	4.1% <sup>++</sup>

\* Based on Statistics Canada, 1978.

+ Assuming all those under 15 years of age attend school full time.

\*\* Obtained by subtracting the number of females in the labour force and the number of females attending school full time from the total number of females over 15 years of age.

++ Same procedure as for females.

If the categories of employed and self-employed are combined as well as the categories of retired and housewives, the following statistics can be derived (Table 5.6):

Table 5.6

Comparative Labour Force Participation of Quebec's  
Park Respondents and Quebec's CMA\*

Labour Force Participation Category	Respondents <sup>+</sup> (%)	Quebec CMA (%)
Employed	50%	40.9%
Unemployed	9	3.3
Students	25	32.8
Retired & housewives	17%	23.1%

\* based on Tables 5.4 and 5.5.

+ N = 402. The percentages do not total 100% due to rounding.

Half of the visitors to urban parks are employed (Table 5.6). Students comprise one quarter of park respondents. The proportions of those involved in the labour force (employed and unemployed) that visit urban parks (a total of 59%) seem larger than their proportions held within the Quebec CMA (a total of 44.2%). Students, retired people and housewives were underrepresented among visitors of the urban parks examined. Assuming that people under the age of 15 are students, the number of students under 15 years old is underrepresented in urban parks for reasons mentioned previously (24% and 11% of Quebec's CMA and urban parks respectively) whereas students over the age of 15 are overrepresented in urban parks since they account for 14% of urban park visitors but for only 8.8% of Quebec's CMA.<sup>21</sup>

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<sup>21</sup>Values derived using Tables 5.1, 5.4, 5.5 and Statistics Canada, 1978.

### Occupation

Respondents that were employed or self-employed were asked to give their occupation or profession. This was the case for 202 respondents. The distribution of occupations among park visitors is presented in Table 5.7. For purposes of comparison, the 1971 Census of Canada possesses statistics on occupation for the Quebec City region (see Table 5.7).

Close to half of the employed park visitors have managerial, administrative or professional occupations (Table 5.7). This occupational category is greatly over-represented among park visitors. All other occupational categories, with the exception of primary occupations, are slightly underrepresented among park visitors.

Table 5.7

#### Occupation of Quebec's Park Respondents and Quebec CMA

Occupational Category	Respondents(%)*	Quebec CMA(%) <sup>+</sup>
Managerial, Administration & Professional	48%	18.0%
Clerical, Sales & Service	40	42.2
Primary Occupations	2	0.9
Processing	6	9.6
Construction	-	5.9
Transportation	2	3.2
Material Handling, Crafts and Other	3%	4.4%

\* N = 202. The percentages do not total 100% due to rounding.

+ Values derived from the 1971 Census of Canada (Statistics Canada, 1974). Note that 84.2% (not 100%) of occupations are represented here.

### Personal Characteristics

Respondents were asked whether they visited other city parks and parks outside the city and, if so, the relative frequency of visits. The majority of respondents occasionally or often visit other urban parks (57%) and rarely or never visit parks outside the city (61%) (Table 5.8).

Table 5.8  
Visitation of Other Parks (N=402)

Parks	Occasionally and often (%)	Rarely and no (%)
Within the city	57%	43%
Outside the city	39%	61%

### Summary

Assuming that the sample is representative of all visitors to the four parks studied, the demographic and housing sample characteristics show that Quebec City's population of urban park visitors is indeed different from that of Quebec's Census Metropolitan Area. The majority of urban park visitors of Quebec's CMA are between the ages of 15 to 34 (62%), are single (61%), and live in apartments (55%). Half of the park visitors are employed, of which the large majority (88%) belong to two occupational categories (managerial, administrative, professional; and clerical, sales and service occupations). The average park visitor is more educated than the average

Quebec CMA resident. The majority (61%) of urban park visitors rarely or never visit parks outside the city.

Wildlife as a Reason for Visiting  
Urban Parks

In order to determine the relative importance wildlife holds as a reason for visiting urban parks, respondents were asked to list their reasons for visiting the particular park they were found in. Respondents would afterwards rate these reasons according to a Likert scale from "very important" to "of very little importance".<sup>22</sup> Table 5.9 presents the relative importance of the reasons given for visiting urban parks. Additional reasons for visiting urban parks were mentioned between one and five times and were grouped into the category "other". They are:

- to walk the dog or cat,
- "nothing else to do",
- for work,
- the park is a source of inspiration,

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<sup>22</sup> Please refer to the first page of the questionnaire (Appendix A). The reasons Nos. 1 to 14 were considered the most probable reasons to be mentioned according to government officials, academics and the two pretests; these reasons were typed on the questionnaire to decrease interviewing time. Please note that the reasons "solitude" and "do not know" were replaced by the reasons "to watch people" and "a preference for the particular park" because the solitude reason was rarely mentioned and the second reason was never mentioned. Picnics were included in social activities instead of eating.

Table 5.9

Relative Importance of Reasons Given  
for Visiting Urban Parks

Reason	N	Very Important (%)	Important (%)	Of moderate Importance (%)	Of little Importance (%)	Of very little Importance (%)
Nice, pleasant	159	52%	36%	11%	1%	1%
Peaceful for people	148	61	26	12	1	-
Recreational activity	123	45	29	16	9	1
Green space	99	72	18	9	-	-
Nature	88	73	18	9	-	-
Outdoors, fresh air, sunshine	88	57	28	13	2	-
Relaxation	84	50	40	5	-	-
Closeby	64	38	34	23	3	2
Social activity	40	30	35	23	7	5
To see the place	28	29	46	25	-	-
Eating	20	25	55	15	5	-
Wildlife	12	75	25	-	-	-
To watch people	12	50	17	25	8	-
Preference for the particular park	5	40	40	20	-	-
Other	47	47%	38%	6%	9%	-



- to make a change,
- to be alone,
- not expensive,
- for personal satisfaction,
- because it is Saturday.

An importance index for each reason is created by multiplying the importance value (either 5, 4, 3, 2 or 1) by the number of times an importance value was given for a particular reason.<sup>23</sup> Using this importance index, the various reasons can now be ranked from the most important to the least important (Table 5.10).<sup>24</sup> The reasons named as "peaceful", few people" and "relaxation" complement each other and are combined as one reason in Table 5.10; the reasons "green space" and "outdoors, fresh air, sunshine" are also combined. Wildlife was given as one of the least important reasons for visiting urban parks.

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<sup>23</sup>This procedure is a form of weighting. Let us use the reason "nice, pleasant" as an example of an importance index:  $(82 \text{ respondents} \times 5) + (58 \times 4) + (17 \times 3) + (1 \times 2) + (1 \times 1) = 696$ .

<sup>24</sup>Reasons from the "other" category are not considered.

Table 5.10

Ranking of Reasons for Visiting Urban Parks,  
Based on Importance Indices

Reason	Importance Index
Peaceful, few people, relaxation	1,039
Outdoors, fresh air, sunshine & green space	843
Nice, pleasant	696
Recreational activity	502
Nature	408
Closeby	257
Social activity	151
To see the place	113
Eating	80
Wildlife	54
To watch people	48
Preference for the particular park	19

All respondents were asked to value the relative importance of fresh air, sunshine, greenery, nature and wildlife as reasons for visiting the park they were found in. The same Likert scale (from "very important" to "of very little importance") was used with the added option of answering "not a reason" (equals 0) (Table 5.11).<sup>25</sup> The opinion of all respondents concerning some outdoor features of parks would be discovered with these questions, starting with the more general (such as sunshine and fresh air) to the more specific (wildlife). These questions would also provide a countercheck for the results obtained with the importance indices of Table 5.10.

The mean importance of wildlife in Table 5.11 can

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<sup>25</sup>Please refer to questions 16, 17 and 18 of the questionnaire (Appendix A). Sunshine, greenery and fresh air were combined into one question.

Table 5.11

Relative Importance of Fresh Air, Sunshine, Greenery, Nature  
and Wildlife as Reasons for Visiting Urban Parks\*

Reason	Very Important (%)	Important (%)	Of moderate Importance (%)	Of little Importance (%)	Of very little Importance (%)	Not a Reason (%)	Mean +
Fresh air, sun- shine and greenery	62%	28%	8%	1%	-	1%	4.48
Nature	41	30	14	3	1	11	3.74
Wildlife	12%	10%	14%	8%	2%	54%	1.60

\*: N = 402

+: on a scale of 0-5

be compared with its ranking by importance indices in Table 5.10. Wildlife's mean importance is 1.6 in Table 5.11: this represents a low value on a scale of 0-5. The two methods of obtaining the opinion of park visitors indicate that wildlife ranks far below fresh air, sunshine, greenery and nature as a reason for visiting urban parks. It is probable that wildlife's mean importance of 1.6 possesses an upward bias because respondents knew that the survey dealt with wildlife; this consideration would enlarge the gap between wildlife and the other reasons mentioned.

Although wildlife is not a primary reason for visiting urban parks, there are indications that wildlife adds enjoyment to the park visit. The high ranking of the reason "nice, pleasant" suggests that parks possess several amenities, many of which are not easily identified by respondents. For example, the acrobatics of the squirrel or the call of a songbird probably add to the overall enjoyment of the park but are seldom stated as reasons for visiting urban parks. Nature also scores high as a reason for visiting parks and since wildlife is usually considered a component of nature, wildlife may also add to the park experience. The behaviour and attitudes towards wildlife in urban parks to be examined in the following sections will further assess the importance wildlife may hold in the park visit.

Behaviour Towards Urban Wildlife

The behaviour of Quebec City's park visitors towards wildlife in urban parks and around the home was assessed by participation in the following wildlife-related activities: photography, painting or drawing, observation and feeding. The expenditures incurred for bird food and the possession of some wildlife-enhancing structures (birdhouses, bird feeders) were also determined.

The results indicate that 86% of the respondents have observed wildlife either in an urban park or around home, 20% have photographed wildlife at these urban areas and 15% have painted or drawn some wildlife species either in the park or at home (Table 5.12).

Table 5.12  
Wildlife-related Activities\* at Urban Parks  
or at Home (N=402)

Activity	Yes(%)	No(%)
Photography	20%	80%
Painting or drawing	15	85
Observation	86%	14%

\* with the exception of feeding

One-tenth of the respondents have fed birds, and six per cent have fed squirrels or chipmunks at some time or another in at least one of Quebec City's urban parks (Table 5.13).

Table 5.13

## Feeding of Wildlife in Urban Parks (N=402)

Wildlife Group	Yes(%)	No(%)
Birds	10%*	90%
Squirrels and Chipmunks	6%	94%

\* includes often, occasionally and rarely

Feeding of wildlife species around homes is very popular (Table 5.14). Almost two-thirds (65%) of the respondents fed birds and one out of five respondents fed squirrels or chipmunks around homes.

Table 5.14

## Feeding of Wildlife Around Homes (N=402)

Wildlife group	Yes(%)	No(%)
Birds	65%	35%
Squirrels and Chipmunks	21%	79%

Among those who fed birds around homes, bread alone was the prevalent kind of food given to birds (72%). However, seeds, other foods and combinations of these were also fed to birds around homes (Table 5.15). Fourteen per cent of the respondents have fed birds with seeds. A list and frequency of the other foods given to birds is presented in Table 5.16.

Table 5.15

Kinds of Food Given to Birds  
Around Homes (N=261)

Kind(s) of Food	Respondents* (%)
Bread only	72%
Seeds only	1
Other only	-
Bread and other	13
Seeds and other	10
Bread, seeds and other	3%

\*: Percentages do not total 100% due to rounding.

Table 5.16

Other Foods Given to Birds  
Around Homes (N=261)

Food	No. of Respondents
Lard or fats	17
Cookies	14
Cake	4
Cereals	3
Water	3
Leftovers	2
French fries	2
Peanut butter	1
Popcorn	1
Noodles	1
Restaurant garbage	1
Oats and rye	1

Although 42% of those who fed birds around home did so all year round, the number of seasons for feeding birds greatly varied among the remaining 58% (Table 5.17). Twenty-eight per cent of the respondents feeding birds around home would do so during three of the four seasons of the year, 11% would feed birds in two seasons of the

year and 20% would feed birds for only one season of the year.

Table 5.17

Periods of the Year in Feeding Birds  
Around Homes (N=261)

Periods of the Year	Respondents* (%)
The four seasons	42%
Spring, summer, fall	19
Winter, spring, fall	9
Spring and summer	11
Summer only	12
Winter only	7
Spring only	1%

\* Percentages do not total 100% due to rounding.

A regrouping of the absolute frequency data obtained for Table 5.17 yields the amount of bird feeding occurring at each season of the year (Table 5.18). The spring and summer months are the most popular times of year for bird feeding.

Table 5.18

Bird Feeding Around Homes at Each  
Season of the Year (N=261)

Season	Respondents* (%)
Winter	20%
Spring	28
Summer	29
Fall	24%

\* Percentages do not total 100% due to rounding.



The frequency of wild bird feeding varies from a few times a year to each day of the year (Table 5.19). Sixty-six per cent of those who fed birds around home (or forty-three per cent of all respondents) have fed birds at least a few times a week if not on a daily basis.

Table 5.19

Wild Bird Feeding Frequency  
Around Homes (N=261)

Frequency	Respondents* (%)
A few times a year	8%
A few times a month	25
A few times a week	33
Each day	33%

\* Percentages do not total 100% due to rounding.

Respondents who fed birds at home were asked to estimate their yearly expenditures on bird food. The majority (75%) considered that there were no actual expenditures involved because they would give birds bread crusts or some other kind of leftovers (Table 5.20). In addition to the expenditure category of "leftovers", three other categories were formed at the end of the survey: \$0.01 to \$10.00, between \$10.01 and \$40.00 and lastly, between \$40.01 and \$100.00. There were no respondents reporting expenditures over the \$100.00 mark. Eighteen per cent of the respondents who fed birds (or twelve per cent of all respondents) spent up to \$10.00 annually on bird food. If the medians of each expenditure

category (\$5.00, \$25.00 and \$70.00) are multiplied by the number of respondents in each category, then 402 park visitors spent \$850.00 on bird food alone in a one-year period. This represents an average spending of \$2.11 for bird food.

Table 5.20

Annual Expenditures on Bird Food (N=261)	
Expenditure Category	Respondents (%)
Leftovers	75%
\$0.01 - \$10.00	18
\$10.01 - \$40.00	6
\$40.01 - \$100.00	1%

The ownership of wildlife-enhancing structures around respondents' homes was also assessed (Table 5.21). Sixteen per cent and eight per cent of all respondents respectively possessed birdhouses and bird feeders around their homes.

Table 5.21

Ownership of Wildlife-enhancing Structures Around Homes (N=402)		
Wildlife-enhancing Structure	Yes(%)	No(%)
Birdhouses	16%	84%
Bird feeders	8%	92%

Participation in wildlife-related activities in urban areas is an indication of the interest in urban wildlife species. The interest in urban wildlife in the

Quebec City region must be very high since 86% of the respondents have observed wildlife in urban parks or around homes and 20% have photographed wildlife species in the Quebec City region. The results for urban wildlife photography are consistent with those found by Brown and Dawson (1978) where they reported 18% of the respondents participated in wildlife photography; urban and suburban parks were found to play an important role for wildlife photography in urban areas, with 21% of wildlife photography days spent in parks. The percentage of respondents involved in wildlife observation is higher in this study than in Brown and Dawson's (1978) probably due to different definitions of wildlife observation. Brown and Dawson defined wildlife observation as an activity in which the respondent planned to seek out and observe wildlife. This study includes sightings that catch one's attention in addition to the "sought out" wildlife observation.

Wildlife species found around homes must have a special meaning to residents if so many people are involved in feeding them: close to two-thirds of Quebec's park respondents have fed birds around their homes and over one-fifth of the respondents have fed squirrels or chipmunks. Various levels of wildlife feeding are given in different studies dealing with urban wildlife:

- Dagg, in her 1970 Waterloo study, found that 63% of the respondents fed birds;

- Cauley's (1974) survey reveals that 80% of respondents placed food for wildlife at some time of the year;
- DeGraaf and Thomas (1974b) have found that 43% of Amherst residents fed birds and they also report results from four United States cities where bird feeding varied between 15.1% and 24.7%.

The results are in agreement with Dagg's (1970) findings if bird feeding is considered as well as with Cauley's results if both bird and squirrel (and chipmunk) feeding are considered. Wild bird feeding seems to be more popular among Quebec City's residents than it is in most United States cities; this may be due to the colder climate in Canada and the desire of Canadian residents to keep some of their feathered friends in their vicinity during the long winter months.

Some attachment to wild birds must exist since 27% of all respondents (or 42% of those who fed birds) fed birds throughout the whole year and 43% of all respondents fed birds a few times a week or on a daily basis. Birds around the home must be considered as friends of the family if we try to account for the great variety of other foods (cookies, cakes, etc.) given to birds (Table 5.16). Indeed, 50 respondents or 12% of park visitors fed birds at home with food other than bread or seeds. It is

as DeGraaf and Thomas (1974b, p. 45) have put it:

Those people who feed birds often make them an intimate part of their lives by placing feeders where the birds can be seen, watched carefully, and appreciated at leisure. Even the more common species appear more colorful and interesting when viewed close up.

The relative importance of the seasons involved in wild bird feeding differ from those mentioned in the literature. Whereas the majority of Amherst respondents fed birds in the winter months (DeGraaf and Thomas, 1974b), bird feeding in the Quebec City region seemed to be well distributed among the four seasons of the year, with the spring and summer being predominant (Table 5.18). Considering individual bird feeding habits, 42% of those who fed birds around home did so all year round but the number of seasons in the year involved in bird feeding greatly varied among the remaining 58%, from periods of three seasons to a period of only one season (Table 5.17). The great variability in bird feeding periods of the year reflects either the various levels of knowledge about wild birds, differences in personal habits (e.g. certain people go out very little in the wintertime), various levels of attachment to wild birds, or combinations of these traits.

The possession of bird feeders and birdhouses indicates certain expenditures of time and/or money on behalf of the respondents. Sixteen per cent of respondents own birdhouses around their homes and eight per cent own

bird feeders in order to attract and enjoy various urban birds. It is interesting to note that the number of people who feed seeds to birds (30 respondents) and the number of those who own bird feeders (31 respondents) are almost equal. The proportion of Quebec City's park visitors owning birdhouses is higher than the proportion of New Yorkers owning birdhouses (Brown and Dawson, 1978) (16% and 11% respectively). However, New Yorkers seem to own far more bird feeders than Quebec City's park visitors (34% and eight per cent respectively).

Feeding birds with bird seed seems more prevalent in the United States than in the Quebec City region. DeGraaf and Payne (1975) report a Boston study where 24% of the households fed birds and purchased an average of seventy pounds of bird seed per year. Two other studies they mention show that one-third of Massachusetts residents bought an average of 60 pounds of bird seed per year and that one-third of Maine households buy an average of 125 pounds of seed per year; this last study was however biased in favour of persons interested in birds. Brown and Dawson (1978) noted that the variation in maintenance of wildlife-habitat improvements is associated with the area of residence so that this may partly account for the large difference in ownership of bird feeders. Ownership of bird feeders in the Quebec City region may be lower than that in the United States firstly, because Quebec City residents are accustomed to

or prefer feeding birds with bread instead of seeds and secondly, because the area of residence, i.e. the high percentage of apartment dwellers among park visitors, does not allow for several types of bird feeders.

Interest in birds may also be expressed by expenditures on bird food. The approximate average of \$2.11 spent annually on bird food per park visitor can amount to a substantial sum of money spent on bird food if this \$2.11 is multiplied by the total number of urban park visitors of the Quebec CMA. Since this value is not available, total expenditures on bird food in the Quebec CMA can be estimated by hypothesising a certain rate of visitation to Quebec's City's urban parks. If one-third of Quebec's CMA (population of 542,158 in 1976) visits Quebec's urban parks, a total of \$380,937 would have been spent on bird food in 1978. If half of Quebec's CMA is thought to visit urban parks, then \$571,977 would have been spent on bird food alone! These figures are not surprising when compared with DeGraaf and Payne's (1975) estimation of United States expenditures of bird seed which amounted to \$170 million or 34% of the \$500 million spent in 1974 towards the enjoyment of non-game wildlife.

Attitudes Towards Urban Wildlife

The attitudes towards wildlife species seen in the study parks and seen around homes were assessed. The portion of the interview covering attitudes towards urban wildlife would begin by asking respondents if they had noticed any wildlife species in the park; if yes, respondents were asked to name the species they had seen or heard in the park. Respondents were afterwards asked to name the wildlife species they had noticed around their homes. The interview then proceeded with a list of relatively common and familiar wildlife species of the region:<sup>26</sup> eight avian species,<sup>27</sup> five mammalian species and reptiles and amphibians, simply classified as frogs, toads or snakes. Respondents were asked to indicate if they had seen the species in the park and asked to name any other birds and mammals they might have seen. For each sighting, liking or disliking of a species was stated in terms of "like very much" (8), "like a little" (6), "indifferent to" (4), "dislike a little" (2), "don't like

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<sup>26</sup>Based on the author's personal observation and on guidance from the staff of the Canadian Wildlife Service of the Quebec Region.

<sup>27</sup>Within the eight avian species listed, two are actually groups of birds such as blackbirds (starlings, grackles, redwinged blackbirds, cowbirds) and winter birds, including any bird seen in the wintertime besides for the species already listed. Familiar examples of winter birds in the Quebec City region are evening grosbeaks, black-capped chickadees and blue jays.



at all" (0) or "like and don't like" (4).<sup>28</sup> Respondents were also requested to explain their reasons for liking or disliking the species. The same procedure was applied concerning wildlife species around homes.

Out of 398 respondents, 71% reported having noticed wildlife in the park they were visiting; 29% (114) said they had not seen or heard any wildlife in the park.<sup>29</sup>

Wildlife species that were named by the respondent before the interviewer listed the various wildlife species on the interview schedule are considered "spontaneously named wildlife species". Birds and mammals that are named and not found within the list of wildlife species are placed in the "other" category and are also considered spontaneously named. The number (in absolute and relative terms) of spontaneously named wildlife species that were seen in urban parks and around homes is presented in Table 5.22 and Table 5.23 respectively. According to the definition of "spontaneously named wildlife species", 100% of the other birds or other mammals mentioned are spontaneously named. The relative percentage of spontaneously named species varies from 100% to 0%

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<sup>28</sup> Some respondents would like a certain wildlife species for a certain reason and dislike it for another reason and this is what is meant by the expression "like and don't like".

<sup>29</sup> Four of the answers to this question were neglected to be recorded.

Table 5.22  
Spontaneously named wildlife species  
(or groups) seen in parks

Wildlife species or groups	N	Number sponta- neously named	% of N sponta- neously named
Other birds*	48	48	100%
Seagulls	173	82	47
Robins	120	44	37
Sparrows	231	79	34
Swallows	139	45	32
Crows	158	48	30
Blackbirds	182	46	25
Pigeons	75	13	17
Winter birds	19	2	11
Other mammals*	8	8	100
Groundhogs	34	17	50
Squirrels	171	80	47
Chipmunks	92	31	34
Skunks	7	2	29
Bats	46	5	11
Frogs	44	10	23
Snakes	14	3	21
Toads	32	5	16%

\*: Other birds and other mammals are 100% spontaneously named since they are not listed in the interview schedule.

Table 5.23

Spontaneously named wildlife species  
(or groups) seen around homes

Wildlife species or groups	N	Number sponta- neously named	% of N sponta- neously named
Other birds*	75	75	100%
Sparrows	337	205	61
Robins	188	88	47
Pigeons	90	39	43
Crows	191	71	37
Blackbirds	225	70	31
Swallows	177	53	30
Seagulls	86	20	23
Winter birds	13	0	0
Other mammals*	27	27	100
Squirrels	99	65	66
Groundhogs	30	16	33
Skunks	15	5	33
Chipmunks	49	16	33
Bats	57	6	11
Snakes	18	4	22
Frogs	33	6	18
Toads	42	4	10%

\*: Other birds and other mammals are 100% spontaneously named since they are not listed in the interview schedule.

(Tables 5.22 and 5.23). Note that the higher percentage of spontaneously named wildlife species are found among the species that are seen around homes (Table 5.23). Thus 66% of the squirrels and 61% of the sparrows seen around homes were spontaneously named. The percentage of spontaneously named wildlife species in parks does not exceed 50% (Table 5.22).

In addition to the wildlife species listed in the questionnaire, respondents have reported seeing 21 avian species and ten groups of birds (Table 5.24) as well as six mammalian species and four groups of mammals (Table 5.25) in urban parks or at home. The number of sightings of wildlife species or groups is also presented in Tables 5.24 and 5.25.

Table 5.25

Sightings of Other Mammals in Parks  
or at Home, in Decreasing Order

Mammalian Species or Group	Sightings
Meadow voles	12
Muskrats	8
Raccoons	7
Foxes	2
Bears	2
Rabbits	2
Rodents	2
Ungulates	1
Weasels	1
Shrews	1

The number of respondents (N) having sighted each wildlife species (or wildlife group) can be used to

Table 5.24

Sightings of Other Birds in Parks or at Home,  
in Decreasing Order

<u>Wildlife species or group</u>	<u>Sightings</u>
Woodpeckers	18*
Evening grosbeaks	15
Warblers	14
Blue Jays	14
Goldfinches	12
Hummingbirds	8
Ducks	7
Sparrows	7
Cedar Waxwings	6
Owls	6
Grouse	6
White-throated sparrows	5
Black-capped chickadees	4
Cardinals	4
Whip-poor-wills	4
Killdeer	4
Pine Grosbeaks	3
Snow Geese	3
Canaries +	3
Hawks	2
Great Blue Herons	2
Snow Buntings	2
Bobolinks	2
Slate-colored juncos	2
Snipes	2
Horned Larks	2
Canada Goose	1
Loons	1
Kingfishers	1
Red-breasted nuthatches	1
Orioles	1

\*: 3 of the woodpecker sightings were yellow-shafted flickers and 2 of the sightings were downy woodpeckers

+: these respondents used the term canaries ('serins') when referring to warblers or goldfinches.

derive the abundance of various wildlife species in the city. The relative sighting frequency of wildlife species by respondents will demonstrate this more clearly (Figure 5.1). Thus house sparrows are the most commonly seen species, both in parks and at home, because they are probably the most ubiquitous of all urban wildlife species. Subsequently, blackbirds, seagulls, squirrels and crows were the next numerous sightings in parks. Around the home, as in parks, blackbirds consist of the second most common wildlife species seen; crows, robins and swallows follow blackbirds in numbers. Skunks are the least seen of all wildlife species in parks; the wildlife group least seen around homes are winter birds.

To test the accuracy of wildlife sightings, a subsample of 63 respondents were shown a card with 13 wildlife species. Only seven respondents (11% of the subsample) made one, two or three mistakes in the identification of the 13 species. This represents an error of approximately three per cent in the results concerning wildlife species.

When a respondent reported having seen a certain wildlife species (either in the park or at home), the respondent would then disclose the affect (liking/disliking) for that species. These results are presented in Tables 5.26 and 5.27. The mean responses for each species gives an indication of park visitors' mean affect for each species; these means will therefore be called

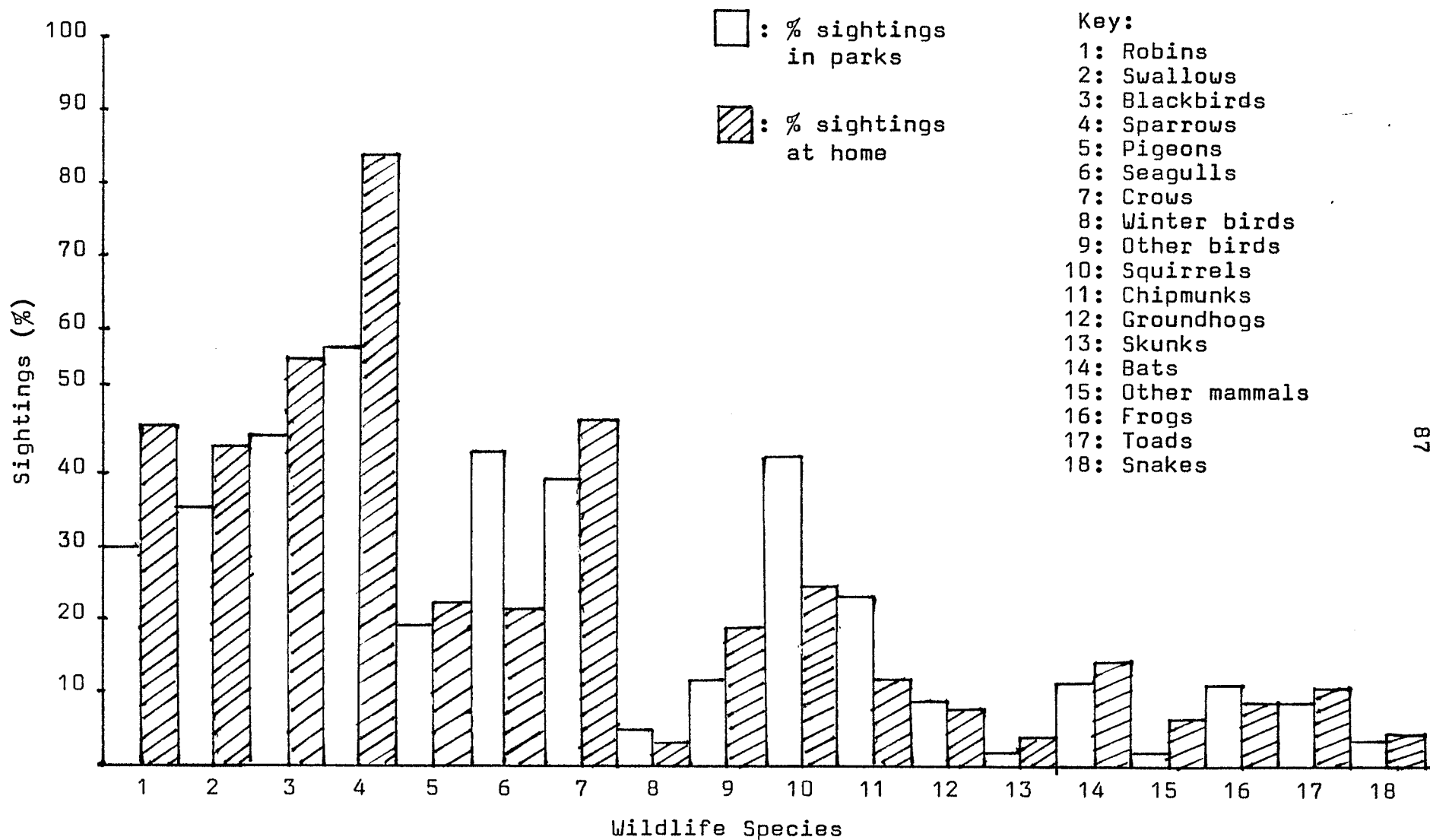


Figure 5.1  
Relative Sighting Frequency Histogram of Wildlife Species in Parks and at Home.

Table 5.26

## Liking - Disliking of Wildlife Species (or Groups) in Parks\*

Wildlife Species or Group	N	Like very much (%)	Like a little (%)	Indifferent or like & don't like (%)	Dislike a little (%)	Do not like at all (%)	Mean (Liking Index)
Robins	120	72%	20%	7%	1%	1%	7.26
Swallows	139	73	21	6	-	-	7.34
Blackbirds	182	30	28	22	14	6	5.24
Sparrows	231	39	33	21	4	3	6.02
Pigeons	75	61	21	8	8	1	6.62
Seagulls	173	72	21	4	2	2	7.22
Crows	158	33	27	16	19	6	5.28
Winter birds	19	79	16	5	-	-	7.48
Other birds	48	77	10	4	4	4	7.00
Squirrels	171	92	7	1	-	-	7.82
Chipmunks	92	85	9	2	4	-	7.50
Groundhogs	34	50	18	15	9	9	5.86
Skunks	7	43	14	14	-	29	4.84
Bats	46	20	24	9	17	30	3.74
Other mammals	8	50	13	-	25	13	5.28
Frogs	44	36	18	16	5	25	4.70
Toads	32	44	13	13	9	22	5.00
Snakes	14	29%	7%	21%	14%	29%	3.86

\* Certain percentages may not total 100% due to rounding.



Table 5.27

Liking - Disliking of Wildlife Species (or Groups) around homes\*

Wildlife Species or Group	N	Like very much (%)	Like a little (%)	Indifferent or like & don't like (%)	Dislike a little (%)	Do not like at all (%)	Mean (Liking Index)
Robins	188	78%	19%	4%	-	-	7.54
Swallows	177	76	20	3	1	-	7.42
Blackbirds	225	29	25	16	16	13	4.78
Sparrows	337	42	29	21	4	5	6.02
Pigeons	90	49	24	9	7	11	5.86
Seagulls	86	74	13	8	2	2	7.06
Crows	191	28	20	20	15	17	4.54
Winter birds	13	77	15	8	-	-	7.38
Other birds	75	87	11	1	1	-	7.68
Squirrels	99	86	9	2	1	2	7.52
Chipmunks	49	84	8	6	2	-	7.48
Groundhogs	30	43	13	13	13	17	5.00
Skunks	15	20	-	13	13	53	2.38
Bats	57	9	19	19	11	42	2.84
Other mammals	27	26	22	26	4	22	4.52
Frogs	33	21	24	9	21	24	3.90
Toads	42	19	7	29	19	26	3.48
Snakes	18	17%	17%	-	22%	44%	2.82

\* Certain percentages may not total 100% due to rounding.

"liking indices". Liking indices will allow ranking of wildlife species seen in parks or around homes in order of preference, as in Table 5.28.

Examination of Table 5.28 reveals that the range of liking indices varies depending on the urban setting considered: in urban parks, liking indices range from 7.82 to 3.70; and around homes, they range from 7.68 to 2.38. The following wildlife species (or wildlife groups) are preferred, whether parks or residential areas of the city are considered (although their order will differ): squirrels, chipmunks, winter birds, swallows, robins, seagulls and "other birds".<sup>30</sup> According to their liking indices, it seems that sparrows, pigeons and groundhogs are species that are liked a little, both in parks and around homes. In parks, blackbirds, other mammals and crows also seemed liked whereas, around homes, these species' liking indices lean towards indifference (by being above four but below five). Park visitors like toads and show themselves indifferent to the last four wildlife species (or groups) in parks: skunks, frogs, snakes and bats. Park visitors are also indifferent to frogs and toads around their homes, but would prefer not to see bats, snakes or skunks in the vicinity of their

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<sup>30</sup> It is important to note that the majority of squirrels in the Quebec City region are red squirrels (Tamiasciurus hudsonicus). Grey squirrels (Sciurus carolinensis) have been introduced to the area approximately five years ago and are few in numbers.

Table 5.28

Ranking\* of Wildlife Species in Parks and at Home According to the Liking Index<sup>+</sup>

In Parks			At Home		
Liking Index	N	Species	Liking Index	N	Species
7.82	171	Squirrels	7.68	75	Other birds
7.50	92	Chipmunks	7.54	188	Robins
7.48	48	Winter birds	7.52	99	Squirrels
7.34	139	Swallows	7.48	49	Chipmunks
7.26	120	Robins	7.42	177	Swallows
7.22	173	Seagulls	7.38	13	Winter birds
7.00	48	Other birds	7.06	86	Seagulls
6.62	75	Pigeons	6.02	337	Sparrows
6.02	231	Sparrows	5.86	90	Pigeons
5.86	34	Groundhogs	5.00	30	Groundhogs
5.28	8	Other mammals	4.78	225	Blackbirds
5.28	158	Crows	4.54	191	Crows
5.24	182	Blackbirds	4.52	27	Other mammals
5.00	32	Toads	3.90	33	Frogs
4.84	7	Skunks	3.48	42	Toads
4.70	44	Frogs	2.84	57	Bats
3.86	14	Snakes	2.82	18	Snakes
3.70	46	Bats	2.38	15	Skunks

\* On a scale of 0-8 ("do not like at all" to "like very much").

+ According to the Kruskal-Wallis multiple comparisons test, differences between several liking indices (mean ranks) are significant at various  $\alpha$  levels (from the 0.10 level onwards).

homes since the liking indices for these three last wildlife groups are close to the "2" mark of "dislike a little".

Regrouping liking indices into major vertebrate categories reveals that park visitors like birds and mammals in cities but are indifferent to reptiles and amphibians (Table 5.29). In parks, mammals are preferred over birds; around the home, however, mammals fall to second place. The grouped liking indices for mammals, reptiles and amphibians are much lower at home than in parks.

Table 5.29

Liking Indices of Birds, Mammals, Reptiles and Amphibians, in Parks and at Home\*

Wildlife Group	In Parks		At Home	
	Liking Index	N	Liking Index	N
Birds	6.37	1145	6.16	1382
Mammals	6.91	358	5.71	277
Reptiles and amphibians	4.68	90	3.50	93

\* based on Tables 5.26 and 5.27.

The preferred wildlife species of the Quebec City region consist mainly of native avian species (except crows) as well as squirrels and chipmunks. This is consistent with Brown and Dawson's (1978) and Dagg's (1970) results.

The less preferred species such as pigeons, groundhogs, "other" mammals, crows and toads possess lower

liking indices around homes than in parks. This attitude may partly be attributable to a concern over personal property. Dagg (1974) has noticed that children are more tolerant of certain species than homeowners because children do not think in terms of property. This interpretation may account for the lower liking indices of grouped wildlife species. Thus, the liking indices for the same birds, mammals, reptiles and amphibians are lower around homes than in parks.

The various meanings of the spontaneous remembrance of certain wildlife species will now be discussed. The spontaneous naming of a wildlife species may depend on its abundance, its liking and on a concern over personal property. It is not only related to the abundance of a particular species since less than a third of the blackbirds sighted (the second most abundant wildlife species) were spontaneously named. Spontaneous remembrance of wildlife species may partly be related to the liking of a species since the proportions of squirrels and robins spontaneously named are fairly high. The spontaneous remembrance of wildlife species can also be associated with the residential area and the concern over personal property of respondents. This is very noticeable by the higher proportions of spontaneous naming of wildlife species around homes than in urban parks. The concern over personal property seems to make people notice and remember more what goes on around their homes. It may

also be that people spend more time around their home so that recall of wildlife species for this area is easier.

It should be noted that 103 of the 114 respondents (90%) who first stated that they had not noticed any wildlife species in the park they were visiting actually did recall noticing some wildlife species in the park as the interview proceeded. Since most wildlife species seen in urban parks are liked, it seems that many people may take the role of wildlife species in the enjoyment of urban parks for granted.

Respondents were asked to give their reasons for liking or disliking the observed wildlife species in parks and around homes.<sup>31</sup> Reasons were categorized into attitudinal groups similar to Kellert's (1976) typology of attitudes but with certain variations since we are dealing with urban wildlife species. Reasons given for liking urban wildlife species were grouped into categories called aesthetic, behavioural, naturalistic and ecologicistic, humanistic, uniqueness, friendly and available, adds life, dominionistic, consumptive and do not know. Reasons given for disliking species were grouped into the following categories: unattractive, damage and uncleanness, bad character, too common, fear, wakes up in the morning, bad for other species and general dislike. The majority

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<sup>31</sup> Respondents who were indifferent to a species were not asked to give a reason.

of respondents would like or dislike a certain species for reasons that fell within one category. In some cases, and when a species was liked for one reason and disliked for another reason, respondents gave reasons from two categories of reasons.

The significance of the reason categories and the specific reasons expressed by respondents will now be examined. The categories of reasons for the liking of urban wildlife species (groups) will first be considered:

Aesthetic	Attractive for its physical features. <u>Reasons given</u> : pretty, beautiful, cute, nice shape, colours, melodious song, attractive, appealing.
Behavioural	Attractive for its particular behaviour. <u>Reasons given</u> : flight, climbing, jumping, that are pleasant to watch, majestic, elegant, graceful, funny, amusing.
Naturalistic and Ecologicistic	Interest in natural environments. <u>Reasons given</u> : wildlife is part of nature, interest in nature, enjoy observation of wildlife, wildlife species indicate changing seasons, wildlife and nature in cities is important.
Humanistic	Positive human characteristics given to wildlife species. <u>Reasons given</u> : intelligent, smart, gentle, sweet, quiet, peaceful, sympathetic, charming, hard-working, curious.

Uniqueness	Wildlife species considered special in the city due to rarer sightings. <u>Reasons given</u> : different, special, rare.
Friendly and available	Wildlife species in the city are friends that one can often see. <u>Reasons given</u> : friendly, approachable, not wild, can be fed, are easily seen, are numerous, spend the winters with us, their presence is enjoyed.
Adds life	Adds life and enjoyment to the city. <u>Reasons given</u> : Adds life, adds enjoyment, emotional uplift, create a happy environment.
Dominionistic	Desire to master or tame wildlife species. <u>Reasons given</u> : to domesticate, easy to tame, species without defense.
Consumptive	Consumptive use of wildlife. <u>Reasons given</u> : hunting, trapping, eating, valuable fur.
Do not know	Liking of a species could not be explained.

The categories of reasons for disliking urban wildlife species (groups) will now be explained:

Unattractive	Not attractive physical characteristics or movements. <u>Reasons given</u> : ugly, noisy, unpleasant song, unpleasant to touch, unappealing colours, unpleasant smell, not graceful.
Damage and uncleanliness	Causing damage or dirty surroundings. <u>Reasons given</u> : damage to house or land, dirty, messy.
Bad character	Negative human characteristics given to wildlife species. <u>Reasons given</u> : aggressive, mean, nasty, vulgar, hypocrite, thief.
Too common	Too common in the city. <u>Reasons given</u> : too many of the same species, too common.



Fear	Fear of wildlife species. <u>Reasons given</u> : dangerous, scary, afraid of, make me nervous.
Wakes up in the morning.	Wakes people up in the morning.
Bad for other species	Considered a threat to other preferred wildlife species. <u>Reasons given</u> : steal nests of others, rob food from others.
General dislike	Do not know why a species is disliked, including superstitions.

Tolerance of a wildlife species in this study is equivalent to a low level of liking for the species because of what the species does not do: it does not cause any damage or it does not disturb humans. The utilitarian attitude (either in the liking or disliking of a species) is the perception of a wildlife species in practical terms (e.g. eats insects, cleans up nature, is not useful). The absolute frequencies of the utilitarian and tolerance attitudes of respondents are given in Table 5.30. These two attitudes exist at low levels for almost all species concerned. Seagulls and sparrows are considered useful by at least ten respondents. Tolerance occurs for all wildlife species, with the exception of winter birds, skunks and "other" mammals. It is the author's observation that these two attitudes appeared in a small number of respondents who would think of wildlife almost entirely in terms of usefulness or tolerance.

The aesthetic and behavioural categories of reasons both relate to the attractiveness of wildlife

Table 5.30

Absolute Frequencies of Utilitarian and Tolerance Attitudes  
Towards Wildlife Species

Wildlife Species or Group	In Parks		Around Homes	
	Utilitarian	Tolerance	Utilitarian	Tolerance
Robins	3	3	6	7
Swallows	3	4	8	4
Blackbirds	2	2	3	3
Sparrows	5	7	10	5
Pigeons	1	1	1	4
Seagulls	10	3	5	-
Crows	4	1	3	5
Winter birds	-	-	-	-
Other birds	1	-	-	1
Squirrels	1	5	-	1
Chipmunks	-	-	-	1
Groundhogs	1	1	-	2
Skunks	-	-	1	-
Bats	2	2	1	1
Other mammals	-	-	2	-
Frogs	3	1	1	1
Toads	4	-	6	3
Snakes	1	1	-	-

species and are therefore joined. The consumptive use of wildlife is one form of expression of a dominionistic attitude towards wildlife so that the consumptive and dominionistic categories are collapsed. The categories of reasons "friendly and available" as well as "adds life" both relate to the importance of urban wildlife species in the life of an urban dweller; these two categories are joined in one category called "important in the city". The reason category called "bad for other species" is a specific manifestation of the bad character of a wildlife species to other wildlife species; this category will be collapsed with the category "bad character". The relative frequencies of collapsed reason categories for the liking and disliking of urban wildlife species are presented in Tables 5.31 to 5.34.

Urban wildlife species are liked mainly because of their attractiveness (Tables 5.31 and 5.32). Wildlife is enjoyable to observe due to the species' colour, movement, song, call, shape, etc. The reasons given under the categories "naturalistic" and "important in the city" are also very significant in the liking of birds and mammals. Thus, the presence of wildlife brings nature, life, enjoyment and "friends" into the city. The presence of most birds and mammals is considered even more important in the residential setting than in parks since most percentages of the reason "important in the city" are higher around the home than in parks.

TABLE 5.31

Relative Frequency of Collapsed Reason Categories  
for Liking Wildlife Species in Parks\*

Wildlife Species or Group	Number of Reasons	COLLAPSED REASON CATEGORIES						
		Attract- ive (%)	Natural- istic (%)	Human- istic (%)	Unique- ness (%)	Important In The City (%)	Dominion- istic (%)	Do Not Know (%)
Robins	135	47%	21%	4%	6%	16%	3%	4%
Swallows	178	66	17	2	2	11	-	2
Blackbirds	130	35	29	2	3	18	2	11
Sparrows	185	33	20	7	2	31	2	5
Pigeons	77	45	10	4	3	20	10	8
Seagulls	198	50	22	8	2	12	1	6
Crows	114	37	32	6	1	11	2	11
Winter birds	24	29	21	4	4	38	-	4
Other birds	65	51	17	6	11	9	6	-
Squirrels	233	50	15	12	2	15	4	2
Chipmunks	122	48	11	14	1	20	5	2
Groundhogs	30	40	23	7	13	7	7	3
Skunks	8	63	13	25	-	-	-	-
Bats	26	19	27	-	23	15	8	8
Other mammals	5	80	-	-	-	20	-	-
Frogs	28	50	11	4	14	-	7	14
Toads	15	53	13	-	7	13	-	13
Snakes	5	60%	20%	-	-	-	20%	-

\* Certain percentages may not total 100% due to rounding.

Table 5.32

Relative Frequency of Collapsed Reason Categories  
for Liking Wildlife Species Around Homes\*

Wildlife Species or Group	Number of Reasons	COLLAPSED REASON CATEGORIES						
		Attract- ive (%)	Natural- istic (%)	Human- istic (%)	Unique- ness (%)	Important In The City (%)	Dominion- istic (%)	Do Not Know (%)
Robins	226	56%	18%	4%	1%	16%	-	4%
Swallows	216	56	16	7	2	18	-	2
Blackbirds	137	33	26	4	3	27	1	6
Sparrows	274	26	19	6	2	39	1	7
Pigeons	78	37	10	8	3	26	10	6
Seagulls	92	50	19	9	5	13	1	3
Crows	105	31	34	4	1	15	4	11
Winter birds	16	13	25	-	19	31	-	11
Other birds	101	56	15	1	18	5	4	1
Squirrels	132	42	7	11	3	27	7	3
Chipmunks	67	52	6	13	2	21	6	-
Groundhogs	24	21	17	17	4	25	13	4
Skunks	5	40	20	-	-	40	-	-
Bats	23	30	30	-	22	-	-	17
Other mammals	21	38	14	10	10	10	10	10
Frogs	19	53	16	-	16	5	-	11
Toads	13	62	23	-	-	-	-	15
Snakes	9	44%	22%	-	11%	-	11%	11%

\* Certain percentages may not total 100% due to rounding.

Table 5.33

Relative Frequency of Collapsed Reason Categories for Disliking  
Wildlife Species in Parks\*

Wildlife Species or Group	Number of Reasons	COLLAPSED REASON CATEGORIES						
		Unat- tractive (%)	Damage and Uncleanli- ness (%)	Bad Character (%)	Too Common (%)	Fear (%)	Wakes up in the morning (%)	General dislike (%)
Robins	3	67%	-	-	33%	-	-	-
Swallows	2	-	-	50%	50	-	-	-
Blackbirds	57	47	5	37	5	1	-	4
Sparrows	38	13	16	16	55	-	-	-
Pigeons	12	25	33	8	25	-	-	8
Seagulls	10	40	30	30	-	-	-	-
Crows	44	64	5	27	-	5	-	-
Winter birds	-	-	-	-	-	-	-	-
Other birds	1	-	100	-	-	-	-	-
Squirrels	2	-	-	50	-	-	50	-
Chipmunks	-	-	-	-	-	-	-	-
Groundhogs	6	33	-	17	-	-	-	50
Skunks	2	100	-	-	-	-	-	-
Bats	28	36	-	-	-	50	-	14
Other mammals	3	-	33	-	-	67	-	-
Frogs	13	15	-	8	-	39	-	38
Toads	13	62	-	-	-	15	-	23
Snakes	6	17%	-	-	-	50%	-	33%

\* Certain percentages may not total 100% due to rounding.

Table 5.34

Relative Frequency of Collapsed Reason Categories for Disliking  
Wildlife Species Around Homes\*

Wildlife Species or Group	Number of Reasons	COLLAPSED REASON CATEGORIES						
		Unat- tractive (%)	Damage and Uncleanli- ness (%)	Bad Character (%)	Too Common (%)	Fear (%)	Wakes up in the morning (%)	General dislike (%)
Robins	4	-	-	50%	25%	-	25%	-
Swallows	4	-	25	50	25	-	-	-
Blackbirds	96	42	15	32	4	4	2	1
Sparrows	60	18	17	15	48	-	2	-
Pigeons	28	4	71	7	7	4	4	4
Seagulls	6	17	50	17	-	-	17	-
Crows	82	55	5	28	2	-	7	2
Winter birds	-	-	-	-	-	-	-	-
Other birds	2	-	-	50	-	-	-	50
Squirrels	2	-	100	-	-	-	-	-
Chipmunks	1	-	100	-	-	-	-	-
Groundhogs	10	-	50	-	-	-	-	50
Skunks	14	64	21	-	7	-	-	7
Bats	34	24	3	3	-	68	-	3
Other mammals	11	-	64	9	-	18	-	9
Frogs	15	40	-	-	7	20	-	33
Toads	18	61	6	-	-	6	-	28
Snakes	10	60%	-	-	-	30%	-	10%

\* Certain percentages may not total 100% due to rounding.

Park visitors also attach several human characteristics to most mammals, perhaps because certain mammals are a reminder of pets (Tables 5.31 and 5.32). Sightings of the "rarer" other birds, bats and frogs are also appreciated as revealed by the category "uniqueness". A dominionistic attitude is exhibited only towards certain species such as pigeons, groundhogs and snakes. The higher proportions of not knowing reasons for liking blackbirds, crows, winter birds, bats, "other" mammals, frogs, toads and snakes are probably related to their lower liking indices, with the exception of winter birds (please refer to Table 5.28, p. 91).

Reasons for disliking wildlife depends on the species considered (Tables 5.33 and 5.34). Blackbirds and crows are disliked because they are aesthetically unpleasing and are said to exhibit bad character, in general, and towards other species. Approximately half of the reasons for disliking sparrows deal with their commonness in the city; the remaining reasons are distributed among the categories of unattractive, bad character and uncleanness. The reasons for disliking pigeons in parks are distributed among all categories in parks except "wakes people up in the morning". However, in accordance with the concern over personal property, almost three-quarters of the dislike for pigeons around homes is due to the species' uncleanness. The reasons



for disliking seagulls are distributed among the first three reason categories: unattractive, uncleanliness and bad character. Groundhogs are disliked in a general manner, for no specific reasons: this accounts for 50% of the dislike. The remaining 50% varies whether parks or homes are considered. In parks, "unattractive" and "bad character" are the reasons given for disliking groundhogs. Around homes, the entire 50% (five individuals) give "damage" as the reason, an obvious manifestation once again of the concern over personal property. The main reason for disliking skunks falls into the unattractive category. One cannot blame people for disliking the scent these mammals may emit. People fear "other" mammals in parks but are concerned with the damage they might cause around the home. Snakes, amphibians and bats are disliked because people consider them ugly ("unattractive"), are scared of them ("fear") or possess an unexplained negative attitude towards these species.

Associations between liking indices determined earlier in this chapter and attitudinal reasons for liking or disliking wildlife species discussed above can now be made. The large increase in the liking index (from parks to homes) of "other" birds (from 7.00 to 7.68) (p. 91) indicates the extent to which people appreciate the aesthetic characteristics and the diversity these species bring to the city. The decrease in the liking index (from parks to homes) of pigeons (from 6.62 to 5.86) is due to a

concern of the species' uncleanness. The drop in the liking indices (from parks to homes) of groundhogs (from 5.86 to 5.00), of "other" mammals (from 5.28 to 4.52), and of mammals as a group (from 6.91 to 5.71) are all manifestations of the concern of damage to personal property. The lower liking indices of bats, snakes and skunks around homes than in parks reflect the fact that people do not wish to see unattractive or feared animals by their dwelling place.

The only other study that examines attitudinal characteristics towards urban wildlife is Dagg's (1970). She mainly reported complaints such as the types of damage caused by various species. The results of this study are consistent with Dagg's in that the fewest complaints were made in reference to birds.

## Chapter 6

### CONCLUSIONS

Park visitors of the Quebec City region show a favourable attitude towards birds and mammals, both around homes and in urban parks. The preferred wildlife species of the Quebec City region consist of native avian species (with the exception of blackbirds and crows) as well as squirrels and chipmunks. Sparrows, pigeons and groundhogs are also liked in both urban areas considered but to a lesser extent around homes. Park visitors like blackbirds, crows, "other" mammals (except skunks and bats) and toads in parks but are indifferent to these species around homes. Park visitors are indifferent to frogs, snakes, skunks and bats in parks. Around homes, they remain indifferent to frogs but dislike snakes, skunks and bats. The lower affect for wildlife species around homes than in parks is a manifestation of fear, of concern about uncleanness or of damage to personal property. It is therefore suggested that enhancement of wildlife species in urban areas be undertaken in urban parks; this recommendation will be discussed in more detail in the following chapter.

Urban wildlife species are liked mainly because

of their attractiveness. Almost all birds and mammals are also important for the nature, "friends" and life they bring to the city. The dislike of certain wildlife species, namely skunks, bats and snakes, is mainly due to fear and the species' physical characteristics. An increased understanding of the biology and behaviour of these species would greatly lessen these fears. With time and appropriate educational and interpretive programs, people would learn to appreciate the value and even like these feared species.

The high participation in urban wildlife-related activities such as observation and photography demonstrate the interest in and enjoyment from urban wildlife. The prevalence and high frequency of wild bird feeding indicates attachment of Quebec City's park visitors to urban birds. Squirrel and chipmunk feeding around homes is also popular since certain areas of the Quebec City region (e.g. Old Quebec City) do not possess the appropriate habitat for these species. Both behaviour and attitudes of park visitors towards the majority of urban wildlife are favourable and are thus consistent. Therefore, the first hypothesis stated in Chapter 1 (p. 9) is true for most urban wildlife species.

Although wildlife viewing is not a primary reason for visiting urban parks, the presence of wildlife probably adds to the enjoyment of the urban park visit. This is confirmed by the following results:

1. The high ranking of the reason "nice, pleasant" for visiting urban parks suggests that parks possess several amenities, of which wildlife may be one. This is further substantiated by the facts that nature scores high as a reason for visiting urban parks and that a large number of people first stated they had not noticed any wildlife species in the park and did, afterwards, recall seeing some wildlife species (103 out of 114 respondents).
2. Park visitors liked all wildlife species in parks with the exception of amphibians, snakes, skunks and bats.
3. One-tenth of the respondents fed birds and six per cent fed squirrels or chipmunks in urban parks.

In view of the above results, wildlife most probably adds to the park visitor's experience and enjoyment of urban parks (second hypothesis, p. 9).

## Chapter 7

### RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

As the two preceding chapters have indicated, urban dwellers like and enjoy most urban wildlife species. The preferred wildlife species of the Quebec City region consist of native avian species (with the exception of blackbirds and crows) as well as squirrels and chipmunks. The variety of avian species is known to decline and the number of introduced species to rise as urbanization increases (Erskine, 1975; Geis, 1974; Williamson, 1974). Various vegetative factors were found to be most significant in determining the kind and abundance of avian species in cities (Thomas et al., 1974; DeGraaf, 1978).

Based on my results, and on other urban wildlife studies reviewed in this practicum, the following recommendations are made to enhance wildlife and wildlife-viewing opportunities in urban areas:

1. The use of understory shrubs, in a clumped fashion, specifically in green areas and parks (DeGraaf, 1978; Hooper et al., 1973).

Some examples of shrubs which are of use to wildlife are: dogwoods (Cornus spp.), elders

(Sambucus spp.), winterberry (Ilex verticillata), serviceberries (Amelanchier spp.), viburnums (Viburnum spp.), blueberries (Vaccinium spp.), Canada yew (Taxus canadensis), roses (Rosa spp.), etc. Clumped shrubs are more beneficial to wildlife than interspersed shrubs by providing more cover. Since numerous shrubs also possess berries, they provide food as well as cover for birds and small mammals. Greater vegetational diversity would increase the kinds and densities of native species and thus help reduce the populations of introduced avian species which are less liked than native birds. This suggestion is not intended to lessen the importance of tall mature trees but simply to emphasize the importance of understory shrubs in urban areas.

## 2. Greater use of coniferous trees and shrubs

Certain avian species greatly depend on conifers for food and cover. Provision of more coniferous trees and shrubs would increase vegetational diversity and thus wildlife diversity.

## 3. The implementation of recommendations 1 and 2 in urban parks and green areas.

Due to the concern over personal property (damage or uncleanness), urban wildlife management should be concentrated in urban parks. Urban foresters can play an important role in wildlife habitat enhancement.

4. The maintenance of existing green spaces rather than the development of new ones (DeGraaf, 1978; Geis, 1974; Shoesmith, 1978).

Existing green spaces should be allowed to grow in a natural state so as to be most beneficial for wildlife in providing cover and breeding habitat. It may be added that the growth of cities by development of the radial and interstitial suburbs could be planned to maintain the natural character of the area as much as possible. This would require the maintenance of interspersed mature trees as well as patches of "natural areas" in the residential areas from the very start since the usual plant regeneration time lag would be absent.

5. Greater availability for homeowners of wildlife-enhancement measures.

For those residents wishing to attract wildlife around their homes, material dealing with wildlife habitat such as provided in "Invite Wildlife to Your Backyard" of the National Wildlife Federation (Thomas et al., 1973) or "Backyard Habitat" of the Federation of Ontario Naturalists (McKeating and Creighton, 1974) should be made more available, perhaps through municipal departments such as Parks and Recreation. The same suggestion applies to articles on bird feeders and nest boxes. For example, the Canadian Wildlife Service publishes articles on these wildlife-enhancing structures; these should continue to be made widely available to the



public.

6. A summary of the attitudes and behaviour of urban residents towards urban wildlife be circulated to urban planners and architects.

The knowledge of the attitudes and behaviour of urban residents towards urban wildlife will help urban planners realize that most urban wildlife is liked and enjoyed. Urban planners will then strive to maintain urban wildlife habitat in the expansion or creation of cities.

Introduced avian species often use houses for their nesting sites. Architects may assist in the reduction in numbers of introduced species by using styles of construction that no longer provide nesting sites for the less desirable wildlife species.

7. More interpretive contacts within urban areas.

Environmental education and interpretation is lacking in urban areas (Ashbaugh, 1971; Askham, 1971; Shomon, 1969; Wallin, 1976; Yambert, 1972). Teachers can help students to understand nature and to become aware of many ecological principles, all in an urban context. This can begin in the classroom followed by short trips to the school yard, nearby green spaces or parks. Such environmental education programs of approximately one hour, on a weekly basis, can provide great insights for students into the wonders of nature. If

certain teachers are reluctant to venture outside the classroom, they can attend workshops offered at nature interpretive centres to increase their skills.

Nature interpretation for the general public is also needed in urban areas. This is partly evidenced by the fact that certain parks of the Quebec City region already possess a diversity of wildlife species yet that respondents felt there was not enough wildlife present.<sup>32</sup> It is possible that these park visitors are not familiar with the techniques in wildlife observation and are thus not viewing as many species as they possibly could. Urban interpretive programs would aid visitors to appreciate even more urban wildlife.

Interpretive programs will vary depending on the parks and cities considered. Small parks could set up a self-guiding nature trail. The commentary accompanying the trail would be available at the park office for interested visitors.<sup>33</sup> Signs would inform visitors about the trail and commentary.

Larger urban parks that possess more wildlife habitat should take advantage of the wildlife viewing opportunities that exist during the spring and fall migrations. Guided tours by interpreters during these

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<sup>32</sup>This was expressed spontaneously to me by respondents and was not recorded in the survey.

<sup>33</sup>Vandalism would thus be reduced. Two versions of the commentary could also be produced: one for children under the age of 12 and another for older children and adults.

times would be of great value and should be announced at the park entrance(s). Bird feeding stations may assist in the interpretation by attracting more wildlife to one area so that viewing may be facilitated.<sup>34</sup>

Some parks, such as the 'Base de Plein Air', occupy a significantly large natural area. An (some) interpreter(s) should then be on the park staff. Interpretation would consist of guided walks and of exhibits.

Community nature centres are another way of increasing interpretive contacts in urban areas (Kordish and Graham; Shomon, 1969). In addition to the wildlife-oriented recreation and interpretation available at the centres, they also enhance the community's cultural life. Such nature centres demand, however, much financial planning.

Finally, events similar to the "Aquatic Park Wildlife Viewing Weekend" (Wyman and McKeating, 1977) should be held in urban areas at least once a year. Areas within or around cities with abundant wildlife can prove to be major attractions and ideal opportunities for interpretation since the event will likely cater to many people who rarely participate in nature-oriented activities. Preparation of such an event would require

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<sup>34</sup>Bird feeding stations and interpretive signs are present during the winter at the National Battlefields Park.

advertising and the publication of written material about the site. The assistance of interpreters and urban wildlife biologists at the event would be essential.

This study was particularly useful in determining the attitudes and behaviour of Quebec's CMA urban park visitors towards wildlife in urban parks and around homes. A Canada-wide mail survey of attitudes and behaviour towards urban wildlife similar to the present one would also be very useful. Although the list of preferred wildlife species will probably vary from one Canadian city to another (e.g. grey squirrels may be a nuisance in cities), the fact that urban residents favour a greater range of wildlife species in urban parks than around homes remains due to fear and concern over personal property. An interesting extension of this study would be to discover the proportion of Quebec City residents who visit urban parks. This would allow extrapolation of the results to the entire urban area. Studies concerning urban wildlife habitat should also continue to better understand wildlife needs in cities.

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APPENDIX A

INTRODUCTORY STATEMENT AND QUESTIONNAIRE

The introduction to an interview is as follows:

Hello! I am a University student and I would like to know your opinion about birds and non-domestic animals in the city. Do you live in the Quebec City region?

No: I'm sorry but this survey involves only residents of the Quebec City region. Thank you.

Yes: Would you please answer a few questions? It would only take a few minutes and it would be very helpful. It is your own honest opinion that counts; there are no right or wrong answers. You can also be assured that your answers are kept anonymous.

# \_\_\_\_\_ Day: Weekday \_\_\_\_\_ (1)  
 Park: Plaines \_\_\_\_\_ (1) Weekend \_\_\_\_\_ (2)  
 Bois \_\_\_\_\_ (2) Date: \_\_\_\_\_  
 Cartier-Brébeuf \_\_\_\_\_ (3) Hour: \_\_\_\_\_  
 Base plein air \_\_\_\_\_ (4)  
 Place: \_\_\_\_\_

Please tell me your reasons for coming to this park, concerning either today's visit or a previous one?

- |  |  |
|--|--|
| 1. Nice, pleasant _____                | 8. Closeby _____                                 |
| 2. To see, admire the place _____      | 9. Recreational activity (sports, games) _____   |
| 3. Outdoors, fresh air, sunshine _____ | 10. Social activity (friends, celebration) _____ |
| 4. Greenspace _____                    | 11. Eating, pic-nic _____                        |
| 5. Nature _____                        | 12. Quiet, few people _____                      |
| 6. Wildlife _____                      | 13. Solitude _____                               |
| 7. Relaxation _____                    | 14. Don't know _____                             |
| 15. Other _____                        |  |

(Card A) Please indicate the relative importance of each reason named within the 5 following categories. Ex: Is   x   very important, important or of middle importance as a reason to visit this park?

- |                           |                              |
|---------------------------|------------------------------|
| 5. very important         | 2. of little importance      |
| 4. important              | 1. of very little importance |
| 3. of moderate importance | (0: not a reason)            |

16. Do you consider the fresh air, the sunshine and the greenery as a reason for coming to this park? By helping yourself with the same card, of what importance is this reason? \_\_\_\_\_
17. Do you come here to get close to nature? Please indicate its relative importance: \_\_\_\_\_
18. Do you come here to see the wildlife of the park? Please indicate its relative importance: \_\_\_\_\_



Have you seen or heard any wildlife species in this park?

Yes \_\_\_\_\_ (1) No \_\_\_\_\_ (2) Which ones? (Write + 1 for species that are noticed and to the next page).

I am going to ask you about the birds and non-domestic animals you may have seen or heard in this park; please tell me which species you have noticed.

Card B). Please tell me if you 8: like them very much

- 6. like a little
- 4. like and don't like
- 4. indifferent to
- 2. dislike a little
- 0. don't like at all

At the same time, please tell me your reasons for liking or disliking.

	(Spont.) (+ 1)	Like or Dislike	Reasons
Robins	_____	_____	_____
Swallows	_____	_____	_____
Blackbirds	_____	_____	_____
Sparrows	_____	_____	_____
Pigeons	_____	_____	_____
Seagulls	_____	_____	_____
Crows	_____	_____	_____
Winter birds	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Squirrels	_____	_____	_____
Chipmunks	_____	_____	_____
Groundhogs	_____	_____	_____
Skunks	_____	_____	_____
Bats	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Frogs	_____	_____	_____
Toads	_____	_____	_____
Snakes	_____	_____	_____

at wildlife species do you notice around your home and in your backyard? (Then go back to the previous page)

around your home and in your backyard, have you noticed any ...

ard B) Please tell me if you 8: like them very much

6: like a little

4: like and don't like

4: indifferent to

2: dislike a little

0: do not like at all

at the same time, please tell me your reasons for liking or disliking

	(spont.) (+1)	Like or Dislike	Reasons
1. Robins			
3. Swallows			
9. Blackbirds			
0. Sparrows			
. Pigeons			
2. Seagulls			
3. Crows			
. Winter birds			
1. Squirrels			
. Chipmunks			
. Groundhogs			
. Skunks			
. Bats			
. Frogs			
. Toads			
. Snakes			

55. Do you ever feed any birds in this park? No\_\_\_\_(1) Yes: do you feed them  
often\_\_\_\_(4)  
occasionally\_\_\_\_(3)  
rarely\_\_\_\_(2)
56. Do you ever feed the squirrels or chipmunks in this park? Yes\_\_\_\_(1) No\_\_\_\_(2)  
And at home? Yes\_\_\_\_(3) No\_\_\_\_(4)
57. Do you feed the birds around your home? Yes\_\_\_\_(1) No\_\_\_\_(2) (No: go to  
question #62).
58. What do you feed them? Seeds\_\_\_\_(1)  
Bread crumbs\_\_\_\_(2)  
Other food\_\_\_\_(3)
59. In which seasons do you feed them?  
The 4 seasons\_\_\_\_(1) Summer only\_\_\_\_(5)  
The 4 seasons less winter\_\_\_\_(2) Winter only\_\_\_\_(6)  
The 4 seasons less summer\_\_\_\_(3) Spring only\_\_\_\_(7)  
Spring and summer\_\_\_\_(4)
60. About how often do you feed the birds around your home?  
A few times A few times A few times Each day\_\_\_\_(4)  
a year\_\_\_\_(1) a month\_\_\_\_(2) a week\_\_\_\_(3)
61. About how much do you spend per year to feed the birds?  
\_\_\_\_\_ Leftovers\_\_\_\_(1) Less than \$\_\_\_\_(2) \_\_\_\_\_(3) \_\_\_\_\_(4)
62. Do you have any birdhouses around your home? Yes\_\_\_\_(1) No\_\_\_\_(2)
63. Any bird feeder? Yes\_\_\_\_(1) No\_\_\_\_(2)
64. In this park or at home, do you ever:  
- photograph birds or non-domestic animals? Yes\_\_\_\_(1) No\_\_\_\_(2)
65. - paint or draw birds or non-domestic animals?  
Yes\_\_\_\_(1) No\_\_\_\_(2)
66. - do some observation of birds or non-domestic animals?  
Yes\_\_\_\_(1) No\_\_\_\_(2)

Please answer the following questions about yourself.

67. What city do you live in? \_\_\_\_\_
68. Do you live in a house \_\_\_\_\_ (1) or an apartment \_\_\_\_\_ (2)?
69. What distance do you travel to come to this park? \_\_\_\_\_
70. Do you visit other city parks? Do you visit them?  
Often \_\_\_\_\_ (4)  
Occasionally \_\_\_\_\_ (3)  
Rarely \_\_\_\_\_ (2)  
No \_\_\_\_\_ (1)
71. Do you visit any parks outside of the city? Do you visit them?  
Often \_\_\_\_\_ (4)  
Occasionally \_\_\_\_\_ (3)  
Rarely \_\_\_\_\_ (2)  
No \_\_\_\_\_ (1)
72. Sex : Male \_\_\_\_\_ (1) Female \_\_\_\_\_ (2)
73. Is your marital status?  
Single \_\_\_\_\_ (1) Married \_\_\_\_\_ (2) or Other \_\_\_\_\_ (3)
74. In which age group do you belong? (Card C)
- |                            |                            |
|----------------------------|----------------------------|
| Less than 10 yrs _____ (1) | 40 - 45 yrs (8)            |
| 10 - 15 yrs _____ (2)      | 45 - 50 yrs (9)            |
| 15 - 20 yrs _____ (3)      | 50 - 55 yrs (10)           |
| 20 - 25 yrs _____ (4)      | 55 - 60 yrs (11)           |
| 25 - 30 yrs _____ (5)      | 60 - 65 yrs (12)           |
| 30 - 35 yrs _____ (6)      | 65 - 70 yrs (13)           |
| 35 - 40 yrs _____ (7)      | 70 yrs and over _____ (14) |
75. What level of schooling have you attained? (Card D)
- |                                 |   |
|---------------------------------|---|
| Less than high school _____ (1) | 76.a) What is your present occupation? (Card E) |
| High School _____ (2)           | Employed _____ (1)                              |
| Technical School _____ (3)      | Self-employed _____ (2)                         |
| CEGEP _____ (4)                 | Retired _____ (3)                               |
| Some University _____ (5)       | Housewife _____ (4)                             |
| University Graduate _____ (6)   | Student _____ (5)                               |
|                                 | Unemployed _____ (6)                            |
- 76.b) Briefly describe your job or profession? \_\_\_\_\_
- \_\_\_\_\_

APPENDIX B

DESCRIPTION OF PARKS

The following parks will be described: the National Battlefields Park, the 'Base de Plein Air', the Park Cartier-Brébeuf and the Bois de Coulonge.

### National Battlefields Park

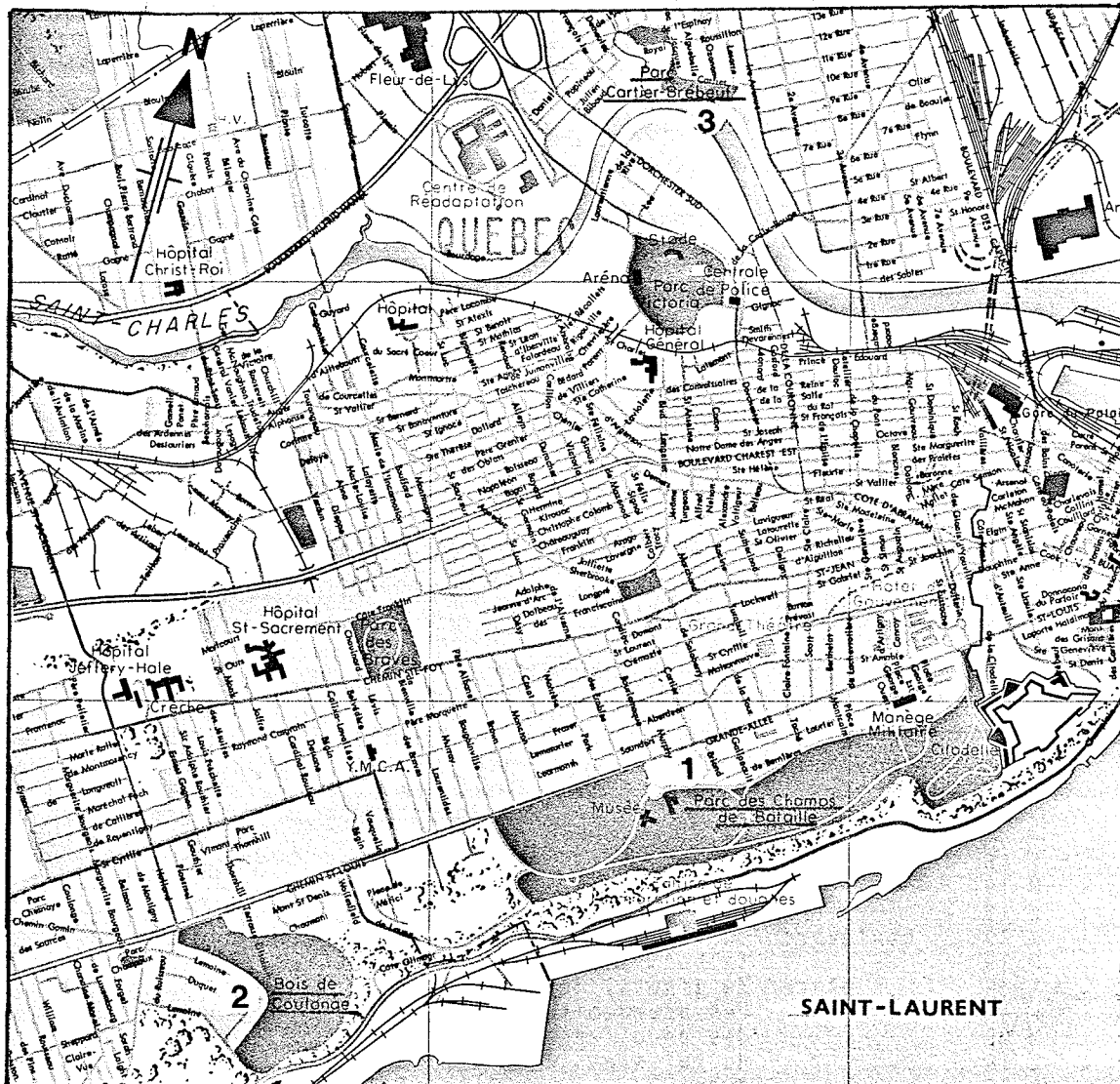
#### Location and Size

The National Battlefields Park in Quebec is situated on a promontory overlooking the St.-Lawrence River (Figure B.1). Located between 'Grande Allée' and the escarpment, it extends for 2.4 km northeast of the 'Côte Gilmour'. The park measures approximately four-fifths of a kilometer at its widest point and covers a total area of 951,750 m<sup>2</sup>.

#### Formation

This park was originally called the "Plains of Abraham" after a commander of one of the King's ships, Abraham Martin, settled there and used it for grazing purposes. In 1908, the land was handed over to the National Battlefields Commission by the City of Quebec so that the National Battlefields Park could be created. The Commission is subsidized by the federal government.

The famous battle of 1759, headed by Wolfe and Montcalm, took place, in part, on the land established as a Park. There are several monuments, plaques and two towers commemorating this and other historical events or famous people.



Source: Quebec Urban Community.

Scale: 1"=2500'

Figure 8.1

The National Battlefields Park (Parc des Champs de Bataille, 1), the Bois de Coulange (2) and the Park Cartier-Brébeuf (3).

### Topography

More than 60% of the National Battlefields Park possesses a hilly topography (St.-Pierre et Associés, 1978, p. 19). Slopes are steep in several areas, not to mention the escarpment overlooking the river which forms a natural boundary for most of the Park. The northeastern portion of the Park is flat and is used as a sports field.

### Circulation within the Park

There are eight sites from which automobiles may enter or leave the Park (Figure B.2). An unknown percentage of the automobile circulation consists only of through-traffic. Parking spaces are found mainly along the roads.

Park visitors circulate either by car, bicycle, on foot, or by horse-drawn buggy. There exists 8.9 km of paved roads for automobiles and 9.9 km of paved walkways in the park (St.-Pierre et Associés, 1978, p. 26).

Pedestrians can also enjoy 1.9 km of forested trails. Cyclists share the roads with automobiles. A specific route is determined for the tours given on horse-drawn buggies.

### Facilities

Numerous benches and picnic tables are provided in the park. There are also a few drinking fountains and two restroom facilities.

Tourists can enjoy the view of the St.-Lawrence River and the south shore from two terraces. The Quebec





Museum, located within the park, houses artistic and cultural exhibits.

### Visitation

There are no official visitation statistics for the park. The firm 'Gaston St.-Pierre et Associés Inc.' have calculated the origin of park visitors based on a variety of unspecified sources. Visitors were classified as originating from either the region (the Quebec Urban Community), the area (people working or living close by) or from outside the region (tourists). The relative visitation of these three groups was found to be (St.-Pierre et Associés, 1978, p. 60):

1. Visitors from the Quebec Urban Community: 62%,
2. Visitors from the area: 25%,
3. Tourists: 7%.

Different types of activities are known to take place at the National Battlefields Park:

- individual or family activities
- organized sport activities
- activities organized by school groups or youth groups
- special event celebrations such as festivals or on certain holidays such as for the St.-John-the Baptist. People from all walks of life are known to visit this park.

### Vegetation

It is the author's estimate from her numerous visits to the park that 60% to 70% of the park area consists of grass lawns. In the remaining area, bushes, hedges, isolated trees and shrubs are found as well as some forested land. An inventory of trees and shrubs in the park was done in 1972-73 by Mr. J. Pareau, a forest engineer at Laval University. Out of a total of four thousand trees in the park, 49% were maples, 15% elms and 10% ash trees and poplars (St.-Pierre et Associés, 1978, p. 24). Willows, hawthorns and basswoods were also found in substantial numbers. Fifteen other tree species were also present.

### Wildlife

The vegetational diversity in the park provides habitat for several wildlife species. There are at least twenty-two winter bird species and 63 spring and summer avian species in the park.<sup>35</sup> Fifty of these 63 bird species belong to the order Passeriformes (perching birds). A checklist of mammals in the park is not available. The author has observed the following mammals in the park: red squirrels, grey squirrels and groundhogs.

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<sup>35</sup>From a checklist provided by Mr. Jean Hardi, vice-president of the 'Club des Ornithologues du Quebec, Inc.'. The actual number of bird species present in the park is likely to be higher since a Canadian Wildlife Service report on feeding stations at the Plains of Abraham by Leo-Guy de Repentigny recorded 27 winter bird species.

The 'Base de Plein Air' of Ste-FoyLocation and Size

The park 'Base de Plein Air' (outdoor centre) of the city of Ste-Foy is bound by the Charest boulevard and the street Blaise Pascal at the south, the C.P.R. marshalling yards at the north, the city limits of Ste-Foy and Quebec at the east and by the foreseen extension of the Duplessis boulevard at the west (Figure B.3). The park is easily accessible by car for Ste-Foy residents and for the remainder of the Quebec Urban Community residents because it lies at the point of convergence of two major roads.

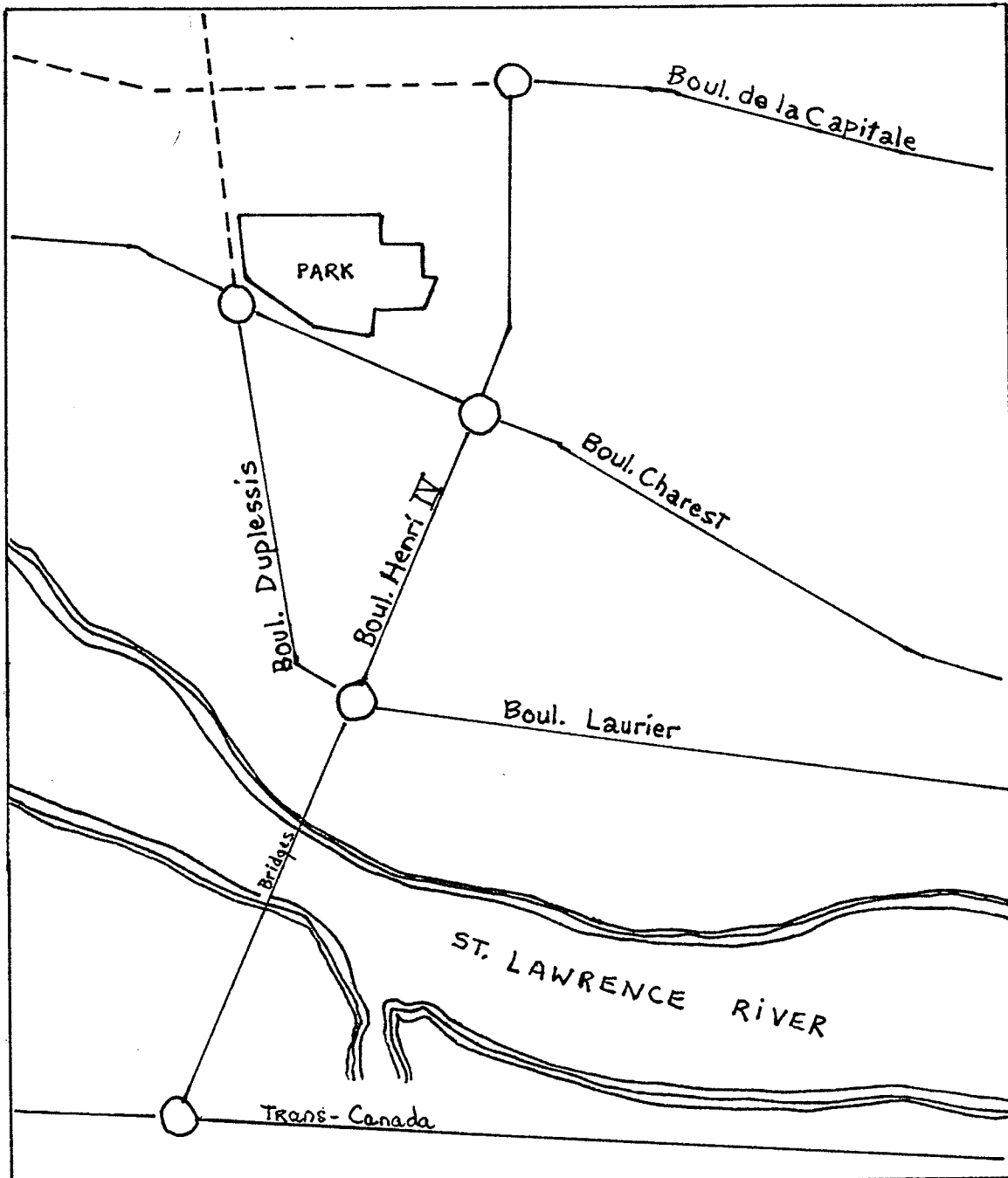
The park covers 1,620,000 m<sup>2</sup>, of which approximately three-quarters is found within the municipality of Ste-Foy and the remainder belongs to the municipality of Ancienne-Lorette with the exception of 6,075 m<sup>2</sup> within Quebec City.<sup>36</sup>

Formation

Between 1964 and 1968, the City of Ste-Foy acquired 1,158,300 m<sup>2</sup> of land surrounding the five small Laberge lakes formed as a result of gravel excavations. Between 1968 and 1971, summer daycamps were held for teenagers. During this same period, more land was

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<sup>36</sup> Information drawn from an internal report of the Department of Recreation of the City of Ste-Foy.



Source: Department of Recreation,  
City of Ste-Foy.

Figure B.3

Location of the park 'Base de Plein Air'.

acquired. In 1972, the site received its present name and became open to all. In 1973, year round operation of the park was instituted.

### Topography

The terrain is level everywhere in the park, with the exception of the lake embankments.

### Circulation within the Park

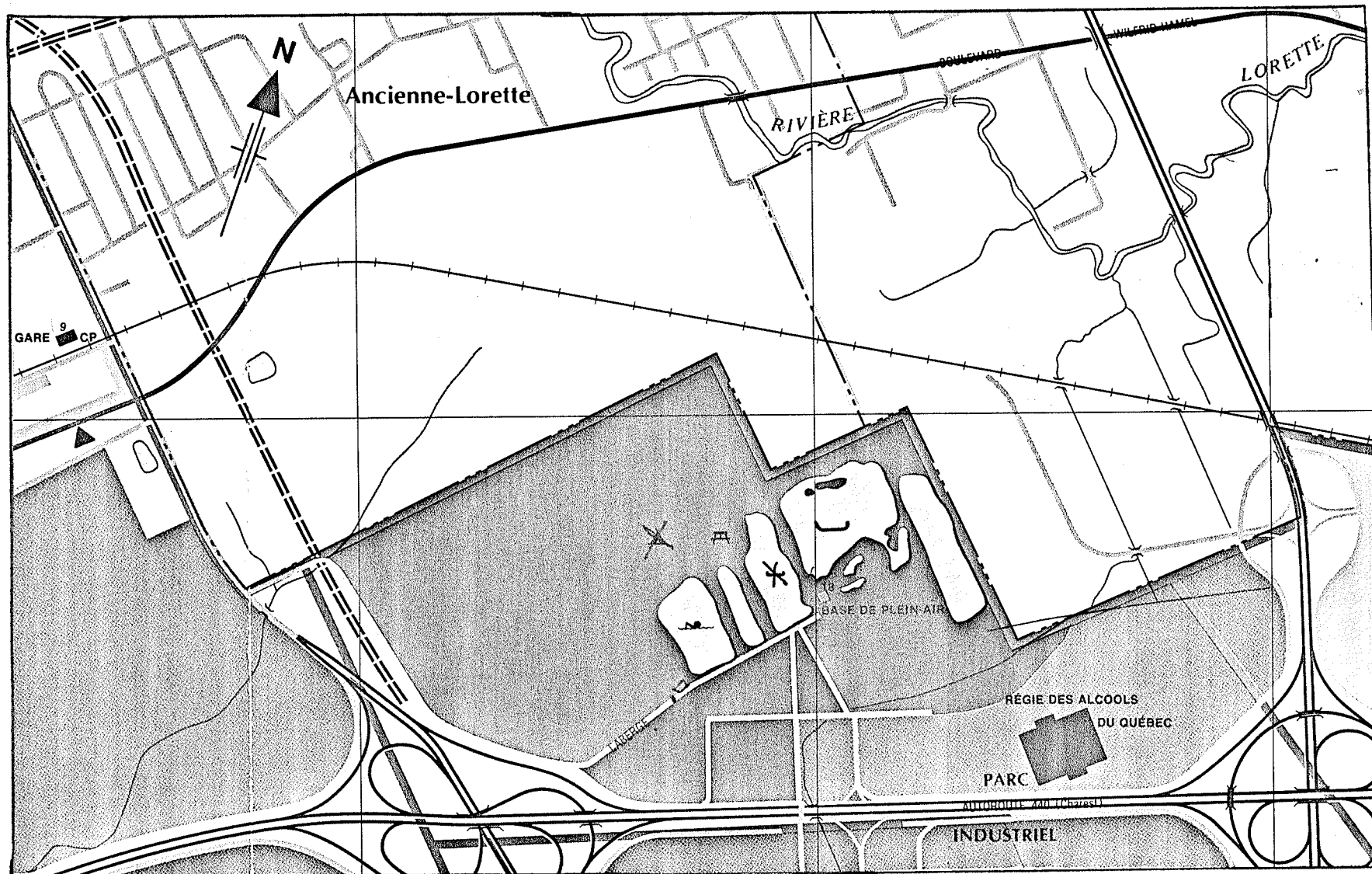
Visitors arriving by car must leave their cars in the parking lot at the entrance of the park. People usually walk within the park; cycling is also permitted. During the winter, cross-country skiing and snowshoeing are popular ways of visiting the site.

### Facilities

The main summer attractions at the park are swimming and canoeing (Figure B.4). One of the five lakes is devoted solely to swimming. Entrance to the swim area requires the payment of a fee (\$0.50 for adults and \$0.25 for children). Canoeing facilities are found at the largest of the lakes (hourly rate: \$1.00 for adults, \$0.50 for children).<sup>37</sup> The land associated with the longest and easternmost lake is often occupied by people belonging to a club using model airplanes and boats. Recreational fishing occurs at the two other lakes.

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<sup>37</sup> The system of fees provides revenue to the Department of Recreation of the City of Ste-Foy and visitation data.



Source: City of Ste-Foy

Scale: 1/12,500

Figure B.4

The 'Base de Plein Air' Park

There is a snack bar by the parking lot. Picnic tables are provided at the swim area and by the snack bar. A large field at the southeast corner of the park is used for baseball.

### Visitation

During the summer of 1977, 6,627 and 14,077 people participated in canoeing and swimming respectively at the 'Base de Plein Air'.<sup>38</sup> Six thousand one hundred and nineteen visitors were recorded to participate in winter activities (cross-country skiing, snowshoeing, etc.) during the winter months of 1977-78. The total for the May 1977-April 1978 season is of 26,823. It is important to note that the park is officially opened only from 11:30 to 19:00 hours in the summer months and that any visitors before or after those times were not recorded. Participation in non-paying activities such as baseball, fishing, family and group games was not accounted for. The visitor also has the opportunity to enjoy several nature-oriented activities (e.g. wildlife observation, photography, plant identification) because all the land north of the lakes is still in a natural state. It is not known how many people participated in these activities. Therefore, visitation to the 'Base de Plein Air' from May 1977 to

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<sup>38</sup> City of Ste-Foy visitation statistics. Fees charged for canoeing and swimming provided the statistics.



April 1978 is certainly higher than the value recorded (26,823).

The summer of 1978 was endowed with sunny and warm weather.<sup>39</sup> On sunny and hot weekdays, 500 people would visit the swim area; on weekends, this number rises to 1000.<sup>40</sup> During the summer of 1978, 24,000 adults and children were recorded at the swim area and 2,371 canoes were rented. If we estimate two people per rental of a canoe, the total number of swimmers and canoers amounts to 28,742. Since this value represents only the summer months, the number of visitors to the 'Base de Plein Air' from May 1978 to May 1979 will be substantially higher than in the previous year.

### Vegetation

Water covers 182,250 m<sup>2</sup> (11%) of the park area.<sup>41</sup> The land possesses great vegetational diversity: there are fields, a forest and a bog in the park. Grassy areas and fields cover 575,100 m<sup>2</sup> or approximately 36% of the park area; these are primarily found in the southern portion of the park. The same percentage of land (36%) is forested, maple trees being the dominant species. One

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<sup>39</sup>The summer of 1977 was known to see more rain and cold weather.

<sup>40</sup>Data given to the author by the staff of the park.

<sup>41</sup>Data provided in an internal report of the Department of Recreation, City of Ste-Foy.

hundred and sixty-two thousand  $m^2$  (10%) is occupied by a bog and 113,400  $m^2$  (7%) of the land is semi-forested (or at an early stage of forest succession). The forested land and the bog make this park the most natural of the parks considered in this study.

### Wildlife

The vegetational diversity and the lakes of this park provide excellent habitat for numerous wildlife species. The relatively low presence of house sparrows, starlings and grackles in this park also attests to the park's more natural character. Swallows and various species of sparrows (e.g. white-throated, song, etc.) are common in the park. The five lakes in the park have attracted such water birds as black ducks, herring gulls, Great Blue herons and double-crested cormorants.<sup>42</sup> In addition to several avian species, the author has also sighted numerous toads, at least three fish species, red squirrels, muskrats and groundhogs in the park.

### Park Cartier-Brébeuf

#### Location and Size

The park Cartier-Brébeuf is located in the Limoilou district of Quebec City, specifically at the

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<sup>42</sup>From a preliminary bird checklist done by a member of the 'Base de Plein Air' staff during the summer of 1978.

confluence of the St.-Charles and Lairet Rivers (see Figure B.1, p. 135). The park measures 68,850 m<sup>2</sup>.

### Formation

In September 1535, Jacques Cartier, on his second trip to Canada, searched for a good place to harbour his vessels for the winter. He discovered the confluence of the St.-Charles and Lairet Rivers which was favourable as it prevented the tide from carrying away the ships; here the ships were also protected from the wind.

The first Jesuits arrived in New France in 1625; among them was Father Jean de Brébeuf. The Fathers set up their residence not far from the site where Cartier had wintered in 1535-36.

A replica of Cartier's flagship of his second expedition to Canada, 'La Grande Hermine', is at anchor at the mouth of the Lairet River in the Cartier-Brébeuf National Historic Park. This park, created in 1972, is the federal government's responsibility (specifically Parks Canada).

### Topography

The water basin with 'La Grande Hermine' forms a small "valley" in the centre of the park: steep slopes exist on the north and east sides of the basin. The remainder of the park is either gently-sloped or flat.

### Circulation within the Park

A paved parking lot is located at the entrance of the park. People are to visit the park area on foot and paved walkways are provided. Although prohibited, cyclists and motorcyclists ride within the park.

### Facilities

An interpretive centre offering shows and information is situated by the parking lot; it is also the starting place for tours. Interpretive staff give tours of 'La Grande Hermine' as well as act out several scenes of history from the ship. The audience is then seated on benches at the foot of the ship. More benches are supplied along the paved walkways of the park.

The park is open to the public on a year round basis.

### Visitation

Visitation statistics are produced on a monthly basis at the Park Cartier-Brébeuf. These statistics are obtained by adding the number of visitors from three locations in the park: at the interpretive centre, at the ship, and by doing a few daily counts of the number of people in the park.<sup>43</sup> Visitation statistics for the 1978 summer months are given in Table B.1. Note that

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<sup>43</sup> It is assumed that organized groups that visit both the interpretation centre and the ship are only counted once.

visitation to the park is actually higher than the values given because all counts end at 17:30 hours.

Table B.1

Cartier-Brébeuf National Historic Park-  
Visitation Statistics, May-Sept., 1978\*

Month	Monthly Count	Previous Year (Monthly)	O R I G I N			Visitors in Groups
			Province	Other Provinces	U.S. & Other Countries	
May	12,140	7,838	9,390	2,500	250	5,599
June	21,865	11,148	n.a.	n.a.	n.a.	7,234
July	21,138	33,079	18,438	1,500	1,200	1,400
August	21,915	22,882	n.a.	n.a.	n.a.	1,351
Sept.	6,826	11,710	n.a.	n.a.	n.a.	1,228

\*: Provided by the interpretive staff, Cartier-Brébeuf National Historic Park.

n.a.: not available.

The interpretive staff and the Director of the park estimate that more than half of the park visitors come from the Quebec City region. Organized groups visiting the park would typically limit themselves to the small portion of the park included between the ship and the interpretive centre. Visitors from the vicinity of the park would usually sit on a park bench or on the grass.

### Vegetation

The park is seen as a large open green space covered with lawns. Some trees have been planted to give the park a more natural character. These trees are still young. The park contains only about a dozen trees of

mature age that provide shade.

### Wildlife

There is little diversity in the wildlife species present in this park. However, wildlife species found in the park are more or less accustomed to human presence and do not fear it. Thus, sparrows, grackles and gulls are very common and noticeable in this park. Swallows and plovers can also be seen in the morning, evening, or on cooler days. The water basin provides habitat for frogs and some introduced fish species.

## The Bois de Coulonge

### Location and Size

The park Bois de Coulonge begins at the intersection of 'Chemin St.-Louis' and Holland Street. The park runs lengthwise, in an easterly direction, from 'Chemin St.-Louis' to the escarpment (see Figure B.1, p. 135).

From a map of the Quebec Urban Community, it is estimated that the park measures between 380,000 m<sup>2</sup> and 430,000 m<sup>2</sup>.

### Formation

The history of Bois de Coulonge dates back to 1657 when the third governor of New France, Louis d'Ailleboust de Coulonge, acquired a large estate including the present

grounds of the Bois de Coulonge. The land transferred hands and changed names several times, until some time after Confederation when the grounds of "Spencer Wood" were given to the Province of Quebec by the federal government to serve as a residence for the lieutenant-governors. It was only in 1950 that the Legislative Assembly of Quebec, paying tribute to one of the founders of Canada, gave the estate back its first name of 'Coulonge'. Twenty-one lieutenant-governors lived there until 1966 when a fire claimed the life of the Honourable Paul Comtois and burned down the impressive residence. The other buildings of the domain remained intact: the servant's home, the garage, the greenhouses, sheds, etc. Some time after the fire, the Bois de Coulonge became a public park. The area is currently under the jurisdiction of the Quebec Ministry of Public Works.

#### Topography

The terrain of the western portion of the park is flat. From approximately midpoint between the western and eastern portions of the park to the end of the park, there is a continual downward slope. The topography in the eastern portion of the park varies from a gentle downward slope to steep slopes. As in the National Battlefields Park, the escarpment forms a natural boundary.

#### Circulation within the Park

There are two entrances to the park, both on

'Chemin St.-Louis'. One of the two entrances is, however, reserved for the staff of the Ministry of Public Works; the other entrance is used by the general public.

A paved road from the entrance leads to the parking lot which is located where the Lieutenant-Governor's residence used to stand. People travel on this road either by car, bicycle or on foot. There exists a circular gravel road (with two branches) in the eastern portion of the park, used only by cyclists, pedestrians and surveillance cars.

#### Facilities

A small theatre offering children and adult plays is located in the northern portion of the park. The general public does not have access to any of the other buildings in the park. Benches are found in the eastern portion of the park.

#### Visitation

Visitation statistics are unavailable for this park. Until recently, only people of the upper class would visit the area presently occupied by the Bois de Coulange because it belonged to the Lieutenant-Governor. Today, people from the other social classes also visit the park but it is still greatly frequented by the upper class.

The usual activities undertaken in the Bois de Coulange include picnics, resting, walking, jogging,



cycling, family and group gatherings. As a special event, an equestrian competition is held each year in July. An outdoor concert was given at the park for the first time in the summer of 1978.

### Vegetation

As one enters the park, one is impressed by the mature stands of pine, maple and ash trees seen on both sides of the road. The Ministry of Public Works takes care of mowing any new ground growth. Much of the land between the parking lot and the eastern boundary is an open green space of mowed grass. A narrow wooded strip of trees remains along the eastern and southeastern boundary of the park, within which is centred the gravel road. Human influence on the vegetational composition of the park is also evidenced by the presence of exotic tree species by the parking lot and of the fruit tree orchard in the southeastern corner of the park.

### Wildlife

Red and grey squirrels and chipmunks are particularly abundant in this park. Fifteen bird species were recorded in the winter and ten in the summer months.<sup>44</sup> An additional 44 species, mainly Passeriformes, (perching birds) have not been recorded in the park but

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<sup>44</sup> From a checklist provided by Mr. Jean Hardi, vice-president of the 'Club des Ornithologues du Quebec, Inc.'.

their occurrence is considered highly probable during either/both the winter or summer season (Jean Hardi, pers. comm., 1978).