



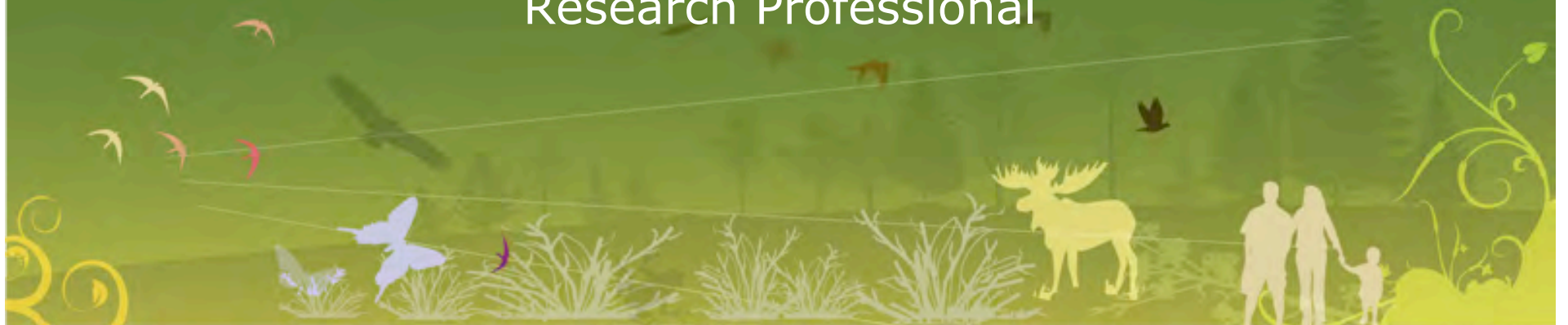
Development of tools for biodiversity data discovery and sharing in Quebec

Quebec Centre for Biodiversity Science

December 9, 2011

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Research Professional

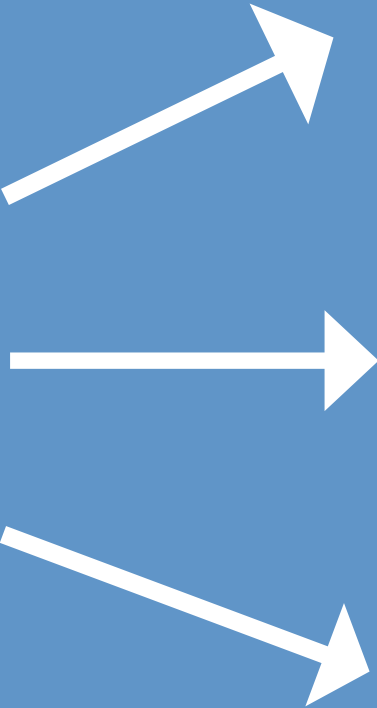
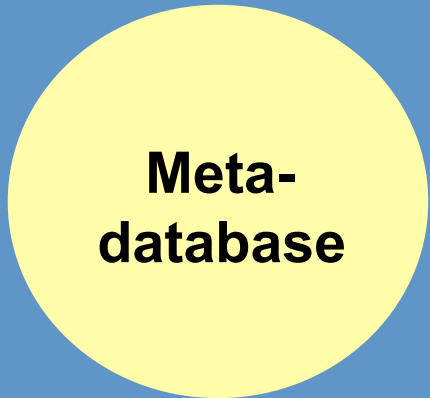




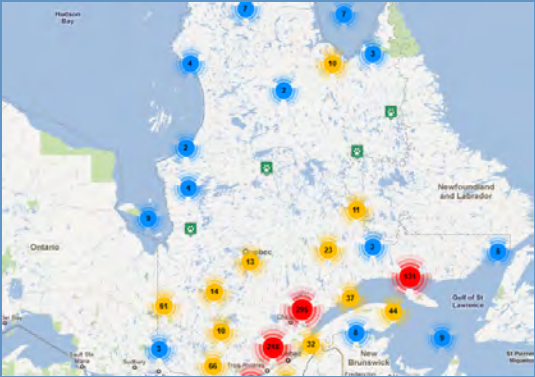
QCBS objective

**Collect, integrate and make accessible
metadata about field studies of
biodiversity in Quebec**





Discovery tools



Data sharing



Meta-analysis





Field biodiversity data in Quebec

Issues

- Held by various institutions.
- Data in different formats (Excel, paper, Access DB, ...) and structures.
- No integrated platform that assembles or provides access to all the different sources and types of metadata or data.



Does initial suppression of allofeeding in small jays help to conceal their nests?

Dan Strickland and Thomas A. Waite

Abstract. A neglected question in the study of communal breeding in birds concerns why alloparenting begins at variously late stages in the nesting cycle. We studied this phenomenon in the Gray Jay (*Perisoreus canadensis*), a species in which nonbreeders are excluded from the nest area by parental hostility and begin to feed young only during the fledgling period. We hypothesize that this pattern is favoured because of the risk of nest predation. By initially suppressing allofeeding, Gray Jay parents may reduce the frequency of predator-attracting visits to the nest when the young are most vulnerable. We evaluated this predator-avoidance hypothesis in a six-part meta-analysis using observations of 111 philopatric and immigrant nonbreeders associated with 647 pairs over 33 years and nest-visitation data for

away from the nest area (Woolfenden and Fitzpatrick 1984). In two (possibly three) other jays (see below) allofeeding starts during the fledgling period. In another, the Texas race of the Green Jay (*Cyanocorax yncas*), allofeeding is believed not to occur at all, even though nonbreeders are present throughout the nesting cycle (Gayou 1986).

Our interest in this phenomenon stems from the unexpected discovery that allofeeding in the Gray Jay (*Perisoreus canadensis*) can begin during the fledgling period (Waite and Strickland 1997; unpublished data), even though nonbreeders are typically excluded from the nest area by parental hostility during the nest-building, incubation, and nestling periods (Strickland 1991; Strickland and Ouellet 1993). A similar pattern occurs in a Oaxaca population of the Western Scrub-jay (*Aphelocoma californica*; Burt and Peterson 1993) and it may also occur in the Siberian Jay (*Perisoreus infaustus*), the Palaearctic congener of the Gray Jay. In this species, nonbreeders are actively excluded from the nest area during the nestling period (Blomgren 1971; Lindgren 1975; Ekman et al. 1994), but allofeeding has not been reported

also with a low number of nonbreeders (i.e., another factor compromising the ability to defend against nest predators).

Study areas and methods

General

Fieldwork was carried out from 1967 to 1999 in the Réserve de la Vérendrye, Quebec, and Algonquin Provincial Park, Ontario. All intensively observed birds in the study populations were colour-banded, including 741 nestlings in 287 successful nests. See Strickland (1991) for detailed descriptions of study areas and general methods, including nest-finding procedures.

Definitions

We divided the Gray Jay breeding cycle into five periods: before breeding (BB): from January 1 up to 21 days before the first egg was laid; nest building (NB): 1–20 days before the first egg; incubation period (IP): 0–20 days after the first egg; nestling period (NP): 21–44 days after the first egg; and fledgling period (FP): 45 or more days after the first egg. Gray Jay nonbreeders may be either “philopatric” (i.e., birds approaching 1 year of age and still



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Index to Organism Names (ION)





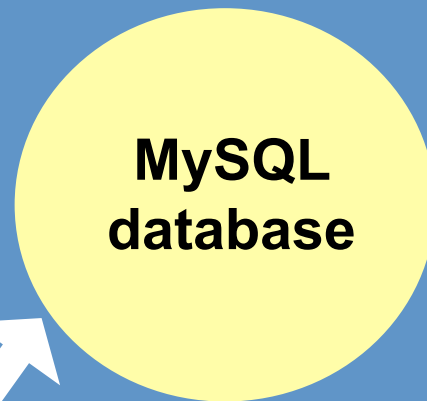
Zoological Record database for Quebec

- 7,520 entries (one species in one article).
- 2,734 different organism names.
- 5,062 different articles.
- 547 different geographical names.
- 5,945 only specify 'Quebec'.





Alces alces
= Orignal
= Moose
= Mammalia



The Google Geocoding API

Ste-Perpétue, Québec, Canada
= 47.057844,-69.92682

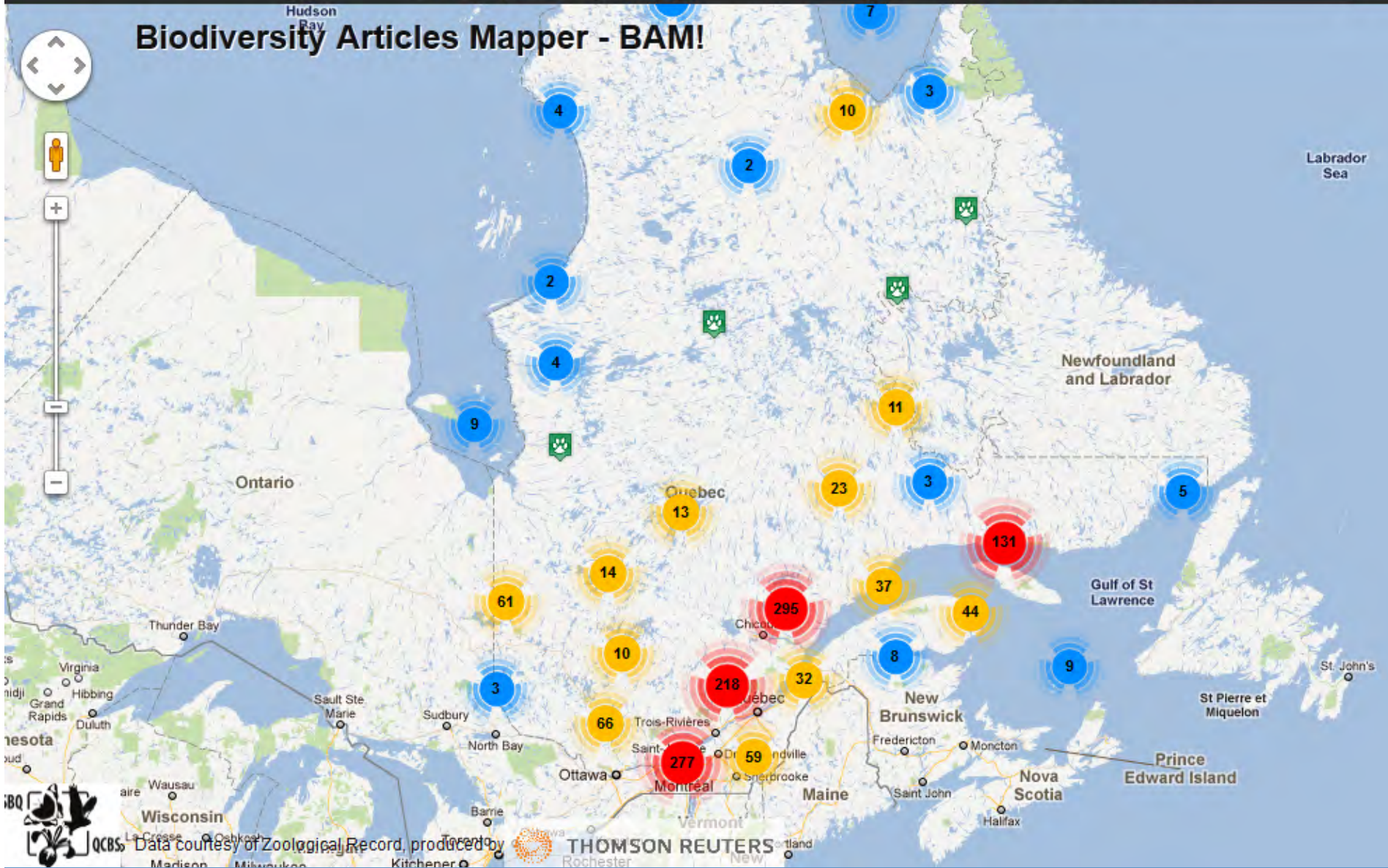
Journal of Wildlife Management
74(1), January 2010: 3-11
= 10.2193/2008-149

Geog_detail	Latlong	Organism_name	english_name	french_name	Class	Reference	ZRLink	DOI
Cote-Nord	51.013755,-67.631836	Salvelinus fontinalis	brook trout	omble de fontaine	Osteichthyes	Canadian Journal of Fisheries and Aquatic Sciences...	http://gateway.isiknowledge.com/gateway/Gateway.cg...	10.1139/f00-089
Abitibi	48.5706148,-77.9494546	Perca flavescens	yellow perch	perchaude	Osteichthyes	Canadian Journal of Fisheries and Aquatic Sciences...	http://gateway.isiknowledge.com/gateway/Gateway.cg...	10.1139/f00-118
Ottawa River	45.4506668,-76.3079573	Salvelinus namaycush	lake trout	touladi	Osteichthyes	Canadian Journal of Zoology 78(9), September 2000...	http://gateway.isiknowledge.com/gateway/Gateway.cg...	
Saint Maurice River	47.001992,-72.9262894	Salvelinus namaycush	lake trout	touladi	Osteichthyes	Canadian Journal of Zoology 78(9), September 2000...	http://gateway.isiknowledge.com/gateway/Gateway.cg...	
Forillon National Park	48.9232975,-64.3953587	Salvelinus fontinalis	brook trout	omble de fontaine	Osteichthyes	Molecular Ecology 9(7), July 2000: 971-982.	http://gateway.isiknowledge.com/gateway/Gateway.cg...	10.1046/j.1365-294x.2000.00965.x
Quebec	NULL	Glossosoma (Diploglossa) spinatum	NULL	NULL	NULL	Entomological News 111(3), May-June 2000: 227-232...	http://gateway.isiknowledge.com/gateway/Gateway.cg...	
Bromont	45.319082,-72.645947	Aphidoidea	NULL	NULL	Insecta	Entomologia Experimentalis et Applicata 97(1), Oct...	http://gateway.isiknowledge.com/gateway/Gateway.cg...	

<http://www.qcbs.ca/BAM>

Search by Search or filter by Class

Biodiversity Articles Mapper - BAM!





Challenges

- Dealing with non-point locations (zones).
- Articles with unclear geographical or species descriptions.
- Articles with no locations.
- Animals only.





Potential for improvement

Out of 100 randomly chosen articles:

- 53 were found online in PDF format.
- 35/53 (66%) had more detailed place names than recorded by Zoological Record.
- 31/53 (58%) had coordinates specified in the article.
- 27 (51%) were referring to multiple locations.





Metadata project



Create a standardized framework for entering, storing, searching and displaying metadata for field studies on Quebec's biodiversity.

- Grew from a QCBS working group.



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Biology

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Site Details

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Dataset Name

Dataset Description

Who collected the data

Who holds the data

Contact information for data holder

Institution:

Email:

Phone:

Address:

Other institution(s) involved in data collection, analysis, archiving, etc. (e.g. university, government department)

Funding sources for data collection

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Describe taxa studied Please use taxonomic level that best represents the data

Taxonic information

- Mammalia
- Aves
- Amphibia
- Pisces
- Insecta
- Vermes
- Monandria
- Diandria

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Describe the study design

Study Status

- Ongoing
 Complete

Sampling approach(es)

- Direct visual observation (e.g. Fieldwork)
 Indirect visual observation (e.g. photos)
 Active sampling (e.g. electrofishing, plant vouchers)
 Passive sampling (e.g. insect or mammal traps)
 Remote sensing

Study goal(s)

- Individual level (e.g. behaviour, physiology, autecology)
 Community level (e.g. richness, distribution, composition)
 Population/species level (e.g. systematic study)
 Ecosystem level
 Paleo-study
 Complete inventory
 Partial inventory
 Single species

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Number of sites included in the study

Describe the site(s) (including distribution of sites if more than one)

Describe site habitat(s)

Site Environment(s)

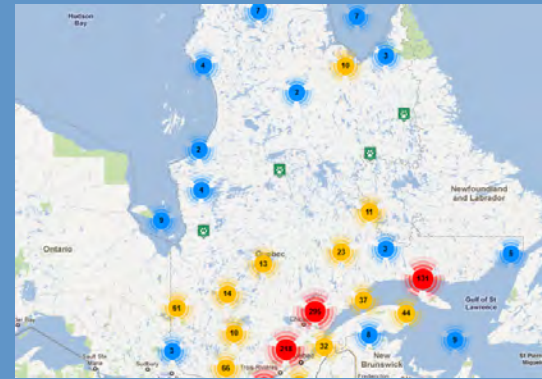
- Aquatic
- Terrestrial
- Marine
- Aerial

Coordinates

Location Name

**Meta-
database**

Discovery tools



Data sharing



Meta-analysis





Next Steps

- Continue improving BAM!: data improvements, expansion of database, future data.
- Pilot the metadata form with QCBS members, then reach out to all data holders in Quebec.
- Integrate with other databases?



