The Porcupine River Watershed Remedial Action Plan

Photo by László Götz

Stage 2 Report

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Important note: This Stage 2 Report must be used in conjunction with a previous 2014 report named "The Porcupine River Watershed Remedial Action Plan – Stage 1 Report" found in Appendix 2 of this report.

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Stage 2 Report

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Actions implemented to restore the beneficial uses and enhance the ecosystem of the Porcupine River Watershed

CHAPTER 1

INTRODUCTION

The aim of the Second Phase of the Remedial Action Plan (RAP) was to begin the implementation of the Porcupine River Watershed Restoration Action Plan adopted in 2014 (The Porcupine River Watershed Remedial Action Plan Stage 1 Report).

During this Second Phase a not-for profit, for public benefit organization named the *Friends of the Porcupine River Watershed* was formed and incorporated to take over as a non-formal "stewardship committee" with the goal of spearheading the Remedial Action Plan, to continue to work with all stakeholders of the First Phase, including provincial ministries, local government, local industry, the larger public and concerned non-governmental organizations.

The stated mission of the Friends of the Porcupine River Watershed is to:

- To educate, influence, promote and support community based stewardship of natural resources in the Porcupine River watershed, and

- To provide community based guidance for the good management, enhancement and utilization of healthy, sustainable, aquatic and terrestrial ecosystems.

The Friends of the Porcupine River Watershed is continuing to work towards the finalization of the Remedial Action Plan to create a management strategy that will identify short and long term goals along with those actions needed to meet those goals.

The Ontario Community Environment Fund that made possible guiding this process uses money collected from environmental penalties for mining operations located in the watersheds where the violation(s) occurred. Environmental penalties are issued for spills and other violations such as failing to comply with regulatory requirements. These penalties encourage industrial facilities to plan ahead to prevent spills and mitigate any effects when spills do occur. Ontario Community Environment Fund money funds projects focused on environmental remediation, research and education relating to spills and restoration of the environment, and projects related to spill preparedness.

The mandate of the Mattagami Region Conservation Authority is the protection, management, restoration and development of the natural resources within its watershed area. The focus is primarily on water management including flood and erosion control, water quality and strategic watershed planning. The Mattagami Region Conservation Authority also has a mandate in land and forest management, outdoor recreation and conservation education. The Mattagami Region Conservation Authority is a community-based conservation organization focused on watershed resource management programs and projects. It was established in 1962 and has been involved in a variety of watershed studies over the years. Recently, the Mattagami Region Conservation Authority managed the Source Water Protection Program for the Mattagami Region Source Protection Area under the guidance of the Ministry of the Environment and Climate Change.

The Conservation Authority often works in partnership with other local and provincial organizations in order to fulfill its water and land management goals and objectives.

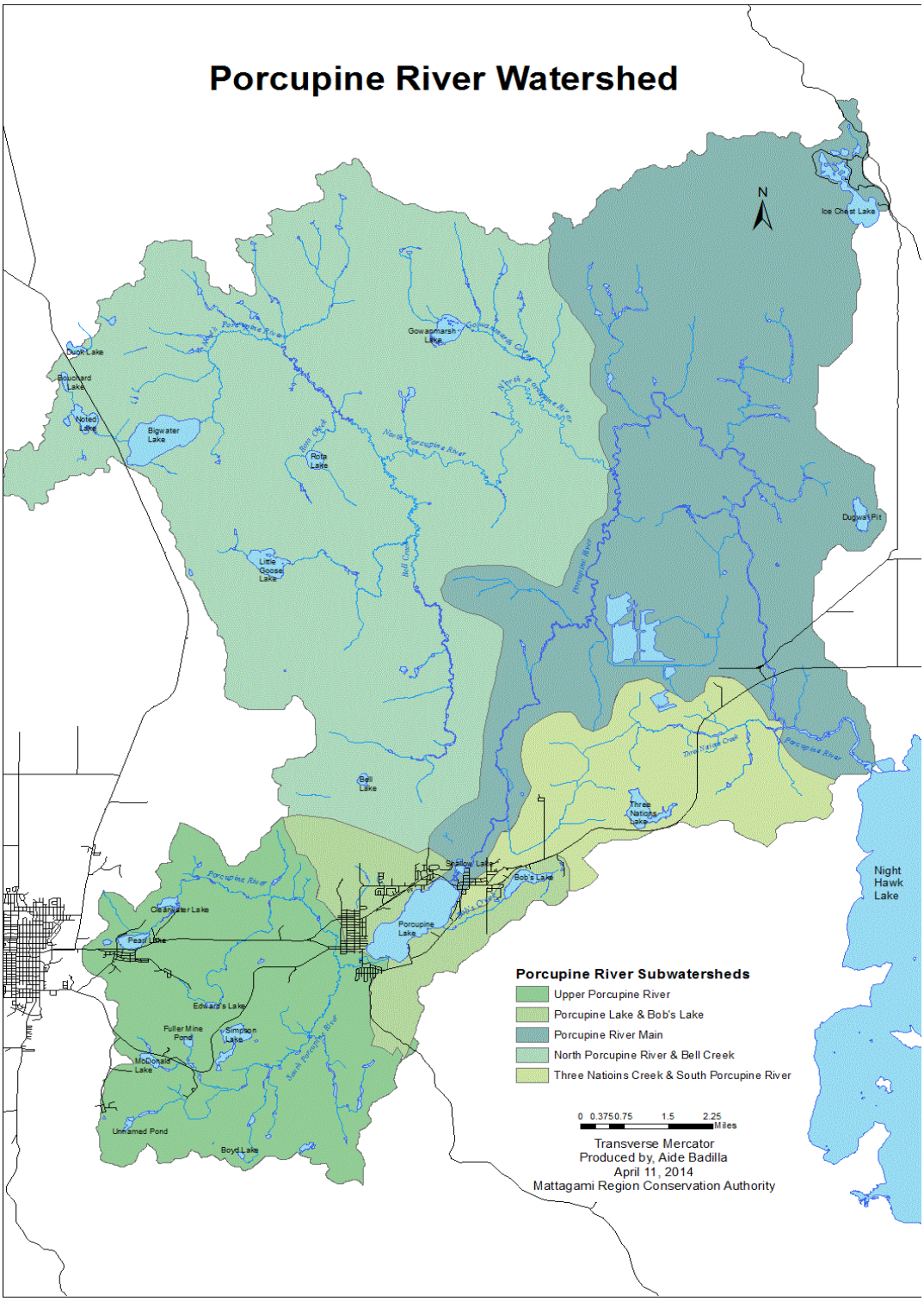


Figure 1. - Porcupine River Watershed and its Sub-watersheds.

CHAPTER 2

Forming and Incorporating of the Friends of the Porcupine River Watershed

Starting the second phase of the implementation of the Porcupine River Watershed Remedial Action Plan, we searched for a way to implement its recommendation 21 recommending *promoting stewardship amongst all shoreline property owners in the watershed*. Looking at other jurisdictions where stewardship committees were successfully operating it was decided to form the Friends of the Porcupine River Watershed not for profit, for public benefit organization with the mandate of helping coordinating the implementation of the Remedial Action Plan and to help further developing and refining the Remedial Action Plan.

Friends of the Porcupine River Watershed was incorporated under Ontario laws in October 28, 2014, staring with three volunteer directors, having as counsellors to the directors the former Remedial Action Plan Management Team formed in the past years. Following the incorporation a set of bylaws, terms of reference for the operation of the council were drafted along with a structure and set of templates allowing for proper functioning of the organization.

Activities of the Friends of the Porcupine River Watershed from its inception to present

- Inspected walleye spawning beds and shoreline erosions locations with Ministry of Natural Resources and Forestry biologist,
- Created and submitted funding application package to Land Stewardship and Habitat Restoration program for walleye spawning bed rehabilitation and shore-land stabilization by planting of native vegetation,
- Created and submitted funding application to Ontario Community Environment Fund for public outreach and public education,
- Drafted Bylaws, Terms of Reference, organizational structure, banking arrangements and set of templates, allowing for proper functioning of the new organization.
- Held monthly meetings with the former Porcupine River Remedial Action Plan Management Team, new members were invited to the meetings
- According to Recommendation 1 of the Remedial Action Plan, developed a Code of Ecosystem Ethics,
- Assembled and completed the review of a collection of nineteen environmental effects monitoring studies written of various sections of the Porcupine River in the period of 1996-2014,
- Completed an electronic database containing water quality and fish communities information of the above mentioned studies

- Commenced an electronic database containing sediment quality information of the above mentioned studies,
- Negotiated a "data mining" study of the nineteen historical environmental effects monitoring studies with the Laurentian University's Dr. Charles Ramcharan, who will lead a Master's student research in late 2015. the results will help refining the priorities of the Porcupine River Watershed Remedial Action Plan and help identifying any gaps in the Plan,
- Held a press conference announcing the formation of the Friends of the Porcupine river Watershed, invited the greater public to become members of the organization,
- Made a presentation of the Friends of the Porcupine River Watershed to the Timmins Wintergreen organization, familiarized them with its goals and objectives and its short term projects,
- For a contaminant bio-monitoring study involving furbearing animals of the watershed, negotiated the help of Laurentian university's Dr. Frank Mallory, who will lead a master's student research in the fall of 2015. The results of this study will help in understanding whether bioaccumulation occurs in the watershed and if yes, it will help quantify it.
- To prepare for shoreline stabilization by planting riparian zone native vegetation, the Ministry of Natural Resources and Forestry seed bank from Angus and the Timmins Millson Forestry were contacted and arrangements were negotiated,
- Made a presentation of the Friends of the Porcupine River Watershed to the Local Citizens Committee, familiarized them with its goals and objectives and its short term projects,
- In line with the objectives and recommendations of the Phase I Remedial Action Plan, a funding application to the Mountain Equipment Coop environmental Fund was made for creating a canoe/kayak route on the Porcupine River extending from Porcupine Lake to Nighthawk Lake,
- To increase public awareness about the Friends of the Porcupine river Watershed and its projects:
    - two banners stating the mission of the not for profit corporation, a call to join the group along with contact information, link to its website and Facebook site were made to be displayed during any of the "Friends" organized events,
    - several hundreds of coloured pamphlets explaining the goals and projects of the "Friends" were printed to be distributed to the public in large, and
    - Colouring pages and coloured bookmarks were made to be distributed to children and youth, displaying contact information to the "Friends"
- To increase public awareness of the Porcupine River watershed, a fundraising campaign was initiated to help raise funds for the operation of the Friends of the Porcupine River

Watershed. The high school students of the South Porcupine Roland Michener Secondary School, the Timmins branch of Métis Nations of Ontario, several; commercial establishments of Timmins and numerous volunteers were involved in building and raffling of an ice fishing hut. The raffle was conducted from March to May 2015. This raffle created a vehicle for positive contact with the ice-fishing community which will facilitate the future implementation of Recommendation 18 of the Remediation Action Plan which requires the development and the implementation of a program for the proper disposal of human wastes and litter associated with ice-fishing, In addition to raising community awareness and recruiting volunteers for the Friends of the Porcupine River Watershed.

- Plans for further river characterization using bathymetry survey for the Porcupine Lake and a section of Porcupine river towards Gowanmarsh Lake were made,
- With the help of Ministry of Natural Resources and Forestry biologist we are continuing the marsh monitoring program for amphibians, the march monitoring program for birds and salamanders,
- In order to create a canoe route, an exploratory trip was made identifying remaining obstacles and identifying prospective campsite locations. Plans are being finalized to establish camping sites with the help of the Youth Stewardship Rangers later this summer, and the application process with MNRF has been started,
- Plans are being made to survey Simpson Lake mudpuppies habitat to establish presence/absence of mudpuppy mussels,
- Native shrubs and trees were planted by a large number of volunteers on the selected shorelines of the Porcupine River and Pearl Lake to restore riparian zone vegetation on June 20 & 21 and July 11 & 12, 2015.
- Successfully carried out the major project of restoring and enhancing selected walleye spawning beds with the help of Youth Stewardship Rangers and a number of volunteers on July 11 and 12, 2015,
- Plans are being made to hold a cleanup day the litter and garbage accumulated on the shorelines of Porcupine Lake on August 8, 2015 and
- A funding application to Wintergreen Foundation is being prepared.

CHAPTER 3

Current status/level of implementation of the recommendations of Phase I Remediation Action Plan

Below is the updated "**Table 4"**, adapted from the Stage 1 Report of the Porcupine River Watershed Remedial Action Plan which summarizes the recommendations of the Remedial Action Plan. In the table's second column "Level of priority/current situation", highlighted in bold lettering the present progress of each recommendation is detailed.

Table 4. **Summary of recommendations and Proposed Schedules, Implementer and Partners, and Total Estimated Cost ($0,000) of Porcupine River Watershed Remedial Action Plan**

Recommendation	Level of priority - Current situation	Proposed Implementer	Proposed Partners	Estimated Total Cost ($0,000.)	
				One Time Capital Cost	Ongoing Cost
Ecosystem Approach					
1. The Porcupine River Watershed community should give priority to developing, promoting and implementing a code of ecosystem ethics to (1) guide and influence the actions of its residents and commercial enterprises, and (2) protect environmental quality and human health in the area.	**I – In progress. A DRAFT code was prepared and it is currently being presented to the stakeholders for debate before its adoption.**	The Porcupine River Watershed Remediation Action Plan Committee	Friends of the Porcupine River Watershed's Committee to the Board of Directors	n/a	Included in Recommendation # 43
2. The ecosystem approach, which includes concepts such as sustainable development, should be integrated into future land use and economic planning processes within the Porcupine River Watershed.	**I - Ongoing**	All sectors	City of Timmins Industries All federal & provincial agencies Mattagami Region Conservation Authority	n/a	No new costs identified
3. The federal, provincial and municipal governments, as well as the MRCA and all other Porcupine River Watershed stakeholders, should endorse the Porcupine River Watershed RAP implementation structure as presented in Chapter 8 of Phase 1 Report, and should participate fully as partners.	**I – In progress; the Remedial Action Plan was endorsed; the provincial and municipal governments are currently partners of the Friends of the Porcupine River Watershed. The federal government yet has to be invited to the table**	Friends of the Porcupine River Watershed's	Government of Canada Agencies Government of Ontario Agencies City of Timmins Mattagami Region Conservation Authority All Porcupine River Watershed RAP stakeholders groups	n/a	No new costs identified
4. The principles of polluter-pays, user-pays and beneficiary-pays should apply, where appropriate, to the recommended pollution prevention and ecosystem protection measures described herein.	I	The polluter The user The beneficiary		n/a	No direct costs identified
5. Specific government funding programs should continue to be established for RAP implementation and these funds targeted for use only in the Porcupine River Watershed region.	**I – Not yet implemented; the Friends of the Porcupine River Watershed as of this date were yet unsuccessful in its attempts in securing funds through government funding programs. Preparation and submission of various funding applications is ongoing.**	Government of Canada Government of Ontario	Agencies of the Government of Canada Agencies of the Government of Ontario	n/a	Costs of The Porcupine River Watershed RAP noted below

Excessive Nutrient Enrichment					
6. Responsible parties within the watershed should co-operate in the development of innovative cost effective strategies for achieving and maintaining the Porcupine River Watershed total phosphorus loading limits.	**I - Phosphorous levels/limits/strategies will be addressed as soon as the South Porcupine sewage surge tanks currently under construction on the shorelines of Porcupine Lake will be completed**	City of Timmins Industries Institutions The Porcupine River Watershed Remediation Action Plan Committee	Mattagami Region Conservation Authority Ontario Ministry of Natural Resources and Forestry City of Timmins Ontario Ministry of Environment and Climate Change Departments of Education	n/a	65
7. Official Plans in the Porcupine River Watershed drainage basin should be amended at the time of their next cyclical review to include a strategy to prevent increased phosphorous loading to the watershed associated with the jurisdiction planned growth and development.	**S - Phosphorous levels/limits/strategies will be addressed as soon as the South Porcupine sewage surge tanks currently under construction on the shorelines of Porcupine Lake will be completed**	City of Timmins	Ontario Ministry of Environment and Climate Change The Porcupine River Watershed RAP Committee City of Timmins	Part of regular municipal planning process No new cost identified	n/a
8. The Whitney & Tisdale sewage treatment plant and Bob's Lake Lagoon should limit the concentration of phosphorous in their effluent to a monthly average of <0.5 mg/L.	**S - Phosphorous levels/limits/strategies will be addressed as soon as the South Porcupine sewage surge tanks currently under construction on the shorelines of Porcupine Lake will be completed**	City of Timmins	Ontario Ministry of Environment and Climate Change	11,244	Plus annual operating and maintenance of 162
9. The City of Timmins should develop a progressive plan for reduction/elimination of lift stations bypasses.	**M - Sewage surge tanks in South Porcupine which are currently under construction and are expected to be completed in the summer of 2015 will address this issue**	City of Timmins	Ontario Ministry of Environment and Climate Change	16	n/a
10. The Whitney & Tisdale water treatment plants should stop discharging untreated wastewater to the watershed.	**S-Sewage surge tanks in South Porcupine which are currently under construction and are expected to be completed in the summer of 2015 will address this issue**	City of Timmins	Ontario Ministry of Environment and Climate Change	700	n/a
11. The Whitney & Tisdale sewage treatment plant should be assigned, as a compliance limit on their Operating Certificate of Approval, a not-to-be-exceeded phosphorus load limit.	S–not yet implemented	Ministry of Environment and Climate Change	City of Timmins	n/a	No new costs identified Operating cost to maintain load –

This load limit should be defined as the product of an effluent concentration of 0.5 mg/l multiplied by the sewage treatment plant's approved hydraulic capacity on the date that the Porcupine River Watershed RAP receives provincial government endorsement for implementation.					to be determined
12. The Whitney & Tisdale sewage treatment plant, Bob's Lake Lagoon, & Ontario Government Complex Lagoon effluent sampling should be conducted in accordance with the Minimum Municipal Sampling Program for Seasonal Discharge Sewage Treatment Plants and Lagoons.	**I–implemented and ongoing**	Ministry of Environment and Climate Change	City of Timmins	n/a	No new costs identified
13. The City of Timmins should develop a plan to monitor impacts from bypass events on the Porcupine River and Porcupine Lake.	**I - Initiated and ongoing**	Municipality	City of Timmins	16	n/a
Bacteriological Contamination					
14. The City of Timmins should undertake Pollution Control Planning Studies to identify and, where required, implement actions to eliminate the sources of bacterial contamination and other pollutants along the waterfront.	**I - Initiated and ongoing**	City of Timmins	Ontario Ministry of Environment and Climate Change	313.5	n/a
15. The municipality in the Porcupine River Watershed should implement long range strategies for sewer system inspection, rehabilitation and maintenance.	**I - Initiated and ongoing**	City of Timmins The Porcupine River Watershed The Porcupine River Watershed Remediation Action Plan Committee DND	Ontario Ministry of Environment and Climate Change Ontario Ministry of Education Ontario Ministry of Municipal Affairs	n/a	7,340
16. The municipality in the Porcupine River Watershed should implement water conservation programs to reduce the wastage of water.	**I – A summer months water ban regulating water allowance for lawn watering is being implemented each summer; other programs are being under consideration**	City of Timmins The Porcupine River Watershed Remediation Action Plan Committee	Ontario Ministry of Environment and Climate Change Ministry of Government Services Ontario Ministry of Education Ontario Ministry of Natural Resources and Forestry	570	n/a
17. Operating authorities for public beaches in the Porcupine River Watershed should take measures to discourage waterfowl feeding, the presence of gulls and prohibit the presence of dogs at swimming areas.	**I - There are "no dogs allowed" signs on the Porcupine Lake public beach, signs prohibiting feeding birds remain to be installed. An amendment to the City of Timmins by-law regulating the use of public parks, NO. 2002-5642, requiring dogs not to be permitted on public beaches was recently recommended by the Friends of**	Beach operating authorities	Ontario Ministry of Environment and Climate Change Porcupine Health Unit Ontario Ministry of Education	n/a	50

	the Porcupine River Watershed				
18. The Ontario Ministries of the Environment and Natural Resources should cooperatively develop and implement a program which ensures the proper disposal of human wastes and litter associated with the watershed's ice-fishing community.	**S - As a first step to approach the ice-fishing community, an ice-fishing hut was collaboratively constructed with the community and raffled off while purchasers of the raffle tickets were made familiar with the mission and the goals of the Friends of the Porcupine River Watershed. As the Friends of the Porcupine River Watershed continues with this type of activity, the proper disposal of human wastes and litter will continue to be part of this further education.**	Ministry of Natural Resources and Forestry Ministry of Environment and Climate Change	Initially the Conservation Authorities and the City of Timmins was identified to carry out this type of education, however the FPRW is already doing the first steps in this area	Part A Program development no new cost identified	Part B To be determined
19. The Province of Ontario's sub-watershed Planning Process should be adopted and employed by the City of Timmins municipality to provide direction for the preparation of Secondary Official Plans for areas slated for new urban development.	I	Municipality The Porcupine River Watershed Remediation Action Plan Committee	Ontario Ministry of Environment and Climate Change Conservation Authorities Ontario Ministry of Natural Resources and Forestry Ontario Ministry of Municipal Affairs	8	n/a
20. An investigation program should be undertaken to investigate the private waste disposal systems (e.g., septic tanks) on all properties having frontage on the Porcupine River Watershed and where required, corrective actions are implemented.	S	Ministry of Environment and Climate Change	Ontario Ministry of Natural Resources and Forestry Ontario Ministry of Environment and Climate Change Porcupine Health Unit	263	n/a
21. The Porcupine River Watershed Remediation Action Plan Committee should provide awareness kits and promote stewardship amongst all shoreline property owners in the watershed.	I	The Porcupine River Watershed Remediation Action Plan Committee	Ontario Ministry of Natural Resources and Forestry Ontario Ministry of Environment and Climate Change Conservation Authorities Ontario Ministry of Education Porcupine Health Unit	n/a	Included in Recommendation # 79

Persistent Toxic Contaminants					
22. The federal and provincial governments should show more tangible evidence of their commitments to the goals of virtual elimination and zero discharge of persistent toxic contaminants by making greater use of their legislative authority to ban the production and use of such substances.	S	DOE Ministry of Environment and Climate Change	Health and Welfare Canada	n/a	Internal costs only
23. A comprehensive communications program should be initiated to provide consumers with information about the persistent toxic compounds contained in marked products and safe alternative choices	S	The Porcupine River Watershed Remediation Action Plan Committee	Ontario Ministry of Environment and Cli Change Health and Welfare Canada Ontario Ministry of Education	n/a	No new costs identified
24. The watershed's municipality and other jurisdictions should cooperatively develop permanent programs, facilities and schedules for the collection and safe disposal of household hazardous wastes.	**I - The City of Timmins plans to reintroduce next year an annual campaign to collect and dispose household hazardous wastes. For the time being Cindy Lou Auto Wreckers are collecting mercury switches (auto and A/C systems).**	Municipality The Porcupine River Watershed Remediation Action Plan Committee.	Ontario Ministry of Environment and Cli Change Ontario Ministry of Education	n/a	Total cost to be determined
25. Efforts should be directed towards source control at a number of closed tailings areas along the Upper Porcupine River (both south and north arms), which appear to be contributing elevated metal levels in both the water column and the sediment.	**I - Planning is underway at Porcupine Gold Mines for the reclamation of the Aunor-Delnite mine sites, associated tailings and clean-up of historic concentrate tailings and tailings spill to the headwaters of south branch of the Porcupine River. Tailings continue to be removed to manufacture underground paste-fill from the McIntyre Tailings a facility adjacent to the north branch of the Porcupine River.**	Ministry of Natural Resources and Forestry Ministry of Environment and Climate Change	Industry The Porcupine River Watershed Remediation Action Plan Committee	n/a	Post monitoring after source control measures are implemented
26. Efforts should be directed towards source control at the Dome active tailings discharge, which had elevated levels of copper and nickel in the discharge.	**I - Environment Canada's review of the Metal Mining Effluent Regulations could result in stricter effluent limits which at its turn will require improved source control at the water treatment phase of the Dome active tailings discharge, at the Little Pearl Tailings Facility discharge or at Pamour Open Pit**	Ministry of Natural Resources and Forestry Ministry of Environment and Climate Change	Industry The Porcupine River Watershed Remediation Action Plan Committee	n/a	Post monitoring after source control measures are implemented

	T3 tailings discharge.				
27. Efforts should be directed towards source control at the Kidd Tailings Management Area, which had contributed to elevated metals as well as gypsum in the Porcupine River sediments, resulting in impacts on the benthic community downstream of the site and elevated metals in fish tissue from Night Hawk Lake.	**I - Environment Canada's review of the Metal Mining Effluent Regulations could result in stricter effluent limits which at its turn will require improved source control at the water treatment phase of the Dome active tailings discharge, at the Little Pearl Tailings Facility discharge or at Pamour Open Pit T3 tailings discharge.**	Ministry of Natural Resources and Forestry Ministry of Environment and Climate Change	Industry The Porcupine River Watershed Remediation Action Plan Committee	n/a	Post monitoring after source control measures are implemented
28. Efforts should be directed towards source control at the area around Three Nations Creek, which had elevated levels of cadmium and zinc.	**I - Kidd Operations implemented the Three Nations Creek Recovery Action Plan that already resulted in reduction of cadmium and zinc and other heavy metals levels in the Three Nations Creek.**	Ministry of Natural Resources and Forestry Ministry of Environment and Climate Change	Industry The Porcupine River Watershed Remediation Action Plan Committee	n/a	Post monitoring after source control measures are implemented
29. All snow disposal sites in the watershed should be properly designed to retain solids and prevent off-site release of persistent toxic contaminants and salt.	**S - Completed by the City of Timmins**	Municipality The Porcupine River Watershed RAP Committee	Ministry of Environment and Climate Change Ontario Ministry of Education	n/a	To be determined
30. All authorities involved in managing public lands, transportation routes and transmission corridors in the Porcupine River Watershed should (1) provide an inventory of their herbicide and pesticide use and (2) develop and implement strategies that will reduce their use of these chemicals in the watershed by 50 % by 2022.	L	Municipality Hydro One Pipeline companies Ontario Ministry of Transportation Mattagami Region Conservation Authority Ministry of Natural Resources and Forestry All other managers of public land	Ministry of Environment and Climate Change	No new cost identified-internal administration	n/a
Habitat destruction & ecosystem instability					
31. The Porcupine River Watershed and its supporting agencies should foster and support the establishment of tributary improvement associations.	**L - Ongoing, the Mattagami Region Conservation Authority and the Ministry of Natural Resources and Forestry helped starting the**	Ministry of Natural Resources and Forestry Mattagami Region Conservation	Tributary residents Environmental Associations	n/a	400

	Friends of the Porcupine River Watershed, organization which qualifies as a "tributary improvement association"	Authority	Sports Clubs Ontario Ministry of Environment and Climate Change Ontario Ministry of Education		
32. The federal and provincial governments should aid in the acquisition of the resources necessary to (1) complete the inventory and classification of the watershed's littoral zone and wetlands, (2) develop a comprehensive management plan for littoral zone and wetlands rehabilitation and protection, (3) undertake wildlife inventories in the Porcupine River Watershed and (4) develop wildlife protection strategies.	**I - Ongoing, the Friends of the Porcupine River Watershed is aided in this process by the Ministry of Natural Resources and Forestry**	Ministry of Natural Resources and Forestry	Ontario Ministry of Education Department of Fisheries and Oceans Ontario Ministry of Environment and Climate Change Mattagami Region Conservation Authority	235	n/a
33. The federal and provincial governments should cooperate to deliver the comprehensive Porcupine River Watershed fish and wildlife habitat and wetland rehabilitation and management referred to in # 32.	L	Ministry of Natural Resources and Forestry Department of Fisheries and Oceans DOE Province of Ontario Government of Canada	Mattagami Region Conservation Authority Hydro One	To be determined in Recommendation # 32	n/a
34. Fisheries and Oceans Canada and the Ontario Ministry of Natural Resources should continue to vigorously enforce the fish habitat protection provisions of the Fisheries Act to ensure there is no further net loss of the Porcupine River Watershed habitat and continue to actively pursue net gains.	L	Ministry of Natural Resources and Forestry Department of Fisheries and Oceans	The Porcupine River Watershed Remediation Action Plan Committee	n/a	No new costs identified
35. The Ontario Ministry of Natural Resources, the Ontario Ministry of Municipal Affairs, the Porcupine River Watershed Committee, Mattagami Region Conservation Authority, City of Timmins, local industries, Non- Government Organizations, the private sector and individuals should cooperatively prevent any further loss of the integrity of the watershed's remaining wetland ecosystems. They should also speed up wetland identification and evaluation and ensure that Provincially Significant Wetlands are incorporated into municipal official plans.	**S - ongoing, the Friends of the Porcupine River Watershed is aided in this process by the Ministry of Natural Resources and Forestry; wetland identification being the first part of this process**	Ministry of Natural Resources and Forestry	City of Timmins NGO's Industry Mattagami Region Conservation Authority Private sector and individuals The Porcupine River Watershed Remediation Action Plan Committee Ontario Ministry of Education	n/a	To be determined in Recommendation # 32
36. The Ontario Ministry of Natural Resources should prepare and information pamphlet outlining the methods by which individual landowners can restore and protect their shoreline by planting native vegetation.	I	Ministry of Natural Resources and Forestry	Mattagami Region Conservation Authority	10	n/a
37. The Porcupine River Watershed municipality should provide protection of the shoreline	**I - The City Official Plan is currently**	Municipality	Ontario Ministry of Natural Resources and	n/a	Administration and internal costs

and stream-banks within its jurisdiction by designating a buffer zone of 15 metres or greater in their Official Plan to be maintained undisturbed as a natural protection zone.	**under review, promises were made that the riparian buffer zone recommended will be introduced in the updated plan**		Forestry Mattagami Region Conservation Authority City of Timmins		only Additional cost to be borne by user
Other					
38. The governments of Canada and Ontario should commit long term resources to the Porcupine River Watershed Remediation Action Plan to maintain the program and its ecosystem database.	L	Government of Canada Government of Ontario	Department of Fisheries and Oceans Ontario Ministry of Natural Resources and Forestry Ontario Ministry of Education	n/a	Included in Recommendation # 39
39. The Porcupine River Watershed RAP Committee should coordinate and deliver the ecosystem research and monitoring component of the Porcupine River Watershed Remediation Action Plan.	**L - The Friends of the Porcupine River Watershed not for profit organization will continue coordinating and delivering ecosystem research and monitoring with the help and input from the Ministry of Natural Resources and Forestry**	Department of Fisheries and Oceans	Ontario Ministry of Natural Resources and Forestry Ontario Ministry of Environment and Climate Change Ontario Ministry of Education	n/a	100
40. The Porcupine River Watershed RAP should evaluate the watershed ecosystem response to remedial actions and report annually on the water quality status of the watershed.	**L - With the help of the Ministry of the Environment and Climate Change and the help of the mining companies using the watershed, the Friends of the Porcupine River Watershed will assemble an annual report on the water quality. As the RAP proceeds, in the future, evaluations of the watershed ecosystem response will be also included in the reports.**	Department of Fisheries and Oceans	Ontario Ministry of Natural Resources and Forestry Ontario Ministry of Environment and Climate Change Ontario Ministry of Education	n/a	Included in Recommendation # 38
41. Public involvement should be maintained throughout the implementation phase of the Porcupine River Watershed Remediation Action Plan and should include an opportunity for the public participants to report independently to the public-at-large on the progress of the Porcupine River Watershed Remedial Action Plan implementation.	**L - The Friends of the Porcupine River Watershed has already a wide range of members from many sectors of the society, and it maintains a website and a Facebook site open to the public; it is encouraging public participation in the implementation of the Remedial**	The Porcupine River Watershed Remediation Action Plan Committee		n/a	Included in Recommendation # 43

	Action Plan.				
42. The local Porcupine Region Boards of Education and the Porcupine River Watershed Remediation Action Plan Committee should work cooperatively to develop, produce and distribute, throughout the watershed, Porcupine River Watershed ecosystem educational materials for all grades, and that these materials are prepared so that the existing education curriculum requirements are employed.	**S - A funding application was made to the Ontario Community Environmental Funds (OCEF) to allow the development and distribution for such materials. OCEF decision is expected in the fall of 2015**	The Porcupine River Watershed Remediation Action Plan Committee Porcupine Region School Boards		270	n/a
43. The Porcupine River Watershed Remediation Action Plan Committee should with government support, maintain active involvement in all aspects of the Porcupine Remediation Plan's public information and consultation activities including promotion of the Porcupine Remediation Action Plan and its implementation.	**L - The Friends of the Porcupine River Watershed is taking on the role of public information and consultation activities of the Porcupine River Remediation Action Plan**	The Porcupine River Watershed Remediation Action Plan Committee	Ontario Ministry of Environment and Climate Change Ontario Ministry of Education Other government agencies	n/a	50 annually
44. Remediation of the watershed's sediments should be left to natural processes.	Not applicable	Not applicable		n/a	No cost

SCHEDULE KEY I = Immediate Term (0 to 3 years) S = Short Term (4 to 5 years) M = Medium Term (6 to 10 years) L = Long Term (11to 15 years)

DEFINITIONS **Proposed Implementer –** Government agency, group or individual responsible for implementation of recommended actions.

Proposed Implementing Partner(s) – Federal and provincial agencies with responsibility to initiate facilitate and track implementation on behalf of federal and provincial governments, and to assist the Implementer(s) to carry out their required task including providing advic resources or enforcement of regulations.

As it can be seen from the "Level of priority/current situation" column of the above Table 4 (summarizing the recommendations of the previously issued Porcupine River Watershed Remedial Action Plan the Stage 1 Report thirty one (31) of the forty four (44) recommendations were addressed since last year, and are being well on way towards their completion.

CHAPTER 4

Fish and Shoreline Habitat Remediation

The Friends of the Porcupine River Watershed was unsuccessful in its attempts to secure government funds through the Land Stewardship and Habitat Restoration Program. However, with the help of generous industry sponsors, local commercial sponsors and numerous volunteers, it decided to undertake two major projects, having the goal to re-establish and maintain aquatic shoreline and wildlife habitat conditions and fish spawning bed restoration and enhancement.

Planting of native vegetation on selected shorelines of Porcupine River and Pearl Lake

This project was carried out on June 20, 21; A number exceeding thirty volunteers ranging from children to seniors volunteered throughout two days, planting native shrubs and trees along the shorelines of Porcupine River and Pearl Lake in an attempt to recreate healthy riparian zones in areas where such vegetation was extirpated. Funds for this project were provided by three local mining companies, Goldcorp, Lake Shore Gold and Glencore. A Work Permit was obtained from the Ontario Ministry of Natural Resources and Forestry, the Department of Fisheries and Oceans advised that there is no requirement for an authorization and recommended that the guidance tools in “Measures to Avoid Causing Harm to Fish and Fish Habitat” were followed. Native shrubs and tree seeds collected in the fall by the Friends of Porcupine River Watershed were cultivated into seedlings by the local Millson Forestry. This project offered excellent recreational, educational, and community volunteering opportunities for all the participants.

Figure 2 – Planting of native trees and brushes to the shorelines of Pearl Lake

Rehabilitation and enhancement of selected walleye spawning beds

This project was undertaken on July 11 and 12, 2015 after being postponed several times due to high water levels in the river. Due to reduced funding (Land Stewardship and Habitat Restoration Program funding application not succeeding) the scope of the walleye spawning beds rehabilitation and enhancement was reduced to three of the previously selected five spawning beds.

On July 11 The Youth Stewardship Rangers, MNRF volunteers and a Mattagami First Nation member put in the silt curtains and assisted the South Porcupine and Whitney Volunteer Firefighters in using a wajax pump to hose down the walleye spawning bed at the Evans Street Bridge site in South Porcupine. At the same time Kevin Kilgour, Management Biologist with MNRF worked with the excavator and its operator to place rock donated by Miller Paving in the Porcupine River at the Bruce Street Bridge site. After the volunteer firefighters finished cleaning off the rocks on the Evans Street site the excavator was moved to that site and clean rock was added to the already existing spawning bed site on the downstream side of the bridge.

On July 12 approximately twenty volunteers with the Friends of the Porcupine River and the Youth Stewardship Rangers planted seedlings from Milsons Nursery in the areas disturbed by

the excavator the day before. In addition to planting some of the seedlings including the remainder of the milkweed seedlings in the green space on Evans Street across from the Public Works Building. At the CN Rail Bridge site transportation trucks and excavator could not be utilized; therefore all the rocks were transported with a small all-terrain vehicle, then hauled upriver and placed in the riverbed manually by Youth Leadership Rangers. While the Youth Stewardship Rangers and some of the MNRF volunteers hauled some of the clean rock into the third site and placed it in the Porcupine River the volunteers from the Friends of the Porcupine River planted seedlings in the riparian zone. A Work Permit was secured from the Ontario Ministry of Natural Resources and Forestry, while following the review of our proposal the Department of Fisheries and Oceans advised that there was no requirement for an authorization and recommended that the guidance tools found in the "Measures to Avoid Causing Harm to Fish and Fish Habitat" were followed.

Funds for this project were provided by three local mining companies, Goldcorp, Lake Shore Gold and Glencore. In kind work was offered by Eacom, Miller Paving, Whitney and South Porcupine Firefighters. Eacom provided the excavator and its operator; Miller Paving donated and delivered three dump truck loads of rocks for the spawning beds. The South Porcupine Firefighters provided a pumper truck and volunteers for its operation. Caron Equipment donated the silt curtains necessary for this undertaking.

Special thanks is offered to Scott Finucan, Fishery Science Specialist of the Ontario Ministry of Natural Resources and Forestry for helping us making the enhancement plans, and for Kevin Kilgour, Management Biologist of the Ontario Ministry of Natural Resources and Forestry for helping to direct the heavy equipment operator in the placement of rocks according to our plans.

Figure 3 – Transporting and then hauling of boulders manually upriver along the walleye spawning bed

CHAPTER 5

Biological Monitoring

Walleye spawning

A concerted effort was made to survey walleye spawning at five selected spawning beds this spring. Once the ice melted daily temperature measurements were made to predict the moment when the water temperature increased to 6°C. Unfortunately due to a sudden and sharp increase of the temperatures, the spawning of the walleye was missed and during the survey only sporadic post spawning activity was noticed. Field notes are attached in **Appendix 1**.

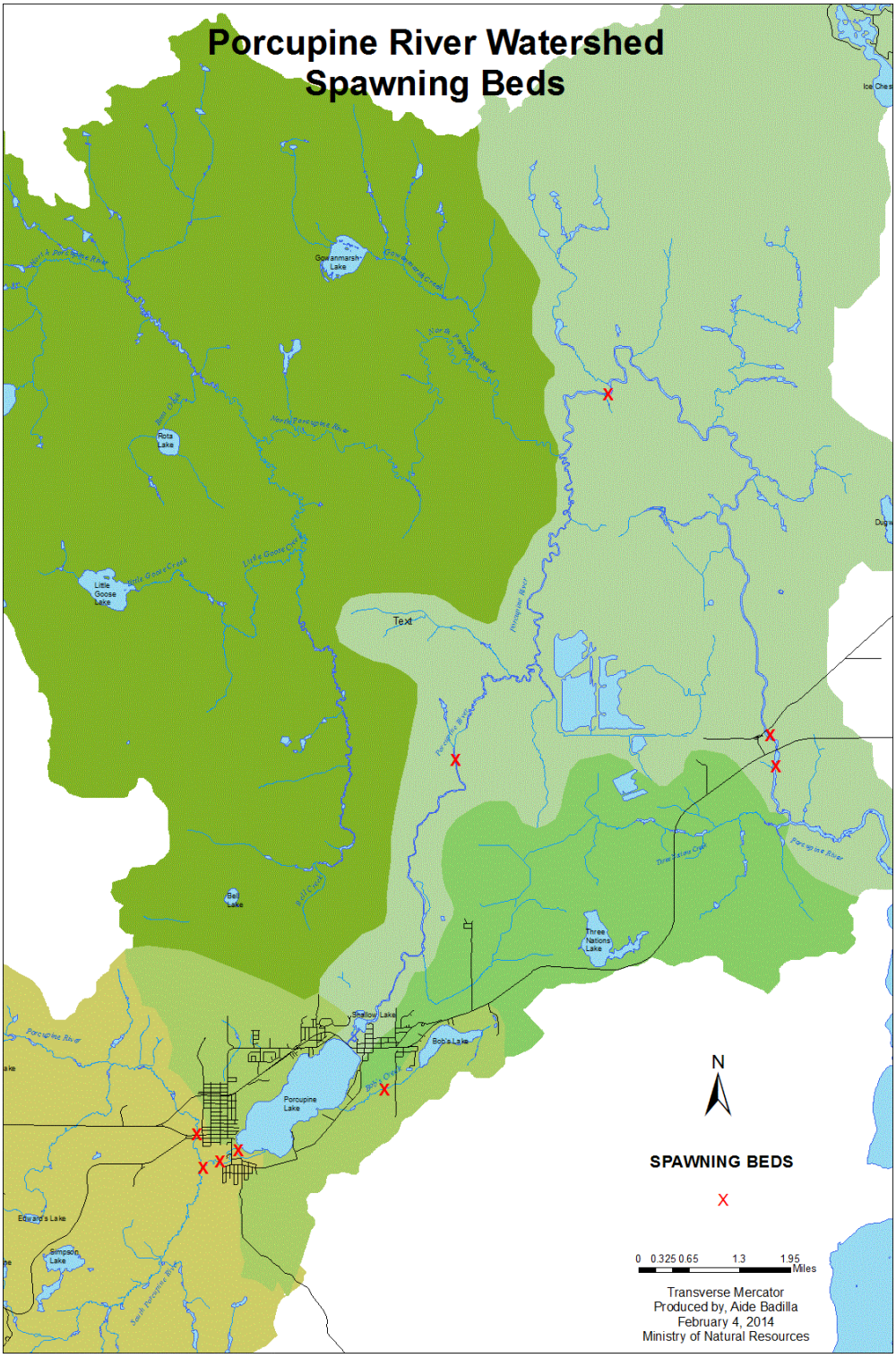


Figure 4 - Porcupine River Watershed Spawning Beds

Amphibians

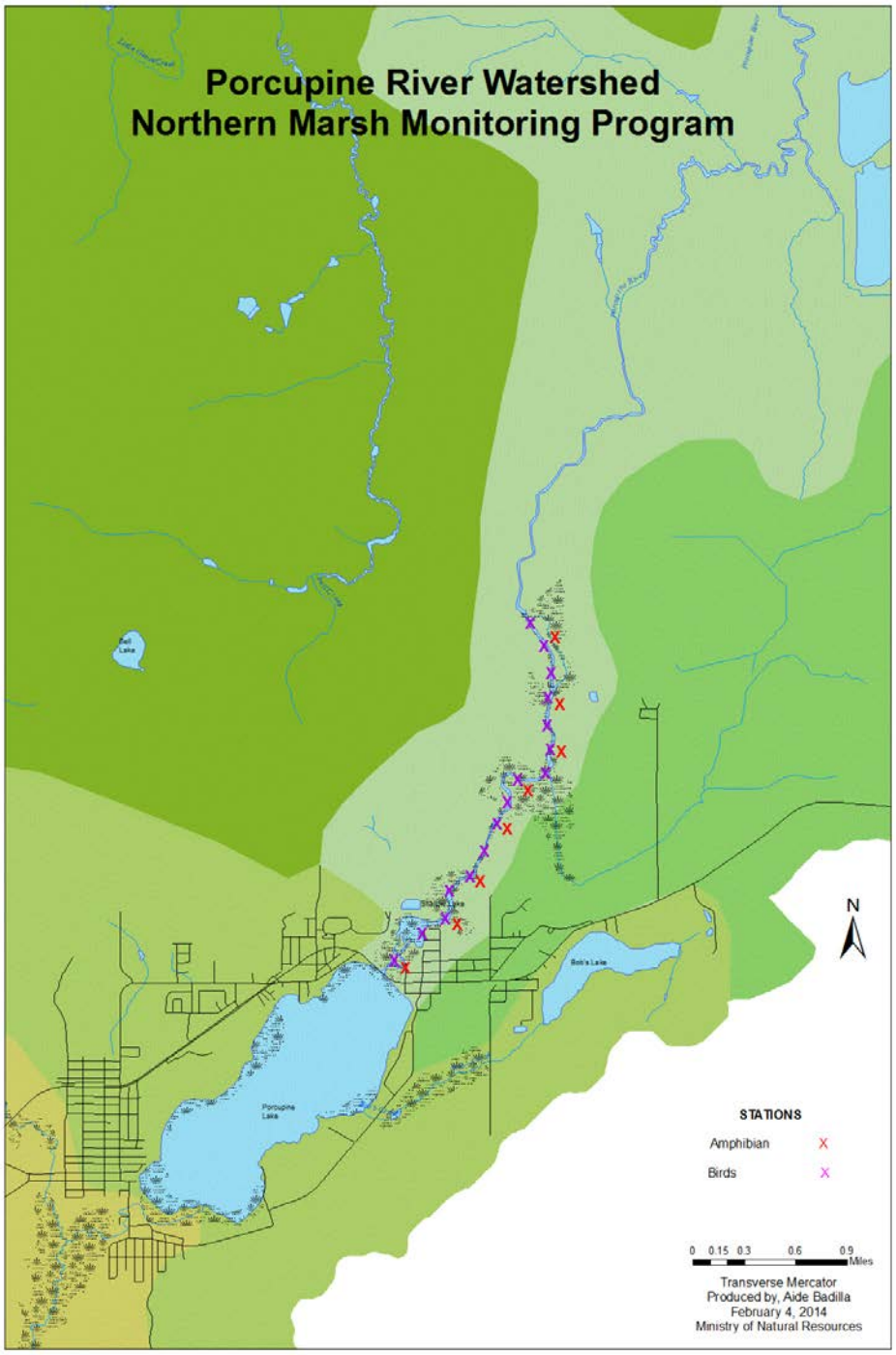


Figure 5 - Porcupine River Watershed, Northern Extension of the Great Lakes Marsh Monitoring Program

Successful amphibian survey was conducted on May 5′ 2015; however, all further scheduled surveys were cancelled due to a combination of stormy weather and /or high winds. Three

species, Chorus Frog - *Pseudacris triseriata*, Spring Peeper - *Pseudacris crucifer* and Wood Frog - *Rana sylvatica* were identified. The results of these surveys were reported to the Northern Extension of the Great Lakes Marsh Monitoring Program.

During a June 15, 2015 bird survey, presence of a fourth species the Mink Frog - *Rana septentrionalis* was also identified.

Field notes are attached in **Appendix 1**.

Table A

Marsh Monitoring Program - Amphibian Data		
SPECIES NAME	**FREQUENCY**	**CODE**
Chorus Frog - *Pseudacris triseriata*	6	CHFR
Spring Peeper - *Pseudacris crucifer*	24	SPPE
Wood Frog - *Rana sylvatica*	23	WOFR

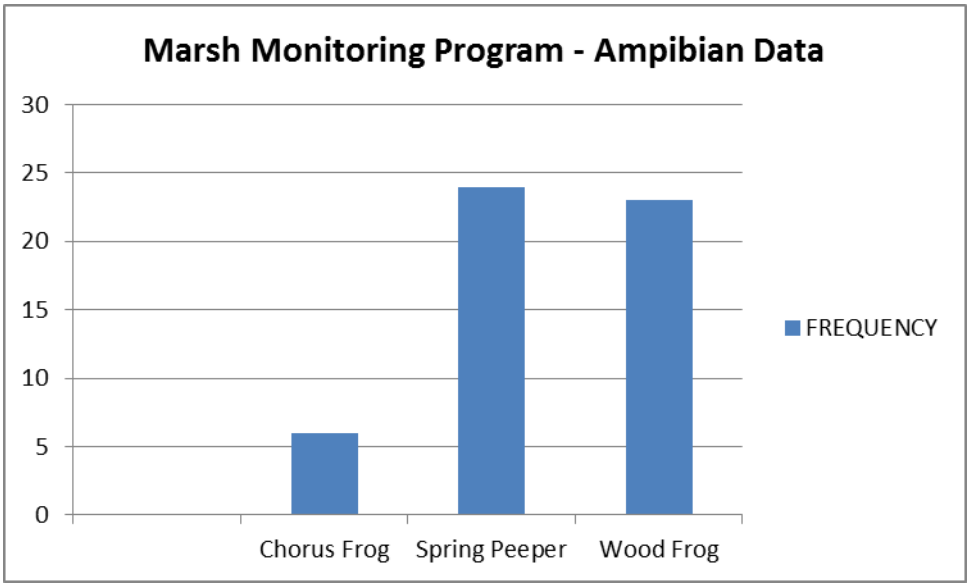


Figure 6 – Marsh Monitoring Survey – Amphibian Data

Birds

Successful bird surveys were made on June 15 and June 25; a number of thirty six different species were identified in great numbers. Field notes are attached in **Appendix 1**.

Table B

Bird Species Monitoring Data	Frequency	ALPHA CODE
Alder Flycatcher - *Empidonax alnorum*	89	ALFL
American Crow - *Corvus brachyrhynchos*	5	AMCR
American Robin - *Turdus migratorius*	16	AMRO
American Redstart - *Setophaga ruticilla*	21	AMRE
Black Capped Chickadee - *Poecile atricapillus*	14	BCCH
Blue Jay - *Cyanocitta cristata*	8	BLJA
Blue Winged Teal - *Anas discors*	5	BWTE
Blue Winged Warbler - *Vermivora cyanoptera*	32	BWWA
Bonaparte's Gull - *Larus philadelphia*	15	BOGU
Chestnut sided Warbler - *Setophaga pensylvanica*	26	CSWA
Chipping Sparrow - *Spizella passerina*	7	CHSP
Common Goldeneye - *Bucephala clangula*	41	COGO
Common Grackle - *Quiscalus quiscula*	3	COGR
Common Raven - *Corvus corax*	7	CORA
Common Yellowthroat - *Geothlypis trichas*	132	COYE
Double Crested Cormorant - *Phalacrocorax auritus*	3	DCCO
Great Blue Heron - *Ardea herodias*	10	GBHE
Herring Gull - *Larus argentatus*	10	HERG
Lincoln's Sparrow - *Melospiza lincolnii*	16	LISP
Mallard - *Anas platyrhynchos*	16	MALL
Magnolia Warbler - *Setophaga magnolia*	10	MAWA
Northern Waterthrush - *Parkesia noveboracensis*	31	NOWA
Ovenbird - *Seiurus aurocapilla*	3	OVEN
Red Bishop - *Euplectes franciscanus*	42	REBI
Red Breasted Nuthatch **-** *Sitta canadensis*	12	RBNU
Red Eyed Vireo - *Vireo olivaceus*	42	REVI
Red-winged Black Bird - *Agelaius phoeniceus*	71	RWBB
Swainson's Thrush - *Catharus ustulatus*	28	SWTH
Swamp Sparrow - *Melospiza georgiana*	196	SWSP
Tennessee Warbler - *Oreothlypis peregrina*	49	TEWA
Veery **-** *Catharus fuscescens*	13	VEER
Virgina Rail – *Rallus limicola*	13	VIRA
Solitary Vireo – *Vireo (sp)*	13	SOVI
Winter Wren - *Troglodytes hiemalis*	8	WIWR
White Throated Sparrow - *Zonotrichia albicollis*	78	WTSP
Yellow Rail - *Coturnicops noveboracensis*	3	YEAR

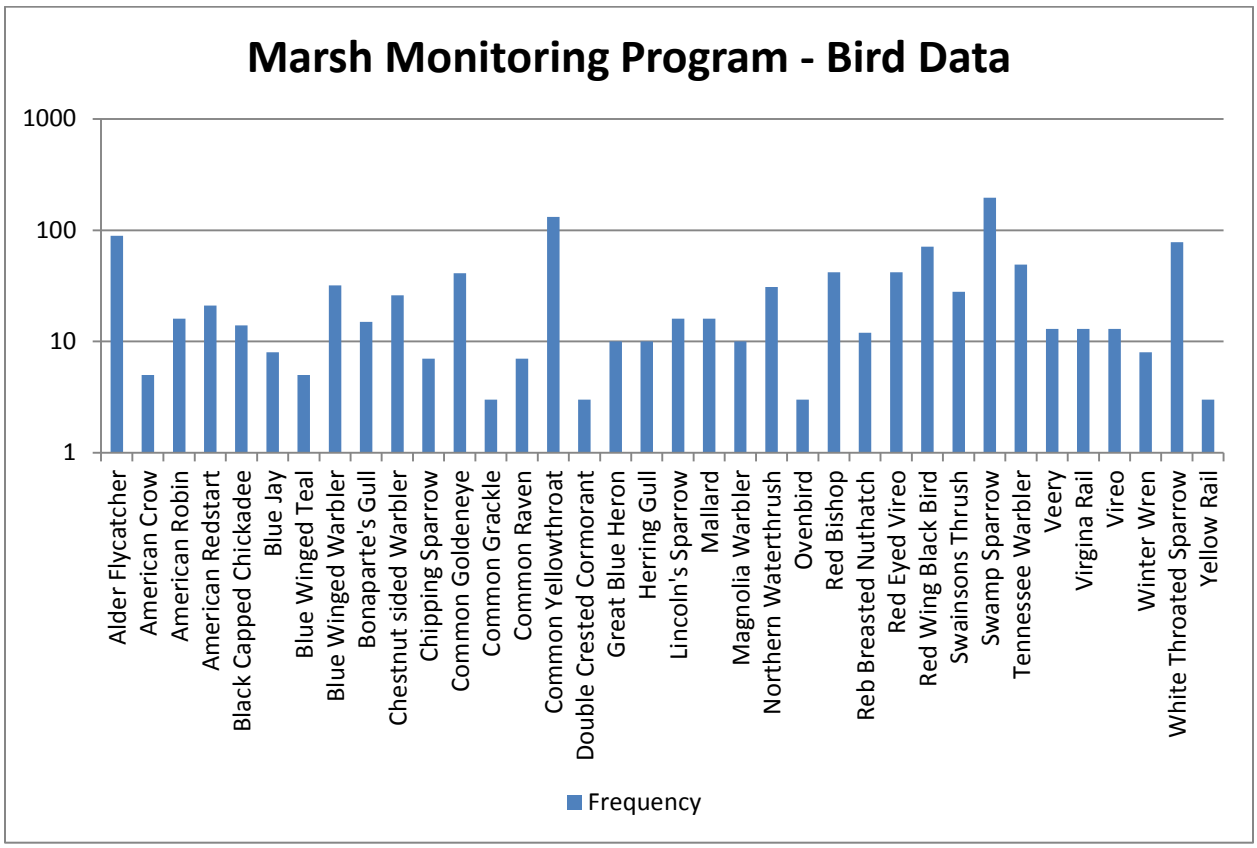


Figure 7 - Marsh Monitoring Survey - Bird Data

The results of the studies were submitted to *Bird Studies Canada* and will be disclosed in their annual magazine.

CHAPTER 6

Water Quality, Sediment Quality, Fish Population

As mentioned previously in Chapter 2 - Activities of the Friends of the Porcupine River Watershed from its inception to present a "data mining" study of the nineteen historical environmental effects monitoring studies will be undertaken by a Master's student lead Laurentian University's Dr. Charles Ramcharan starting in the fall of 2015.

To help facilitate the start-up process of this study, a Microsoft Excel electronic database was compiled ranging through 1996 to 2014 including water quality data and fish population surveys data of the nineteen studies mentioned above.

Appendix 2 is DVD disk containing the electronic database and copies of the environmental effects monitoring surveys.

CHAPTER 7

Canoe/Kayak route from Porcupine Lake to Nighthawk Lake

This project was undertaken as an organic continuation of project 3.2 Beaver Dams (Active and Old) listed in Stage 1 report, and also as means to garner further public support for the Remedial Action Plan.

Following of the removal of beaver dams and other obstacles in the fall of 2014, a detailed survey of aerial maps followed by an investigative canoe trip was taken from Porcupine Lake to Nighthawk Lake.

The first goal was to correct the length of the trip which is mistakenly advertised in Timmins Outdoors publication as having only 16 km while a detailed measurement indicated 46 km. This major error that could lead to accidents was brought to the attention of the City of Timmins responsible for the publication of the publication, however due to the fact that at the time the 2015 publication was already at the printer, the new corrected information was not included and promises were made that in 2016 publication it will be corrected. However, the correction was made to the website advertising this canoe/kayak route.

The next goals were to ascertain that there were no major obstacles left in the river, to check the paddling times required by an average canoeist, and to scout possible locations for establishing a campsite halfway of the route.

A suitable camping location was found, Ministry of Natural Resources and Forestry work permits are applied for, signs are being designed, plans are made to construct bear-proof overnight food storing containers, and arrangements are made to establish it at the end of August with the help of the Youth Stewardship Rangers. Camp site coordinates: Latitude 48° 37' 80", Longitude 81° 05' 51"

Also, an alternate camping site several hours of paddling before the proposed campsite was identified, to assure that those paddlers who for some reason cannot make it to half distance by the end of the first day can land at a suitable camping location. However, other than posting a camp sign at this location there are no present plans of doing anything there. The alternate campsite coordinates: Latitude 48° 36' 16.65", Longitude 81° 06' 56.19"

Figure 8 - Upstream view of Porcupine River looking from the proposed campground

Figure 9 – Alternate “emergency” campsite location at the confluence of Porcupine River with North Porcupine River

Chapter 8

Future Projects

1. Youth Stewardship Rangers will conduct ongoing monitoring of the seedlings that were planted in the riparian zone of the Porcupine River in June & July 2015.

2. Seed identification course in early September hosted by the Junction Creek Stewardship Committee.

3. Native seed collection in September/ October for seed bank to be started for the Timmins area.

4. Ice Hut Raffle in partnership with the Roland Michener High School to raise funds and community awareness.

5. Spring bird survey with volunteers of the Porcupine River and Porcupine Lake.

APPENDIX 1 Walleye Spawning, Amphibian and Bird survey field notes

1 Coordinates: Site #1 -Z17 - Easting 0487015, Northing 5369968
Site #2 -Z17 - Easting 0484667, Northing 5369088
Site #3 -Z17 - Easting 0484252, Northing 5368905
Site #4 -Z17 - Easting 0484089, Northing 5368757
Site #5 -Z17 - Easting 0483921, Northing 5369386

Walleye Spawning Spotlighting Field Sheet

Waterbody: PORCUPINE LAKE

Observers: AIDE BADILLA
LAUREL EVANS

Air Temp (°C): 12

Water Temp (°C): 1: 9.2°C 2: 11°C 3: 11.6°C 4: ~~9.8°C~~ 10.5 5: 9.8°C

Clouds (%): 1

Date: 05 / 01 / 2015
mm dd yyyy

LEGEND:
PSP: Pre-spawning behaviour
SP: Spawning behaviour
PSTP: Post spawning behaviour

Pass #: 1 **Start Time:** 10:05PM **End Time:** 11:43PM

Site #	Walleye					White Sucker	Northern Pike
	Male	Female	Unknown	Total	Behaviour		
1	0	0	/	0	/	0	0
2	4	1	/	5	POSTSP	0	0
3	0	0	/	0	/	0	0
4	0	0	/	0	/	0	0
5	0	0	/	0	/	0	0
Total	4	1		5	/	0	0

Pass #: 2 **Start Time:** 11:50PM **End Time:**

Site #	Walleye					White Sucker	Northern Pike
	Male	Female	Unknown	Total	Behaviour		
1	0	0	0	0	/	0	0
2	4	1	/	5	POSTSP	0	0
3	0	0	/	0	/	0	0
4	0	0	/	0	/	0	0
5	0	0	/	0	/	0	0
Total	4	1	/	5	/	0	0

Pass #: 3 **Start Time:** **End Time:**

Site #	Walleye					White Sucker	Northern Pike
	Male	Female	Unknown	Total	Behaviour		
1							
2							
3			N/A				
4							
5							
Total							
Avg. of all passes							

Marsh Monitoring Program Contact and Route Information

Please complete and return original but keep a photocopy for your own reference.

Route #	Observer #	Observer Name
U,O,N,5,2	1,1,7,6,2,2	AIDE BADILLA

Year 2,0

ID #117622, ROUTE # & NAME: UON52.
POTENTIAL ROUTES IN THE PORCUPINE RIVER
STATIONS: AMPH: 8, BIRD: 8; NEW PKUP
MISS AIDE F. BADILLA

Corrections

WORK FOR: MINISTRY OF NATURAL RESOURCES AND FORESTRY
TITLE: MANAGEMENT BIOLOGIST
MNRF OFFICE ADDRESS: SOUTH PORCUPINE, ON P0N 1H0

Section A: Is the contact information above correct? ○ Yes ● No

If No, please provide the correct information in the "Corrections" box to the right

Did you enter your data online? ● Yes ○ No

Does the surveyed marsh(es) for this route occur on ○ Private Land ○ Public Land ● Mixed Ownership Land

Does your route contain any station in the interior of the wetland (i.e. >100 m from the perimeter) ○ Yes ● No

Have you changed the position of any stations on your route? ○ Yes ● No

If yes, please specify: _____

If this is a **new or changed route,** please provide the information in Sections B & C. Alternatively, please mark station locations directly onto a copy of a standardized topographic map and return a copy with your data, (detailed instructions provided below). If you answer **no** please do not fill out Sections B and C. If you change station locations please do not re-use station identifiers.

Section B: Route Information

Route/Marsh Name: PORCUPINE RIVER

Closest town to route: SOUTH PORCUPINE County: CANADA Province/State: ONTARIO

Section C: Station Information From GPS ● or Topographic Map ○

Note: If you are unable to provide this information, then leave this section blank, but do send us a map).

Station Letter A ○ NAD 27 ● NAD 83 ○ WGS 84

UTM	Zone	Easting	Northing
	1,7	4,8,7,0,8,3	5,3,7,1,3,8,5

Please include all the characters for the UTM coordinates.

OR	Latitude Deg/Min/Sec	Longitude Deg/Min/Sec

Station Letter B ○ NAD 27 ○ NAD 83 ○ WGS 84

UTM	Zone	Easting	Northing
	1,7	4,8,7,4,3,6	5,3,7,1,7,5,4

Please include all the characters for the UTM coordinates.

OR	Latitude Deg/Min/Sec	Longitude Deg/Min/Sec

Mapping Your Station

UTMs are preferred, but we can use latitude/longitude as well. **Please include the GRID system.** For U.S. participants, please obtain and provide Topozone topographic maps (www.topozone.com). If you do not have access to the internet, contact us (by toll-free phone at 1-888-448-2473 or email at aqsurvey@bsc-eoc.org), and we will provide you with a standardized map for the vicinity of your route. For Canadian participants, please visit http://atlas.nrcan.gc.ca/site/english/maps/topo/map to obtain topographic maps. Once you have the map, take it to your survey route and, as accurately as possible, mark the focal point (where you stand) for each station. Keep a copy of the map for your reference and return the original with your MMP data.

From time to time, BSC may send you information regarding our programs, special issues, membership, and other correspondence. If you would prefer not to receive this information, please contact us by mail or e-mail rkirton@bsc-eoc.org. Thank you.

0815216980

Marsh Monitoring Program Contact Sheet and Route Information

Station Letter C ○ NAD 27 ○ NAD 83 ○ WGS 84

TM	Zone	Easting	Northing
	17	487676	5372092

Please include all the characters for the UTM coordinates.

	Latitude Deg/Min/Sec	Longitude Deg/Min/Sec
OR		

Station Letter D ○ NAD 27 ○ NAD 83 ○ WGS 84

TM	Zone	Easting	Northing
	17	487967	5372402

Please include all the characters for the UTM coordinates.

	Latitude Deg/Min/Sec	Longitude Deg/Min/Sec
OR		

Station Letter E ○ NAD 27 ○ NAD 83 ○ WGS 84

ITM	Zone	Easting	Northing
	17	488181	5372839

Please include all the characters for the UTM coordinates.

	Latitude Deg/Min/Sec	Longitude Deg/Min/Sec
OR		

Station Letter F ○ NAD 27 ○ NAD 83 ○ WGS 84

JTM	Zone	Easting	Northing
	17	488234	5373051

Please include all the characters for the UTM coordinates.

	Latitude Deg/Min/Sec	Longitude Deg/Min/Sec
OR		

Station Letter G ○ NAD 27 ○ NAD 83 ○ WGS 84

JTM	Zone	Easting	Northing
	17	488507	5373158

Please include all the characters for the UTM coordinates.

	Latitude Deg/Min/Sec	Longitude Deg/Min/Sec
OR		

Station Letter H ○ NAD 27 ○ NAD 83 ○ WGS 84

UTM	Zone	Easting	Northing
	17	488651	5373599

Please include all the characters for the UTM coordinates.

	Latitude Deg/Min/Sec	Longitude Deg/Min/Sec
OR		

For additional stations please start a new form and continue. Please ensure that Route #, Observer # and Date are included on all forms.

Identifying Stations
Identify your stations using capital letters, usually "A" through "H"(higher letters are O.K. for large routes). If you abandon a station do not re-use its station ID. For example, if your original route had five stations (A-E) but you abandon C because of noise levels, feel free to "replace" it but call the new station F.

Providing Coordinates
Coordinates can be obtained from topographic maps, from computer-generated mapping programs or from a Geographic Positioning System (GPS). You can provide coordinates in UTMs or in Latitude and Longitude. *In all cases,* let us know whether the information came from the most recent North American Datum (NAD) 83 or the older NAD 27 maps, because the coordinates are different between the two-grid systems. The NAD is always provided on topographic maps, usually in small print at the bottom of the map (e.g., North American Datum 1927).

Determining Coordinates Using a GPS
If you have a GPS unit, record the location while you are on site. Set the device to NAD 83, and record the UTM Zone, all 6 digits of the Easting and all 7 digits of the Northing. (If your GPS unit gives you 7 Digits for Easting, do not record the leading "0"). Alternatively, record the Latitude and Longitude.

Using Topozone (www.topozone.com) or other computer-generated mapping programs
1. Choose the coordinate system that you want, either UTM or Degrees/Minutes/Seconds (D/M/S).
2. Determine the NAD. Topozone lists the NAD at the bottom of the page.
3. Find the location of your first station on the map and click on the location.
4. Record the coordinates. Topozone lists coordinates of your reference point at the top of the page (e.g., UTM 13 625693E 4047724N).
5. Repeat for each station surveyed.

When You're Done...
Copy your data forms and map for your own files, then return all **originals** by 31 July to:

Aquatic Surveys Officer
Bird Studies Canada
P.O. Box 160
Port Rowan, ON, Canada
N0E 1M0

Please do not fold the originals
Please use the return envelope provided

0288216984

Marsh Monitoring Program - Amphibian Route Summary Form

Route # U,O,N,5,2 | Observer # 1,1,7,6,2,2 | Observer Name AIDE BADILLA | Year 2,0,1,5

*Please print with BLOCK CAPITALS, and mark each individual choice by filling in the corresponding circle. Please use pen (not felt tip).

**Has the habitat on your route changed from previous years? ○ Yes ● No ○ N/A

Visit Information:

	Day	Month	Wind Scale	Cloud Cover (10ths)	Temp	
Visit 1	0,5	0,5	0	0,0	0,7	● °C ○ °F
Visit 2						○ °C ○ °F
Visit 3						○ °C ○ °F

Precipitation (fill in one per visit)

Visit 1	● None/Dry	○ Damp/Haze/Fog	○ Drizzle	○ Rain
Visit 2	○ None/Dry	○ Damp/Haze/Fog	○ Drizzle	○ Rain
Visit 3	○ None/Dry	○ Damp/Haze/Fog	○ Drizzle	○ Rain

Background Noise Code (0-4)

Station Letter	A	B	C	D	E	F	G	H
Visit 1	2	2	1	0	0	0	0	0
Visit 2								
Visit 3								

Notes: Please fill the "**Yes**" circle for each station surveyed during the visit, please leave blank for any station not surveyed.
If no species were heard place a "0" in the count field for "No Calls Heard".
In column "**CC**" please print the maximum **Calling Code** (1-3) for the species.
For **CC** 1 and 2, please print the total combined number of individuals heard under **Count**.
Fill in the "**In**" circle if an individual of the species was calling within 100m.

Visit 1

Station Letter	A			B			C			D			E			F			G			H		
Station Surveyed	● Yes			● Yes			● Yes			● Yes			● Yes			● Yes			● Yes			● Yes		
Station Start Time (24 hr)	2,1,2,1			2,1,1,5			2,1,0,6			2,1,0,0			2,0,5,5			2,0,4,7			2,0,4,0			2,0,3,5		
Species Name	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In
No Calls Heard (Code 0)			○			○			○			○			○			○			○			○
American Toad			○			○			○			○			○			○			○			○
Blanchard's Cricket Frog			○			○			○			○			○			○			○			○
Bullfrog			○			○			○			○			○			○			○			○
Chorus Frog	1	0,1	●			○			○	3		●	1	0,1	●	1	0,1	●			○			○
Cope's Gray Treefrog			○			○			○			○			○			○			○			○
Fowler's Toad			○			○			○			○			○			○			○			○
Gray Treefrog			○			○			○			○			○			○			○			○
Green Frog			○			○			○			○			○			○			○			○
Mink Frog			○			○			○			○			○			○			○			○
Northern Leopard Frog			○			○			○			○			○			○			○			○
Pickerel Frog			○			○			○			○			○			○			○			○
Spring Peeper	3		●	3		●	3		●	3		●	3		●	3		●	3		●	3		●
Wood Frog	3		●	3		●	3		●	3		●	3		●	3		●	3		●	2	0,7	●

4549435475

2

Station Letter	A			B			C			D			E			F			G			H		
Station Surveyed	O Yes			O Yes			O Yes			O Yes			O Yes			O Yes			O Yes			O Yes		
Station Start Time (24 hr)																								
Species Name	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In
No Calls Heard (Code 0)		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
American Toad		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Blanchard's Cricket Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Bullfrog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Chorus Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Cope's Gray Treefrog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Fowler's Toad		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Gray Treefrog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Green Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Mink Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Northern Leopard Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Pickerel Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Spring Peeper		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Wood Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O

3

Station Surveyed	O Yes			O Yes			O Yes			O Yes			O Yes			O Yes			O Yes			O Yes		
Station Start Time (24 hr)																								
Species Name	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In	CC	Count	In
No Calls Heard (Code 0)		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
American Toad		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Blanchard's Cricket Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Bullfrog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Chorus Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Cope's Gray Treefrog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Fowler's Toad		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Gray Treefrog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Green Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Mink Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Northern Leopard Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Pickerel Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Spring Peeper		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O
Wood Frog		,	O		,	O		,	O		,	O		,	O		,	O		,	O		,	O

Marsh Monitoring Program - Amphibian Data Form

Return by 31 July

Please write legibly (in pen).

VISIT INFORMATION

Route #: LON52 Route Name: PORCUPINE RIVER Station (A - H): ____

Observer #: 117622 Observer Name: AIDE BADILLA

Visit #: 1 Day: 5 Month: 5 Year: 2015

Cloud Cover (10th): 0 Temperature (°C or °F): 7 Beaufort Wind Scale (0-6): 0

Precipitation (check one): (✓) None/Dry ( ) Damp/Haze/Fog ( ) Drizzle ( ) Rain

CALL LEVEL CODES

Code 1: Calls not simultaneous, number of individuals can be accurately counted

Code 2: Some calls simultaneous, number of individuals can be reliably estimated

Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Amphdfrm2008.cdr. rev 02/2008

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR	✓	
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	
WOFR	✓	

* Check if species is calling from inside 100-metre station area.

** Check if species is calling from outside 100-metre station area.

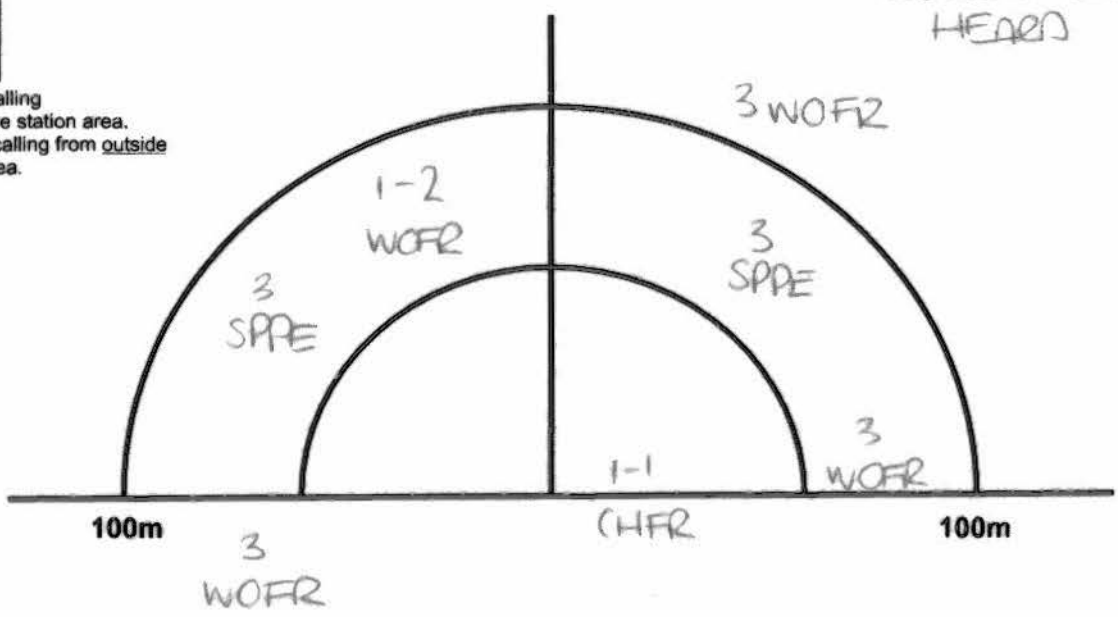
Station A

Station Start Time (24 hr):	21:21
Background Noise Code (1-4):	2

SW

231°

BOREAL CHORUS HEARD

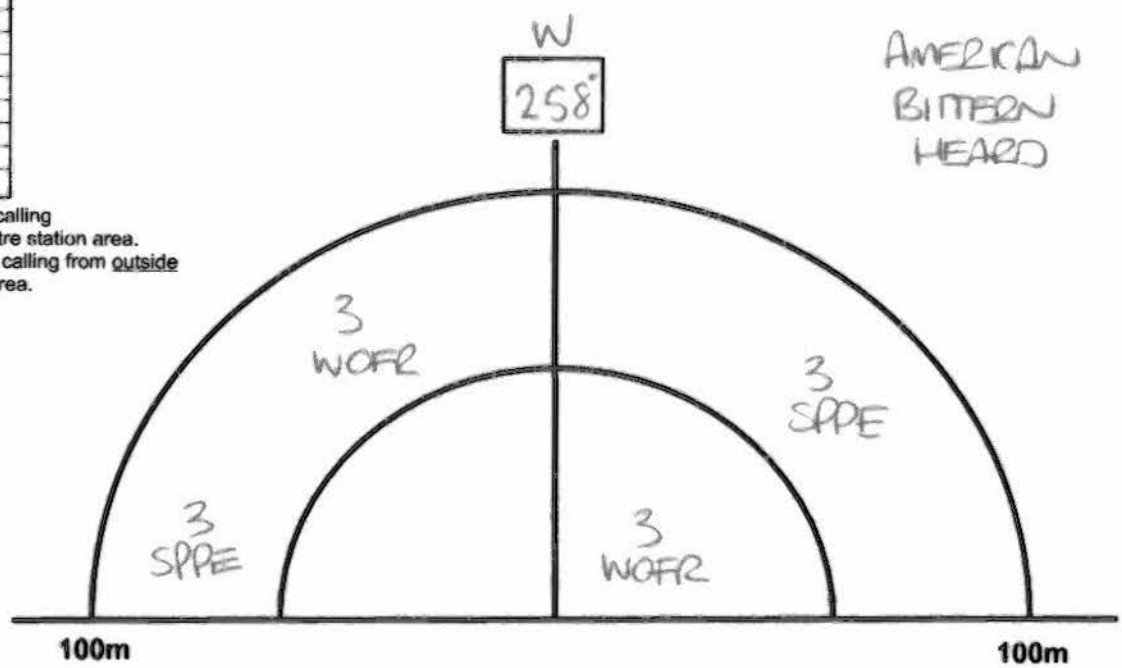


Station B

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	
WOFR	✓	

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station Start Time (24 hr):	21:15
Background Noise Code (1-4):	2



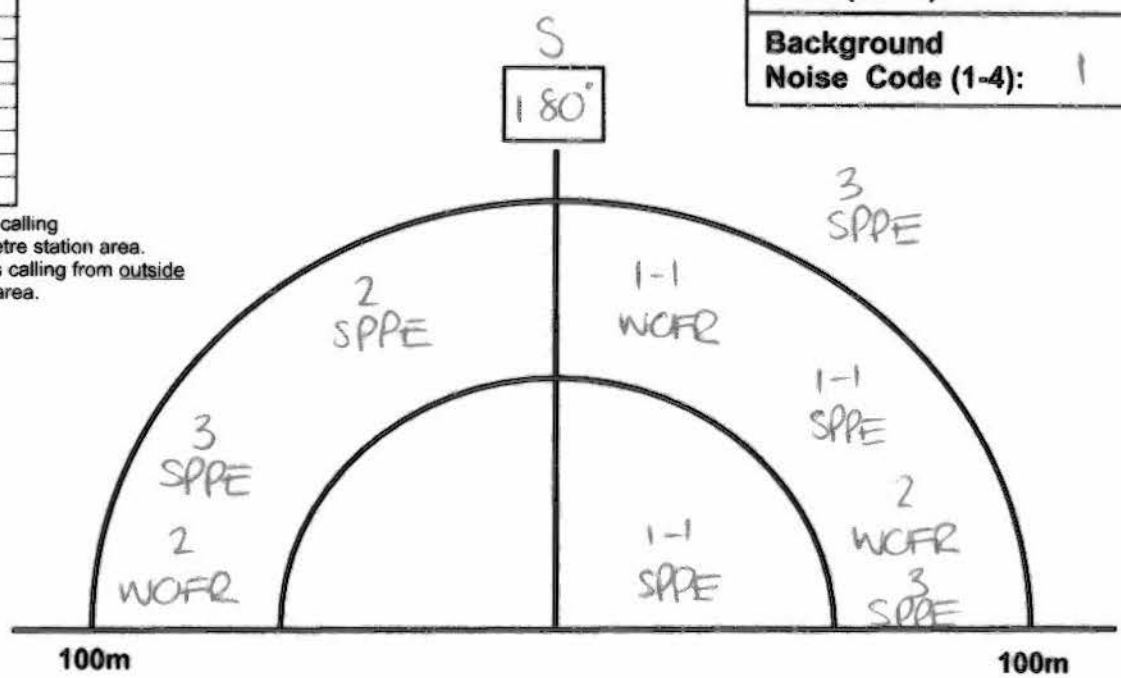
AMERICAN BITTERN HEARD

Station C

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	
WOFR	✓	

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station Start Time (24 hr):	21:06
Background Noise Code (1-4):	1



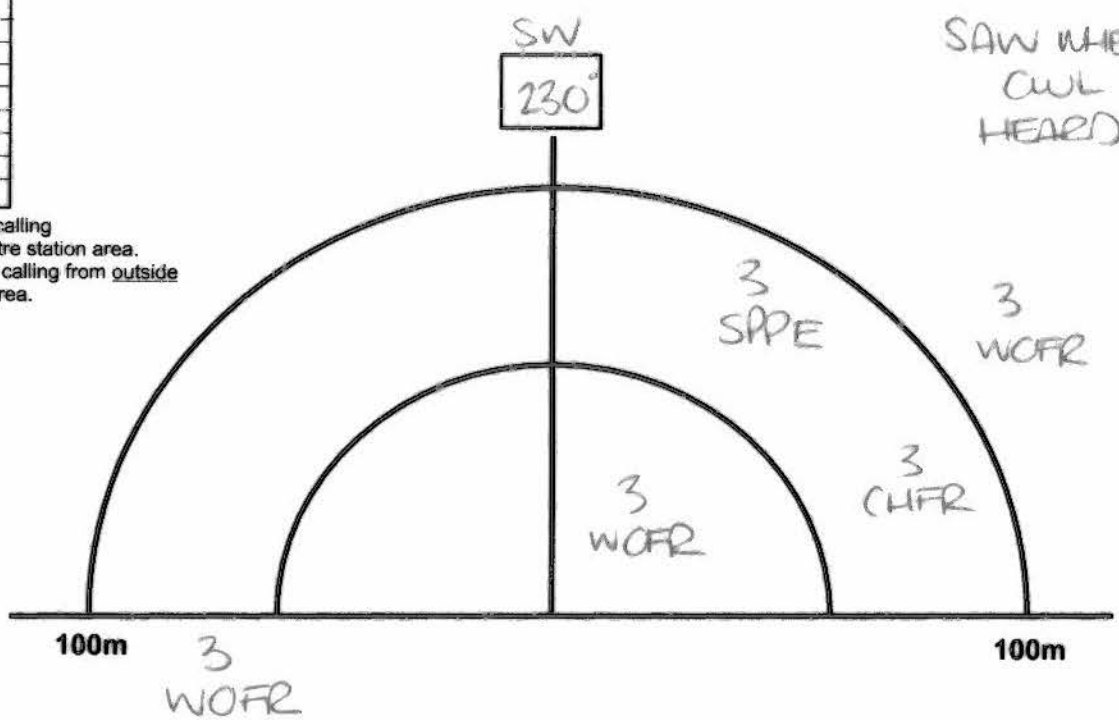
Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR	✓	
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	
WOFR	✓	

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station D

Station Start Time (24 hr):	2100
Background Noise Code (1-4):	0

SAW WHET OWL HEARD

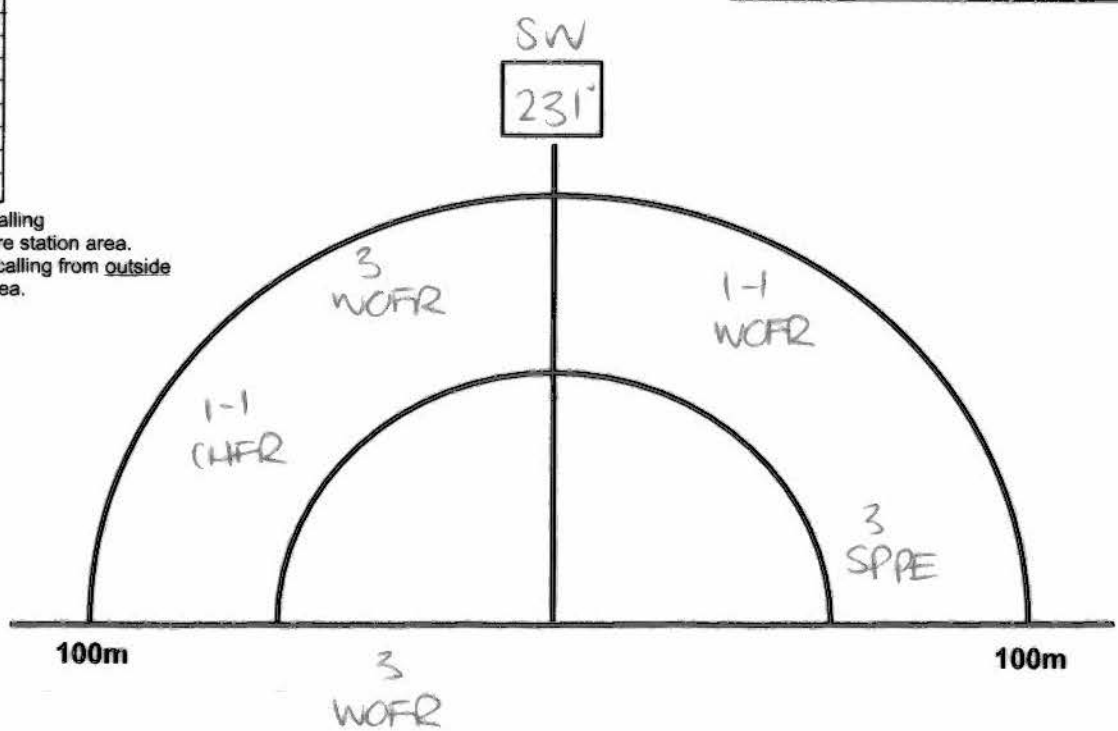


Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR	✓	
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	
WOFR	✓	

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station E

Station Start Time (24 hr):	2055
Background Noise Code (1-4):	0

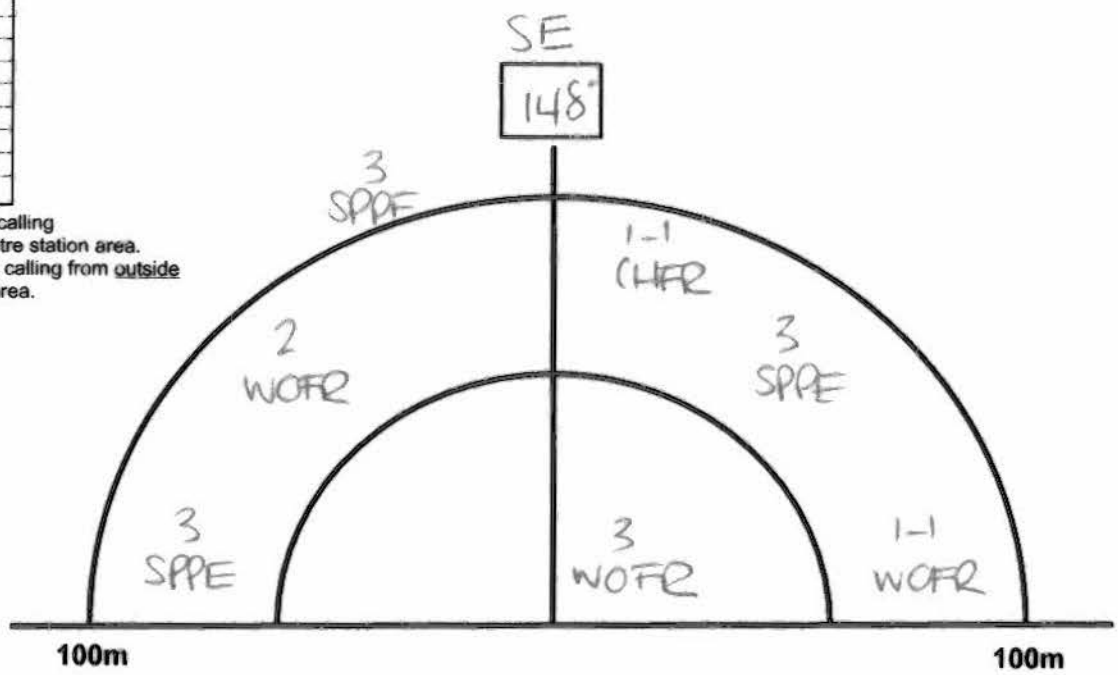


Station F

Station Start Time (24 hr):	2047
Background Noise Code (1-4):	0

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR	✓	
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	
WOFR	✓	

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

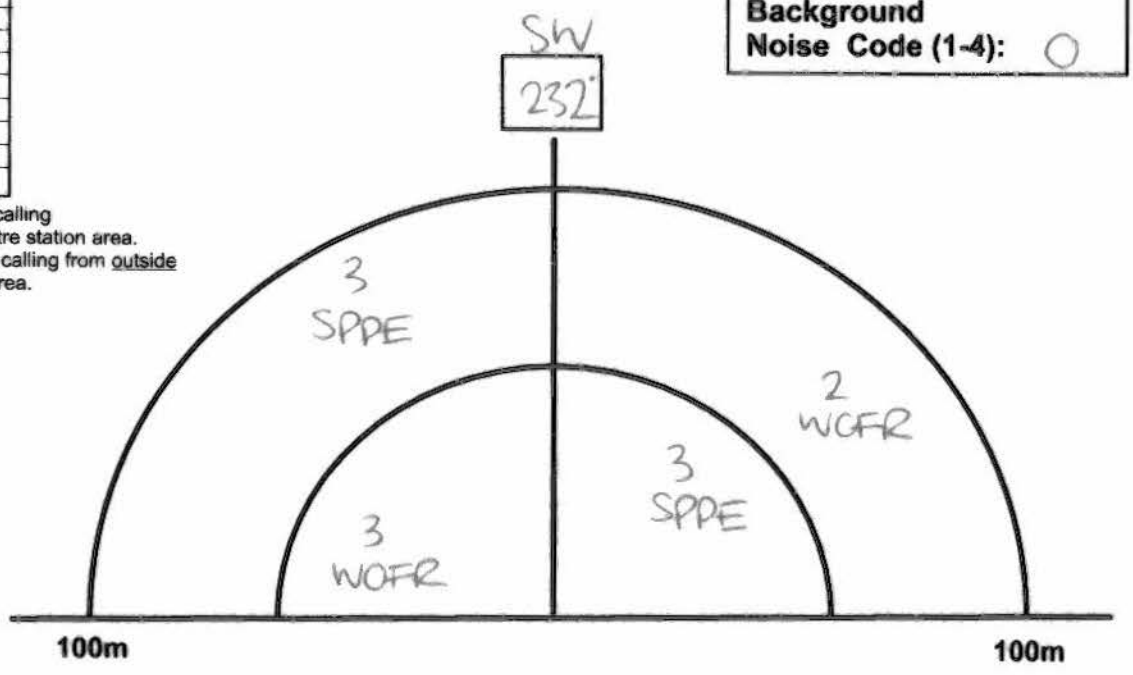


Station G

Station Start Time (24 hr):	2040
Background Noise Code (1-4):	0

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	
WOFR	✓	

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

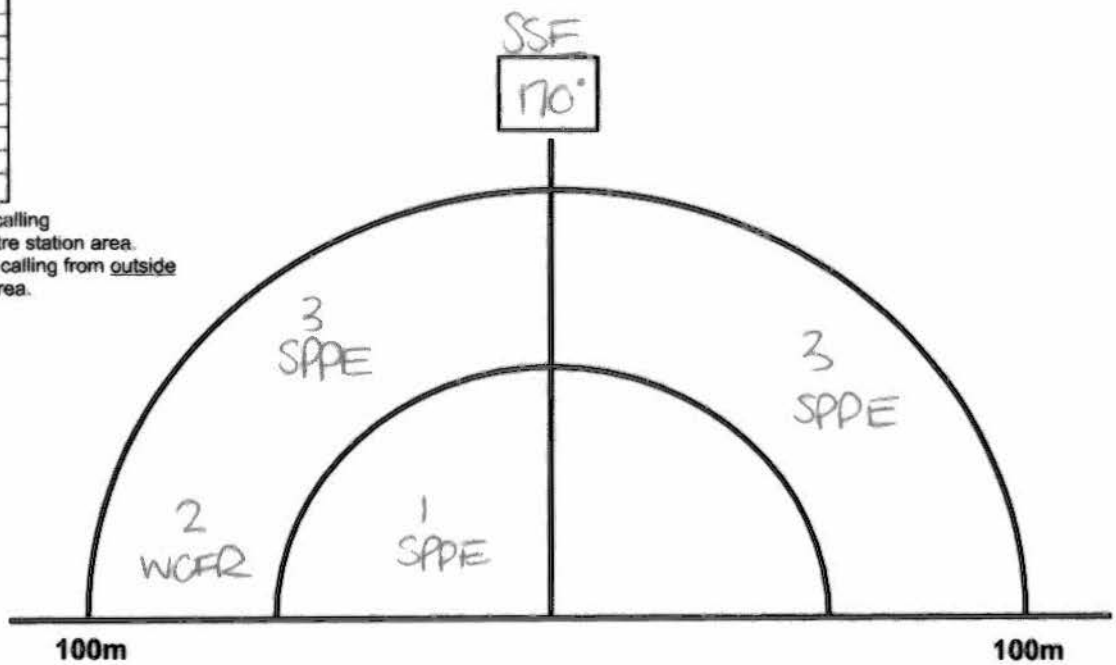


Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	/	
WOFR	/	

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station H

Station Start Time (24 hr):	2035
Background Noise Code (1-4):	0



Amphibian Species Codes

Species	Code
American Toad	AMTO
Northern (Blanchard's) Cricket Frog	BCFR
Bullfrog	BULL
Chorus Frog	CHFR
Cope's (Diploid) Gray Treefrog	CGTR
Fowler's Toad	FOTO
Gray (Tetraploid) Treefrog	GRTR
Green Frog	GRFR
Mink Frog	MIFR
Northern Leopard Frog	NLFR
Pickerel Frog	PIFR
Spring Peeper	SPPE
Wood Frog	WOFR

Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)

24 Hour Time

12 Hour	24 Hour	12 Hour	24 Hour
7:00 PM	1900	10:00 PM	2200
8:00 PM	2000	11:00 PM	2300
9:00 PM	2100	12:00 PM	2400

Beaufort Wind Scale

Number	Wind Speed		Indicators
	Km/h	Mph	
0	0-2	0-1	**Calm**, smoke rises vertically
1	3-5	2-3	**Light air movement**, smoke drifts
2	6-11	4-7	**Slight breeze**, wind felt on face
3	12-19	8-12	**Gentle breeze**, leaves and small twigs in constant motion
4*	20-30	13-18	**Moderate breeze**, small branches are moving, raises dust and loose paper

* Winds over Beaufort 3 are unacceptable for amphibian surveys.

Marsh Monitoring Program-
Bird Survey Reference Card

Focal Species

Common Name	Species Code	Common Name	Species Code	Common Name	Species Code
American Bittern	AMBI	Black Rail	BLRA	Pied-billed Grebe	PBGR
American Coot	AMCO	Common Moorhen	COMO	Sora	SORA
American Coot/ Common Moorhen	MOOT	King Rail	KIRA	Virginia Rail	VIRA
		Least Bittern	LEBI	Yellow Rail	YERA

Secondary Species

Common Name	Species Code	Common Name	Species Code	Common Name	Species Code
Alder Flycatcher	ALFL	Common (Wilson's) Snipe	WISN	Osprey	OSPR
American Black Duck	ABDU	Common Tern	COTE	Purple Martin	PUMA
American Crow	AMCR	Common Yellowthroat	COYE	Red-eyed Vireo	REVI
American Goldfinch	AMGO	Double-crested Cormorant	DCCO	Red-tailed Hawk	RTHA
American Redstart	AMRE	Downy Woodpecker	DOWO	Red-winged Blackbird	RWBL
American Kestrel	AMKE	Eastern Kingbird	EAKI	Ring-billed Gull	RBGU
American Robin	AMRO	Eastern Phoebe	EAPH	Ring-necked Duck	RNDU
American Woodcock	AMWO	Eastern Wood-Pewee	EAWP	Rock Pigeon (Dove)	ROPI
Bald Eagle	BAEA	European Starling	EUST	Rose-breasted Grosbeak	RBGR
Baltimore Oriole	BAOR	Forster's Tern	FOTE	Ruby-throated Hummingbird	RTHU
Bank Swallow	BANS	Gadwall	GADW	Sandhill Crane	SACR
Barn Swallow	BARS	Gray Catbird	GRCA	Savannah Sparrow	SAVS
Belted Kingfisher	BEKI	Great Blue Heron	GBHE	Sedge Wren	SEWR
Black Tern	BLTE	Great Crested Flycatcher	GCFL	Song Sparrow	SOSP
Black-capped Chickadee	BCCH	Great Egret	GREG	Spotted Sandpiper	SPSA
Black-crowned Night-Heron	BCNH	Green Heron	GRHE	Swamp Sparrow	SWSP
Blue Jay	BLJA	Green-winged Teal	GWTE	Tree Swallow	TRES
Blue-winged Teal	BWTE	Herring Gull	HERG	Turkey Vulture	TUVU
Bobolink	BOBO	House Wren	HOWR	Veery	VEER
Brown-headed Cowbird	BHCO	Killdeer	KILL	Warbling Vireo	WAVI
Canada Goose	CAGO	Mallard	MALL	White-throated Sparrow	WTSP
Caspian Tern	CATE	Marsh Wren	MAWR	Willow Flycatcher	WIFL
Cedar Waxwing	CEDW	Mourning Dove	MODO	Wilson's (Common) Snipe	WISN
Chimney Swift	CHSW	Mute Swan	MUSW	Wood Duck	WODU
Chipping Sparrow	CHSP	Northern Cardinal	NOCA	Wood Thrush	WOTH
Cliff Swallow	CLSW	Northern Flicker	NOFL	Yellow Warbler	YWAR
Common Grackle	COGR	Northern Harrier	NOHA	Yellow-crowned Night-Heron	YCNH
Common Loon	COLO	Northern Rough-winged Swallow	NRWS	Yellow-headed Blackbird	YHBL
Common Nighthawk	CONI	Northern Shoveler	NSHO	Yellow Warbler	YWAR
Common Raven	CORA				

Marsh Monitoring Program-
Bird Survey Reference Card

Beaufort Wind Scale

Number	Wind Speed		Indicators
	Kilometres per hour	Miles per hour	
0	0-2	0-1	**Calm**, smoke rises vertically
1	3-5	2-3	**Light air movement**, smoke drifts
2	6-11	4-7	**Slight breeze**, wind felt on face
3	12-19	8-12	**Gentle breeze**, leaves and small twigs in constant motion
4*	20-30	13-18	**Moderate breeze**, small branches are moving, raising dust and loose paper
5*	31-39	19-24	**Fresh breeze**, small trees in leaf beginning to sway, crested wavelets form
6*	40-50	25-31	**Strong breeze**, large branches in motion

* Unacceptable wind strengths for bird and amphibian surveys.

24 Hour Time

12 Hour	*24 Hour*
5:00 AM	5:00
6:00 AM	6:00
7:00 AM	7:00
8:00 AM	8:00
9:00 AM	9:00
10:00 AM	10:00
6:00 PM	18:00
7:00 PM	19:00
8:00 PM	20:00
9:00 PM	21:00
10:00 PM	22:00
11:00 PM	23:00
12:00 PM	24:00

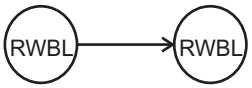
Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)

Mapping Symbols for MMP Bird Surveys

Birds seen or heard
Count as 1 on summary sheet.

Family group.
Count number of <u>adults</u> only.



Change in position.

BLTE *

Nest location.

Pair together (assumed mated).
If RWBL or YHBL, count 1 (male only).
All other species count as 2.

<u>Note</u>: For Red-winged Blackbirds (RWBL) and Yellow-headed Blackbirds (YHBL), **count males only.**

5704534198 **Marsh Monitoring Program - Bird Survey Form**

Route #	Station (A-H)	Observer #	Observer Name
VON52	A	117622	AIDE BADILLA

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ● No ○ N/A

● Visit1 ○ Visit2 ○ Visit3

Day 15 **Month** 06 **Year** 2015 **Station Start Time (24hr)** 0600

Cloud Cover (10ths) 70 **Temperature** 13 ● °C ○ °F **Beaufort Wind Scale (0-6)** 1

Precipitation ○ None/Dry ● Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** 1

FOCAL SPECIES American Bittern (AMBI) American Coot (AMCO) Black Rail (BLRA) Common Moorhen (COMO) King Rail (KIRA) Least Bittern (LEBI) Pied-billed Grebe (PBGR) Sora (SORA) Virginia Rail (VIRA) Yellow Rail (YERA)

Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

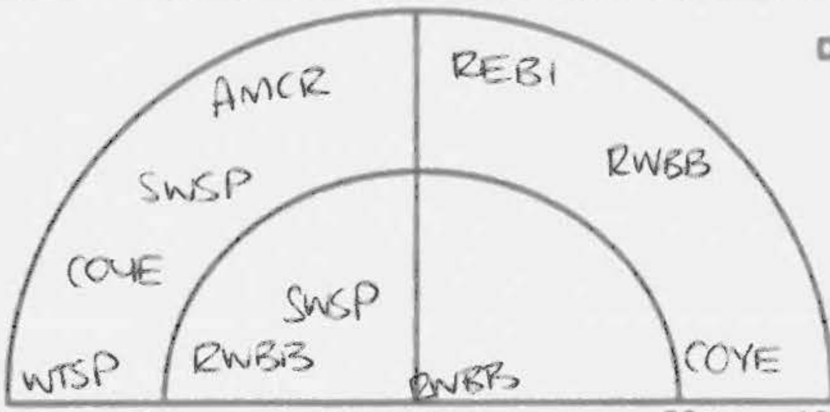
SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List

SWSP	
REBI	
COGR x 2	
RWBB x 1	
MALL	



Direction N

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
AMCR	05			○	SWSP			11	●					○
SWSP		07		○	REBI		07		●					○
COYE		10		○	COGR	03			●					○
WTSP	05			○	RWBB		10		●					○
RWBB		08		○	MALL	05			●					○
REBI	05			○	BOGU			15	●					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.

**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name
U C N 5 2	B	1 1 7 6 2 2	AIDE BADILLA

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ● No ○ N/A

● Visit1 ○ Visit2 ○ Visit3

Day 15 **Month** 06 **Year** 2015 **Station Start Time (24hr)** 0630

Cloud Cover (10ths) 70 **Temperature** 14 ● °C ○ °F **Beaufort Wind Scale (0-6)** 1

Precipitation ○ None/Dry ● Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** 0

FOCAL SPECIES American Bittern (AMBI) American Coot (AMCO) Black Rail (BLRA) Common Moorhen (COMO) King Rail (KIRA) Least Bittern (LEBI) Pied-billed Grebe (PBGR) Sora (SORA) Virginia Rail (VIRA) Yellow Rail (YERA)

Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

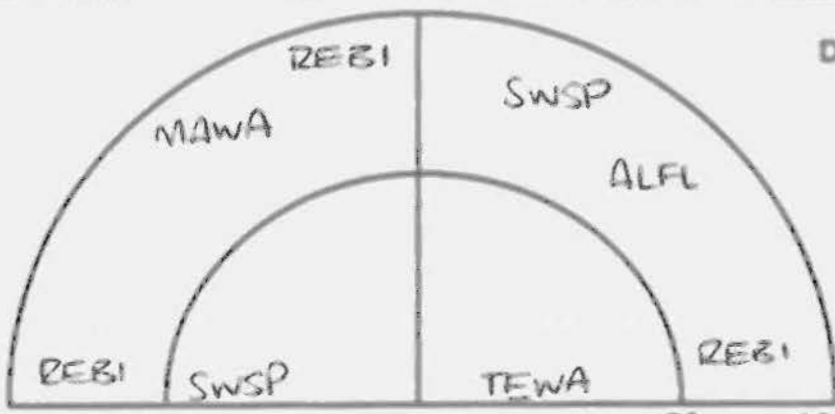
SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List

BLUE HERON	
GOLDEN EYE	
RAVEN	
HERG	



Direction: N

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
REBI		07		○	GBHE		10		●					○
MAWA		10		○	COGO			13	●					○
SWSP	03			○	CORA	07			●					○
TEWA			11	○					○					○
ALFL	04			○					○					○
HERG		10		●					○					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.

**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name
VON52	C	117622	AIDE BADILLA

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ● No ○ N/A

● Visit1 ○ Visit2 ○ Visit3

Day 15 **Month** 06 **Year** 2015 **Station Start Time (24hr)** 0700

Cloud Cover (10ths) 10 **Temperature** 14 ● °C ○ °F **Beaufort Wind Scale (0-6)** 0

Precipitation ○ None/Dry ● Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** 0

FOCAL SPECIES American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

Species code	Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
YERA	○	○	○	○	●	○	○	○	○	○	○	○	(marked)	●	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

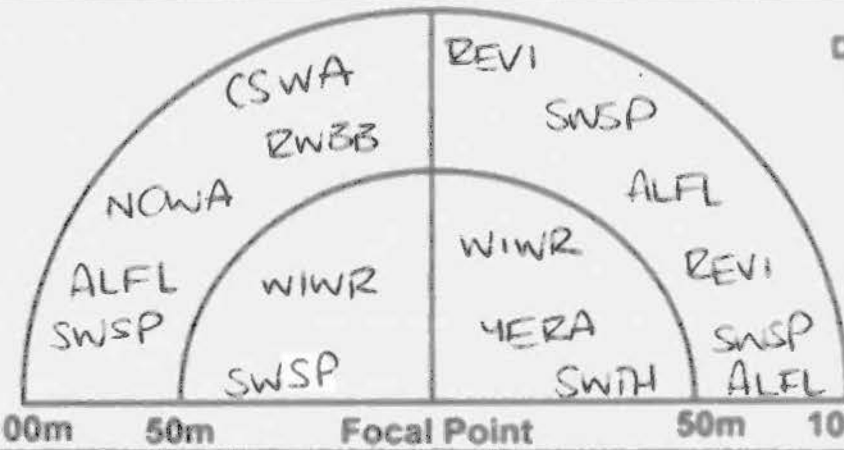
SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List

COGO x 5	
BLJA	



Direction N

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
CSWA	03			○	REVI			11	○	ALFL		08		○
NOWA		07		○	RWBB		08		○	SWSP			10	○
ALFL			14	○	WIWR			13	○	SWSP		09		○
SWSP			13	○	YERA	03			○	REVI	05			○
WIWR		08		○	SWTH		07		○	COGO			15	●
SWSP	05			○	ALFL	03			○	BLJA		08		●

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.

**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name
VON52	D	117622	AIDE BADILLA

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ● No ○ N/A

● Visit1 ○ Visit2 ○ Visit3

Day 15 **Month** 06 **Year** 2015 **Station Start Time (24hr)** 0730

Cloud Cover (10ths) 75 **Temperature** 14 ● °C ○ °F **Beaufort Wind Scale (0-6)** 0

Precipitation ○ None/Dry ● Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** 0

MARSH MONITORING PROGRAM

FOCAL SPECIES American Bittern (AMBI) American Coot (AMCO) Black Rail (BLRA) Common Moorhen (COMO) King Rail (KIRA) Least Bittern (LEBI) Pied-billed Grebe (PBGR) Sora (SORA) Virginia Rail (VIRA) Yellow Rail (YERA)

Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
SORA	○	○	○	●	○	○	○	○	○	○	○	○	(right)	●	○	
SORA	○	○	○	○	○	●	○	○	○	○	○	○	(left)	●	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

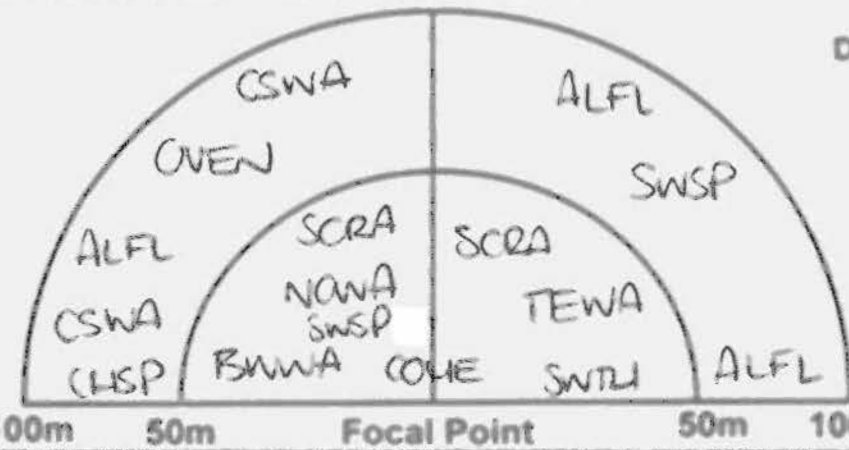
SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List

RWBB	
BWTE	
COGO	



Direction N

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
RWBB		0.8		●	CSWA			1.2	○	TEWA	0.1			○
BWTE	0.5			●	CHSP		0.7		○	SWTH		0.4		○
COGO		0.9		●	NOWA			1.4	○	ALFL			1.1	○
CSWA			1.1	○	SWSP	0.2			○	SWSP	0.3			○
OVEN	0.3			○	BWWA		0.9		○	ALFL		0.7		○
ALFL		0.5		○	COYE			1.5	○					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.
** O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name
UON52	E	117622	AIDE BADILLA

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ● No ○ N/A

● Visit1 ○ Visit2 ○ Visit3

Day 15 **Month** 06 **Year** 2015 **Station Start Time (24hr)** 0800

Cloud Cover (10ths) 60 **Temperature** 14 ● °C ○ °F **Beaufort Wind Scale (0-6)** 0

Precipitation ● None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** 0

FOCAL SPECIES American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

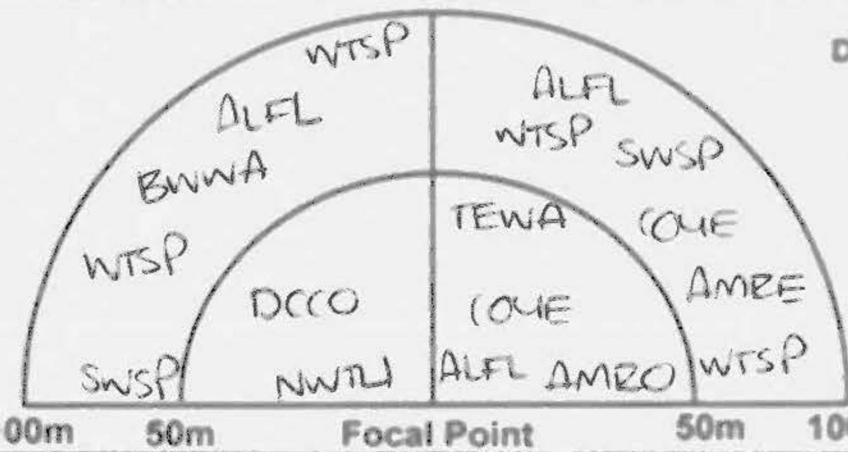
SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List

MALL	
RWBL	
COGO	
AMRO	



Direction N

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
MALL				●	BWWA		10		○	TEWA			14	○
RWBL				●	WTSP			13	○	COYE				○
COGO				●	SWSP		08		○	AMRO			15	○
AMRO				●	DCCO	03			○	AMRE	04			○
WTSP	05			○	NWTH	04			○	COYE		07		○
ALFL		07		○	ALFL		07		○	WTSP		09		○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.

**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ○ No ○ N/A

○ Visit1
○ Visit2
○ Visit3

Day ____ **Month** ____ **Year** 2 0 ____ **Station Start Time (24hr)** ____

Cloud Cover (10ths) ____ **Temperature** ____ ○ °C ○ °F **Beaufort Wind Scale (0-6)** ____

Precipitation ○ None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** ____

FOCAL SPECIES American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

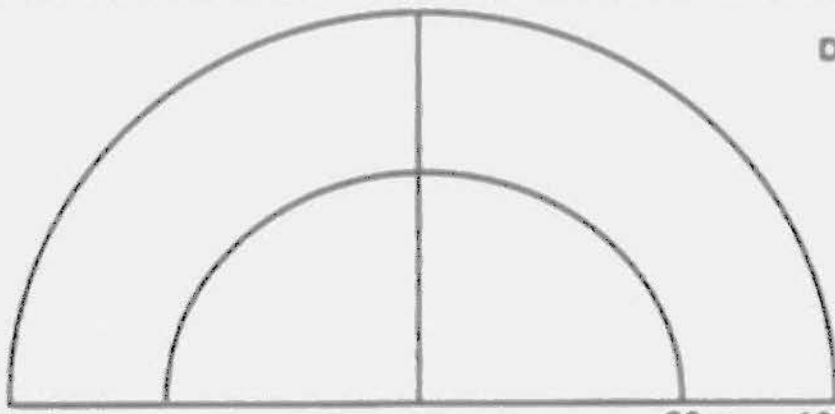
Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List



Direction ____

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.

**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198 **Marsh Monitoring Program - Bird Survey Form**

Route #	Station (A-H)	Observer #	Observer Name
UON52	A	117622	AIDE BADILLA

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ● No ○ N/A

○ Visit1 ● Visit2 ○ Visit3

Day 25 **Month** 06 **Year** 2015 **Station Start Time (24hr)** 0632

Cloud Cover (10ths) 00 **Temperature** 07 ● °C ○ °F **Beaufort Wind Scale (0-6)** 0

Precipitation ● None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** 1

FOCAL SPECIES: American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

Species code	Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
SORA	○	○	●	○	○	○	○	○	○	○	○	○	◐	○	○	
SORA	○	○	○	●	○	○	○	○	○	○	○	○	◐	●	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

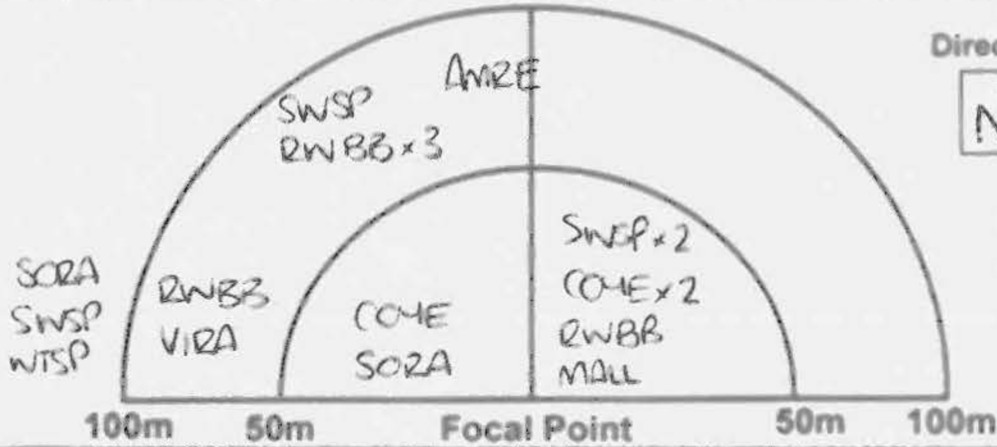
SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List

SORA	
SWSP	
WTSP	



Direction N

Secondary Species Summary (to be completed after survey)

Species Code	min0-5	min5-10	min10-15	O/F**	Species Code	min0-5	min5-10	min10-15	O/F**	Species Code	min0-5	min5-10	min10-15	O/F**
SWSP		0.7		●	COYE			1.3	○	RWBB		0.6		○
RWBB	0.3			○	WTSP		0.7		●	SWSP			1.2	○
AMRE		1.0		○	SWSP	0.5			●	COYE		0.9		○
VIRA			1.3	○	COYE			1.0	○					○
RWBB	0.2			○	RWBB		0.9		○					○
RWBB	0.4			○	MALL	0.5			○					○

(# Observed* spans min0-5, min5-10, min10-15 in each group.)

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.
**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name
U.O.N.5.2	B	1.1.7.6.2.2	AIDE BADILLA

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ● No ○ N/A

○ Visit1 ● Visit2 ○ Visit3

Day 25 **Month** 06 **Year** 2015 **Station Start Time (24hr)** 0656

Cloud Cover (10ths) 00 **Temperature** 07 ● °C ○ °F **Beaufort Wind Scale (0-6)** 0

Precipitation ● None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** 0

FOCAL SPECIES American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

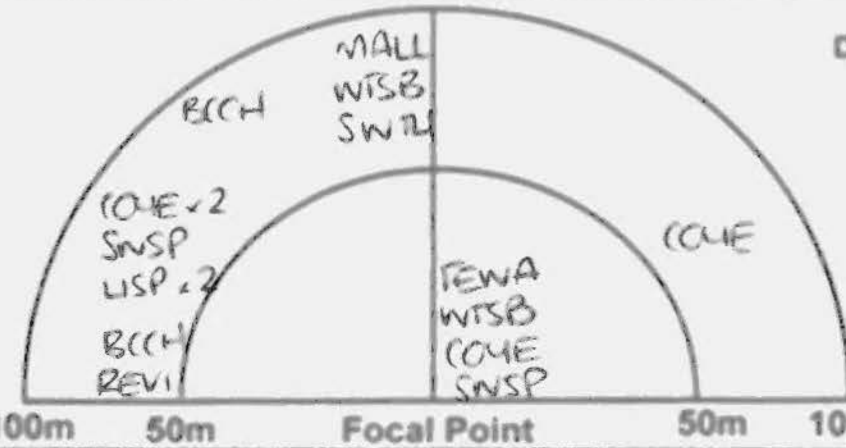
Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments

SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List



Direction N

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
MALL			11	○	COYE		07		○	WTSB	03			○
WTSB	02			○	LISP			13	○	COYE		07		○
BCCH		09		○	BCCH		05		○	SWSP			11	○
SWTH				○	LISP	03			○	COYE		08		○
COYE			13	○	REVI			12	○					○
SWSP	03			○	TEWA		07		○					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.

**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name
UON52	C	117622	AIDE BOOILLA

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ○ No ○ N/A

MARSH MONITORING PROGRAM

○ Visit1 ● Visit2 ○ Visit3

Day 25 **Month** 06 **Year** 2015 **Station Start Time (24hr)** 0715

Cloud Cover (10ths) 00 **Temperature** 07 ● °C ○ °F **Beaufort Wind Scale (0-6)** 0

Precipitation ● None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** 1

FOCAL SPECIES American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

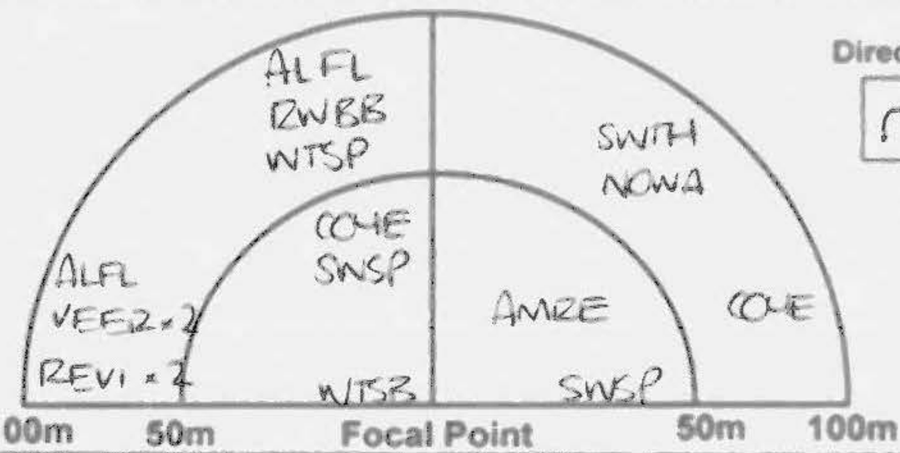
Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List



Direction N

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
ALFL		08		○	VEER	02			○	WTSB	03			○
RWBB			13	○	REVI		10		○	AMRE		07		○
NTSP				○	VEER			11	○	SWSP			11	○
COYE		07		○	REVI	04			○	SWTH		08		○
SWSP				○	COYE		08		○	NOWA	04			○
ALFL	03			○	SWSP			13	○	SWSP		10		○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.
**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name
VON52	D	117622	AIDE BADILLA

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ● No ○ N/A

MARSH MONITORING PROGRAM

○ Visit1 ● Visit2 ○ Visit3

Day 25 **Month** 06 **Year** 2015 **Station Start Time (24hr)** 0729

Cloud Cover (10ths) 01 **Temperature** 07 ● °C ○ °F **Beaufort Wind Scale (0-6)** 0

Precipitation ● None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** 0

FOCAL SPECIES
American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

Species code	Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
SORA	○	○	●	○	○	○	○	○	○	○	○	○	◐	●	○	
VIRA	○	○	○	○	●	○	○	○	○	○	○	○	◐	●	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

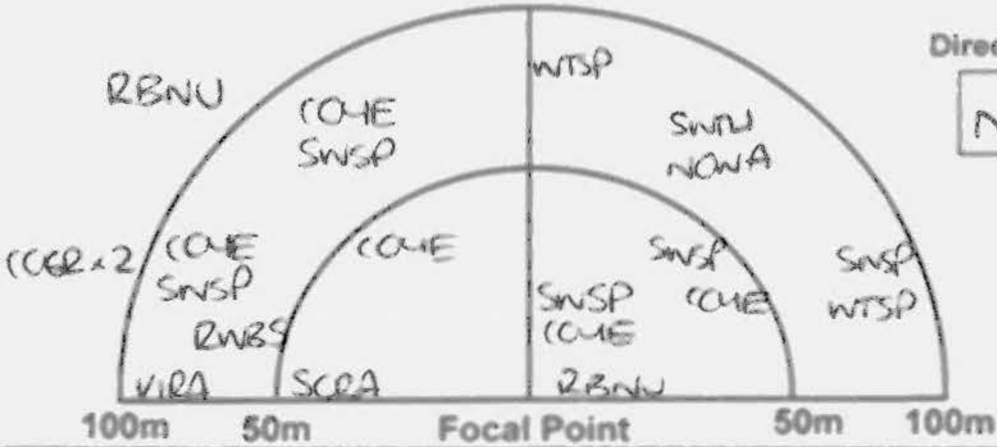
SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List

RBNU	
COGR	
COGR	



Direction N

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
COYE		06		○	RBNU			12	○	COYE	01			○
SWSP			13	○	WTSP	03			○	SWSP		10		○
RWBS	03			○	SWSP		09		○	COYE			13	○
WTSP			14	○	COYE			11	○	SWSP		07		○
SWTH		07		○	SWSP		08		○					○
NOWA		06		○	COYE	02			○					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.
**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name
U.C.N.5.2	E	1.1.7.6.2.2	AIDE BAOLLA

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ● No ○ N/A

MARSH MONITORING PROGRAM

○ Visit1
● Visit2
○ Visit3

Day 25 **Month** 06 **Year** 2015 **Station Start Time (24hr)** 0756

Cloud Cover (10ths) 05 **Temperature** 07 ● °C ○ °F **Beaufort Wind Scale (0-6)** 0

Precipitation ● None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** 1

FOCAL SPECIES

American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

Species code	Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

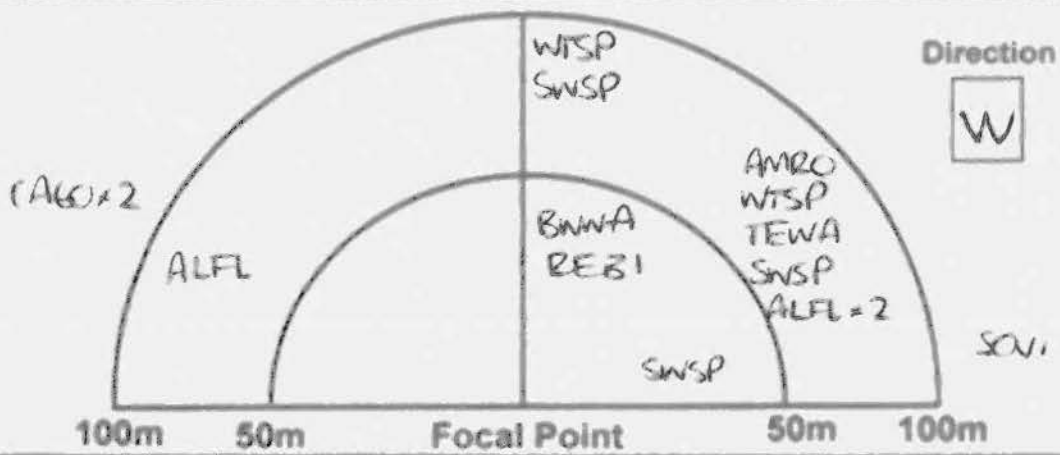
SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List

CAGO	
CAGO	
SOVI	



Direction W

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
ALFL	03			○	AMRO	01			○	REBI			15	○
WTSP			11	○	WTSP		06		○	ALFL		07		○
SWSP		07		○	TEWA			14	○	CAGO	03			●
BWWA			13	○	SWSP	03			○	CAGO	01			●
REBI		08		○	ALFL	02			○	SOVI			13	●
SWSP	02			○	SWSP		07		○					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.

**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ○ No ○ N/A

○ Visit1
○ Visit2
○ Visit3

Day ____ **Month** ____ **Year** 2 0 __ __ **Station Start Time (24hr)** ____

Cloud Cover (10ths) ____ **Temperature** ____ ○ °C ○ °F **Beaufort Wind Scale (0-6)** ____

Precipitation ○ None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** ____

FOCAL SPECIES American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

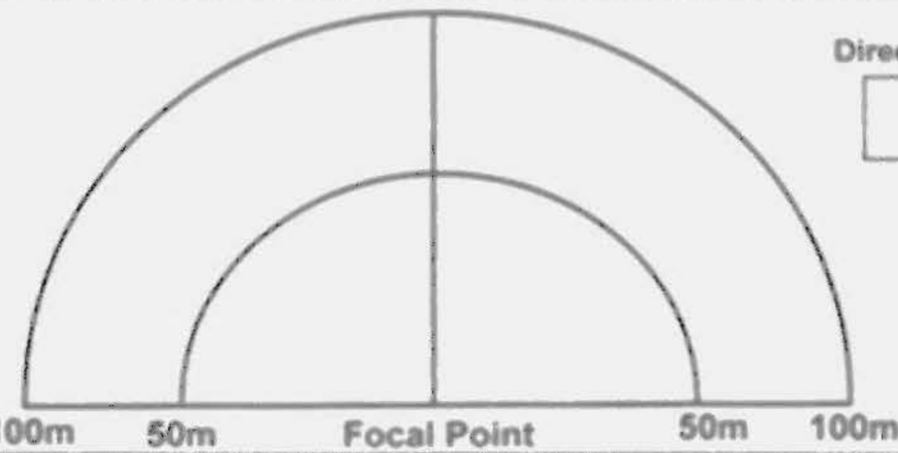
Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List



Direction ____

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.
**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name

MARSH MONITORING PROGRAM

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ○ No ○ N/A

○ Visit1
○ Visit2
○ Visit3

Day ____ **Month** ____ **Year** 2 0 __ __ **Station Start Time (24hr)** ____

Cloud Cover (10ths) ____ **Temperature** ____ ○ °C ○ °F **Beaufort Wind Scale (0-6)** ____

Precipitation ○ None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** ____

FOCAL SPECIES American Bittern (AMBI) American Coot (AMCO) Black Rail (BLRA) Common Moorhen (COMO) King Rail (KIRA) Least Bittern (LEBI) Pied-billed Grebe (PBGR) Sora (SORA) Virginia Rail (VIRA) Yellow Rail (YERA)

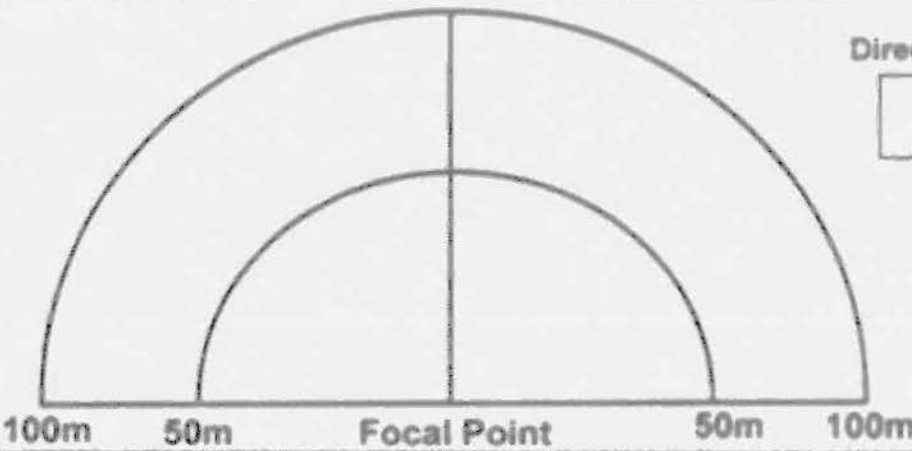
Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List



Direction ____

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.

**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ○ No ○ N/A

MARSH MONITORING PROGRAM

○ Visit1
○ Visit2
○ Visit3

Day ☐ **Month** ☐ **Year** 2 0 __ __ **Station Start Time (24hr)** ☐

Cloud Cover (10ths) ☐ **Temperature** ☐ ○ °C ○ °F **Beaufort Wind Scale (0-6)** ☐

Precipitation ○ None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** ☐

FOCAL SPECIES

American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

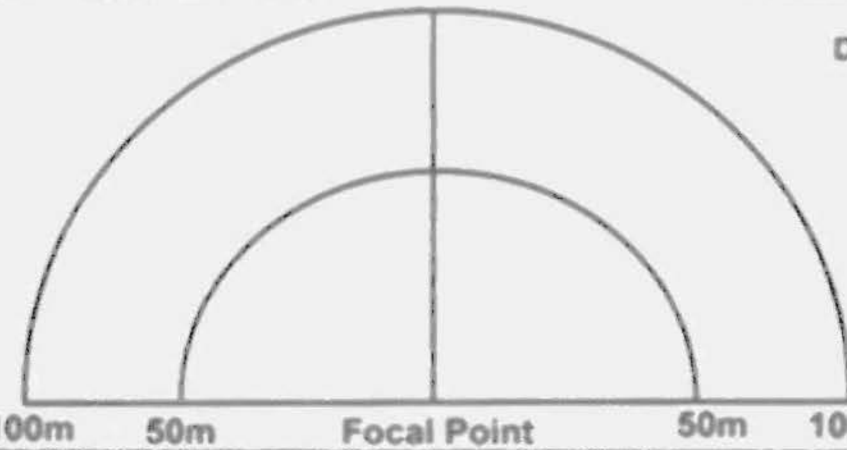
Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List



Direction ☐

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.

**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ○ No ○ N/A

MARSH MONITORING PROGRAM

○ Visit1 ○ Visit2 ○ Visit3

Day ____ **Month** ____ **Year** 2 0 __ __ **Station Start Time (24hr)** ____

Cloud Cover (10ths) ____ **Temperature** ____ ○ °C ○ °F **Beaufort Wind Scale (0-6)** ____

Precipitation ○ None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** ____

FOCAL SPECIES

American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

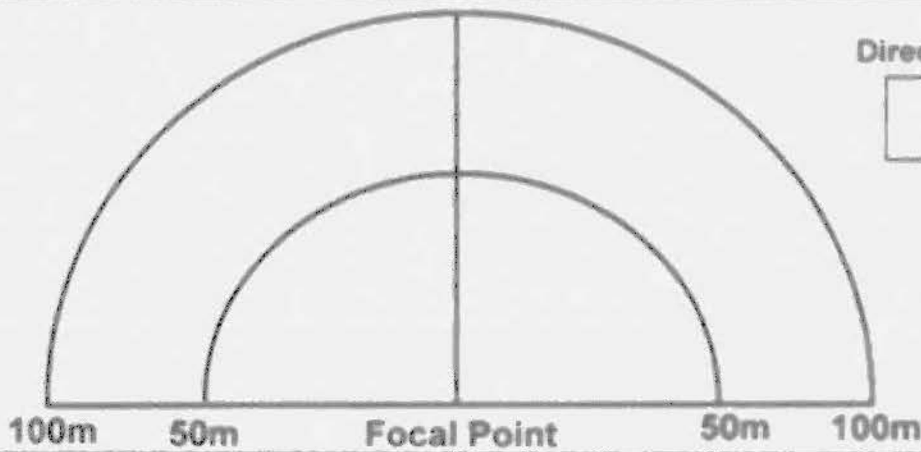
Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List



Direction

Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.

**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

5704534198

Marsh Monitoring Program - Bird Survey Form

Route #	Station (A-H)	Observer #	Observer Name

MARSH MONITORING PROGRAM

*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years? ○ Yes ○ No ○ N/A

○ Visit1
○ Visit2
○ Visit3

Day [ ] **Month** [ ] **Year** 2 0 [ ] **Station Start Time (24hr)** [ ]

Cloud Cover (10ths) [ ] **Temperature** [ ] ○ °C ○ °F **Beaufort Wind Scale (0-6)** [ ]

Precipitation ○ None/Dry ○ Damp/Haze/Fog ○ Drizzle ○ Rain **Background Noise Code (0-4)** [ ]

FOCAL SPECIES

American Bittern (AMBI), American Coot (AMCO), Black Rail (BLRA), Common Moorhen (COMO), King Rail (KIRA), Least Bittern (LEBI), Pied-billed Grebe (PBGR), Sora (SORA), Virginia Rail (VIRA), Yellow Rail (YERA)

Species code	Detected during: (please fill choice circle) Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10	Pass. min. 10-15	Direction	Within 100 m	Detected at Previous Point	Comments
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
	○	○	○	○	○	○	○	○	○	○	○	○		○	○	

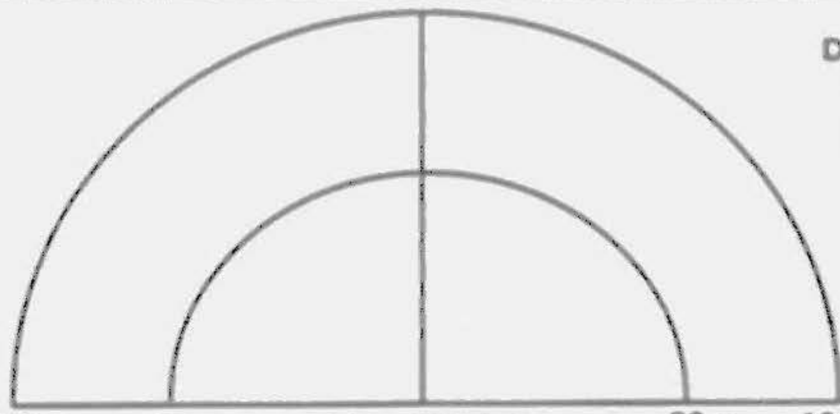
SECONDARY SPECIES

Aerial Foragers Tally

Species	min0-5	min5-10	min10-15

Outside/Fly-Throughs List

Direction [ ]



Secondary Species Summary (to be completed after survey)

Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**	Species Code	# Observed* min0-5	min5-10	min10-15	O/F**
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○
				○					○					○

* #Observed = The number of individuals mapped and/or actively foraging within the sample area.

**O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)

Traffic - 3
Calm Water
Temperature - 7 degrees C
Start @ 632
End @ 647
Coordinates: 17 U 0487244
5371613

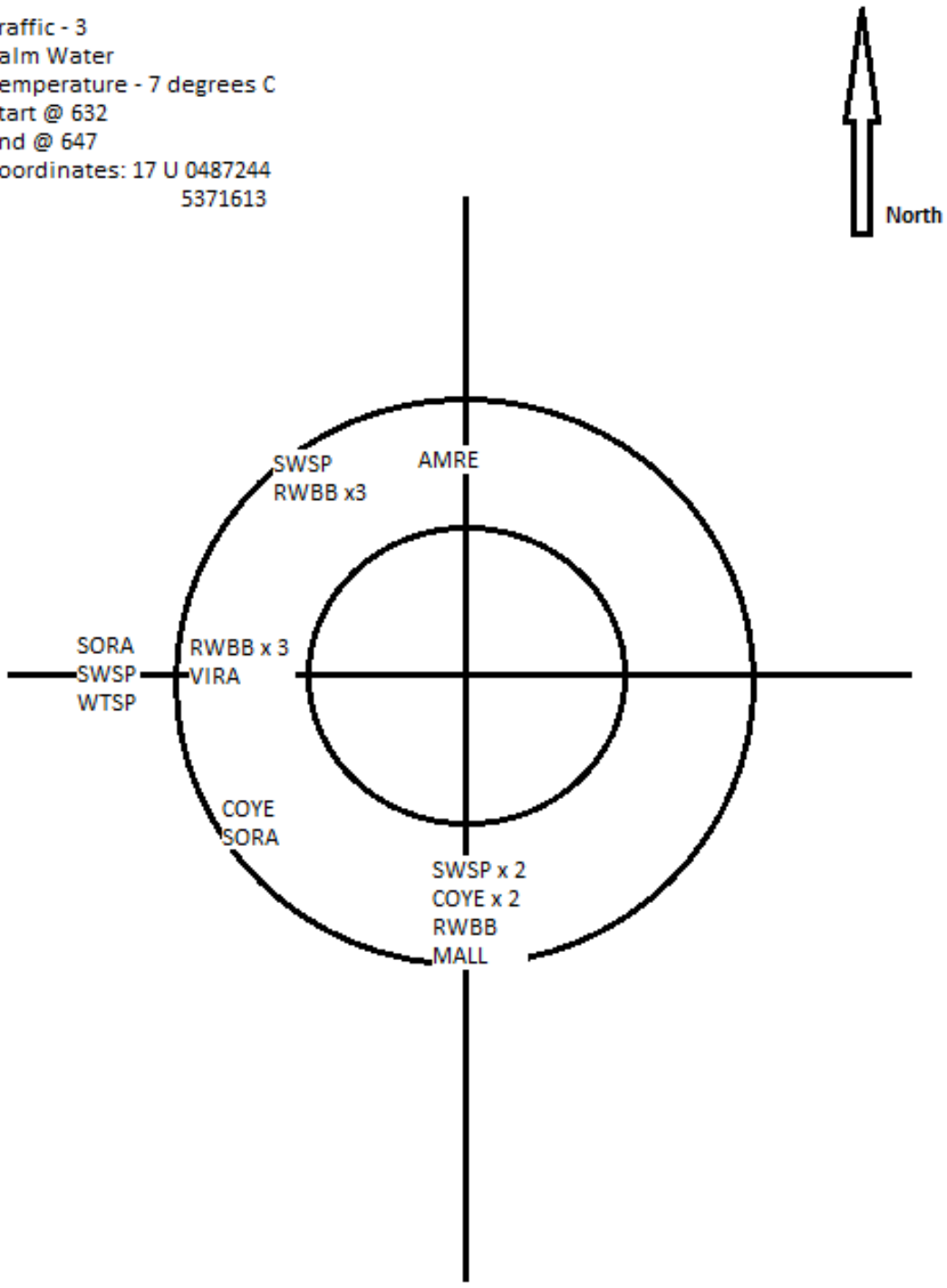


Figure 1 - Station 1

Traffic - 2
Calm Water
Temperature - 7 degrees C
Start @656
End @ 711

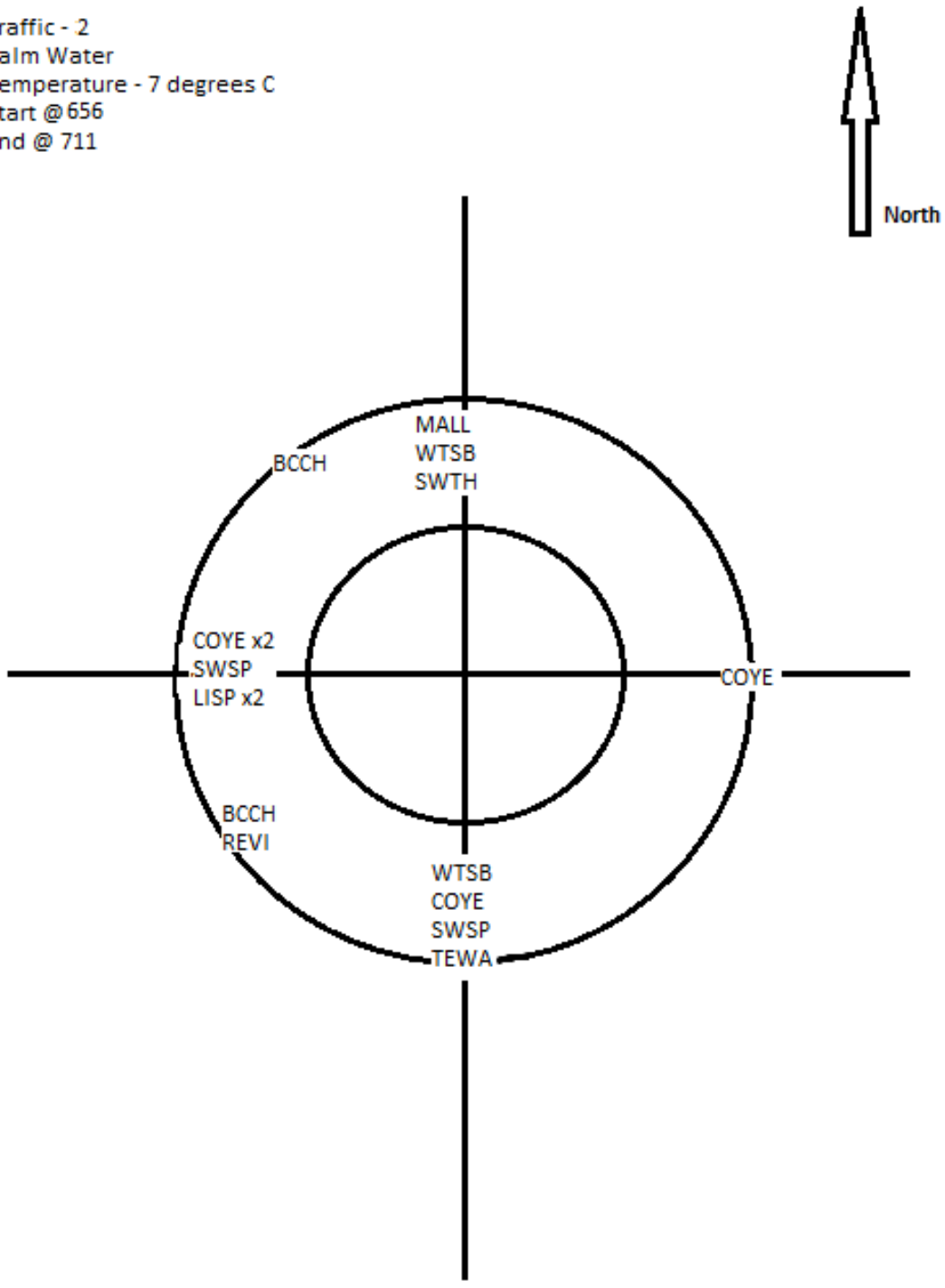


Figure 2 - Station 2

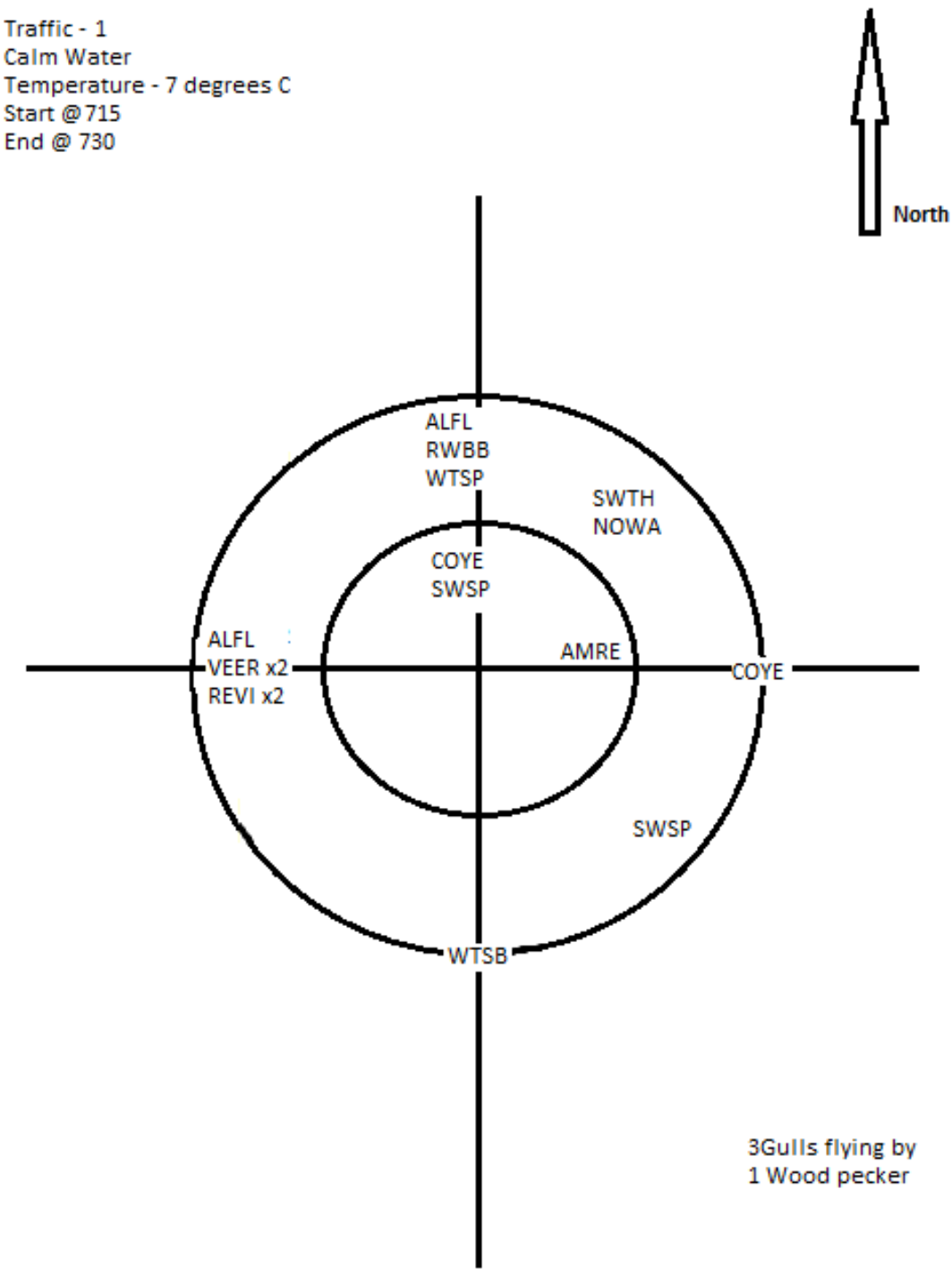


Figure 3 - Station 3

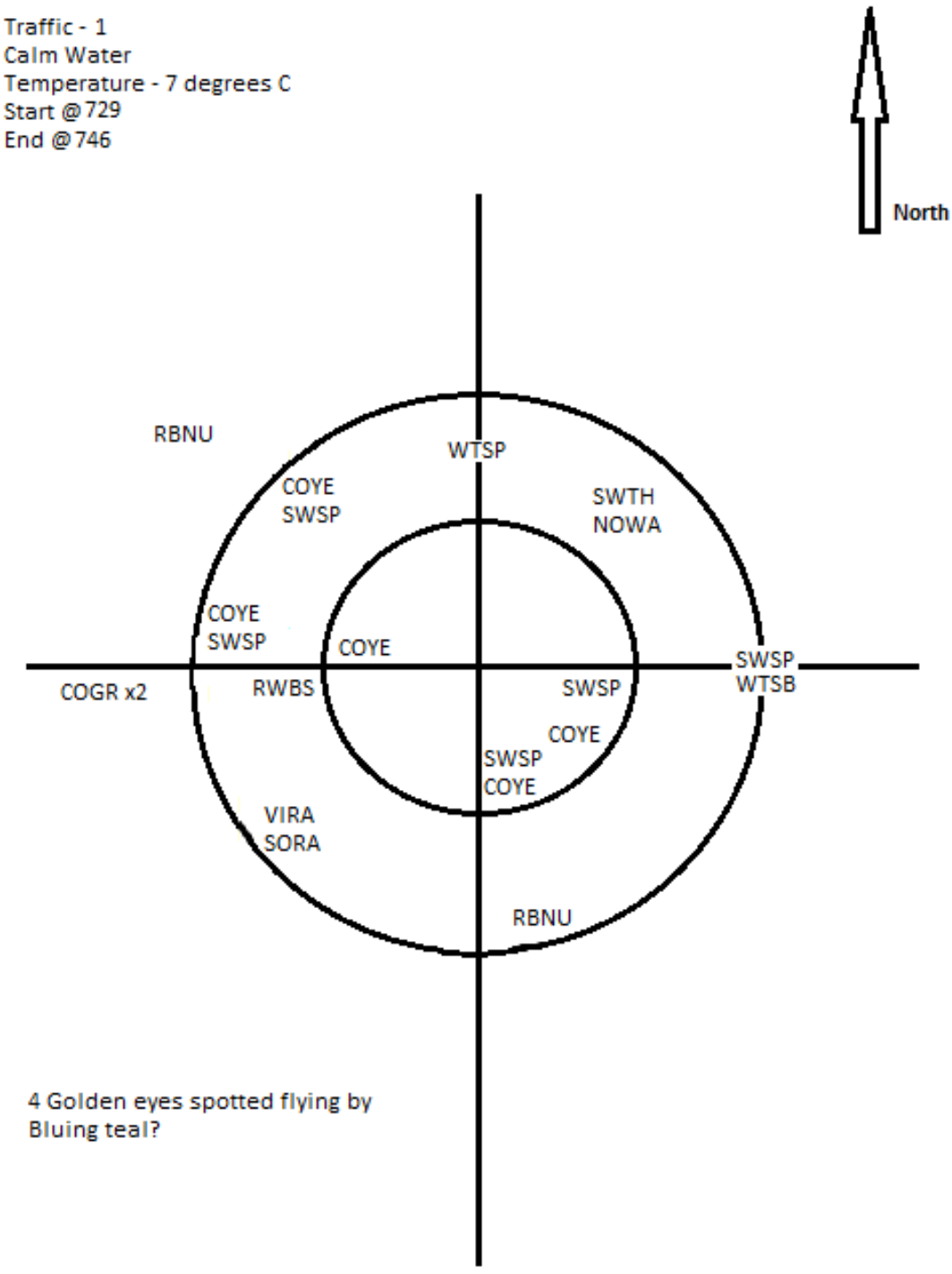


Figure 4 - Station 4

Traffic - 1
Calm Water
Temperature - 7 degrees C
Start @ 756
End @ 811

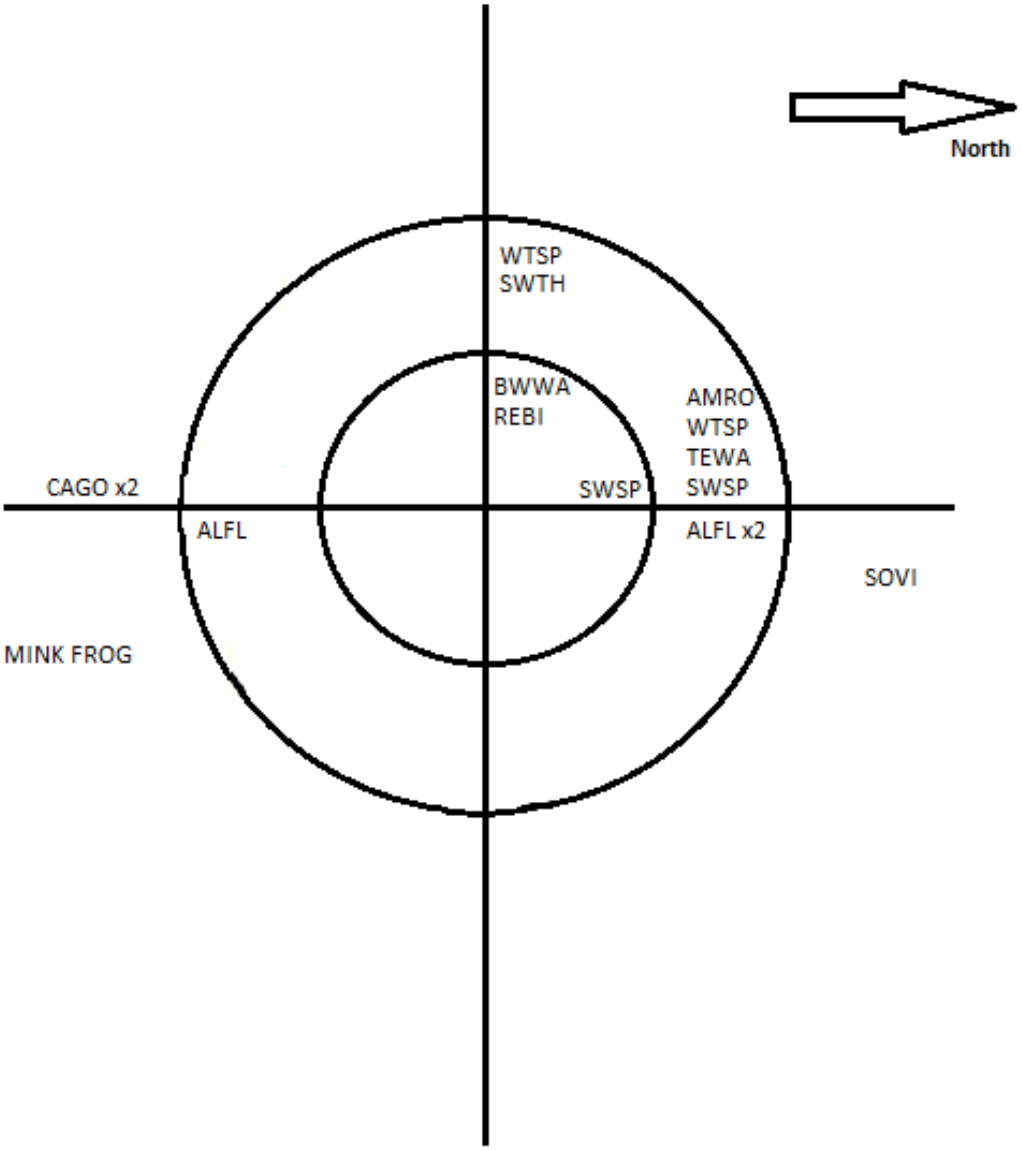


Figure 5 - Station 5

APPENDIX 2 DVD disk containing the database and copies of the historical environmental effects monitoring surveys and the Porcupine River Watershed Stage 1 Report