

RIVER VALLEY ECOSYSTEM RECONNAISSANCE

DRAFT REPORT PREPARED FOR:

**THE INSTITUTE FOR ENVIRONMENTAL MONITORING
AND RESEARCH
HAPPY VALLEY-GOOSE BAY, LABRADOR**

PREPARED BY:

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PROJECT NFS51505

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1.0 INTRODUCTION

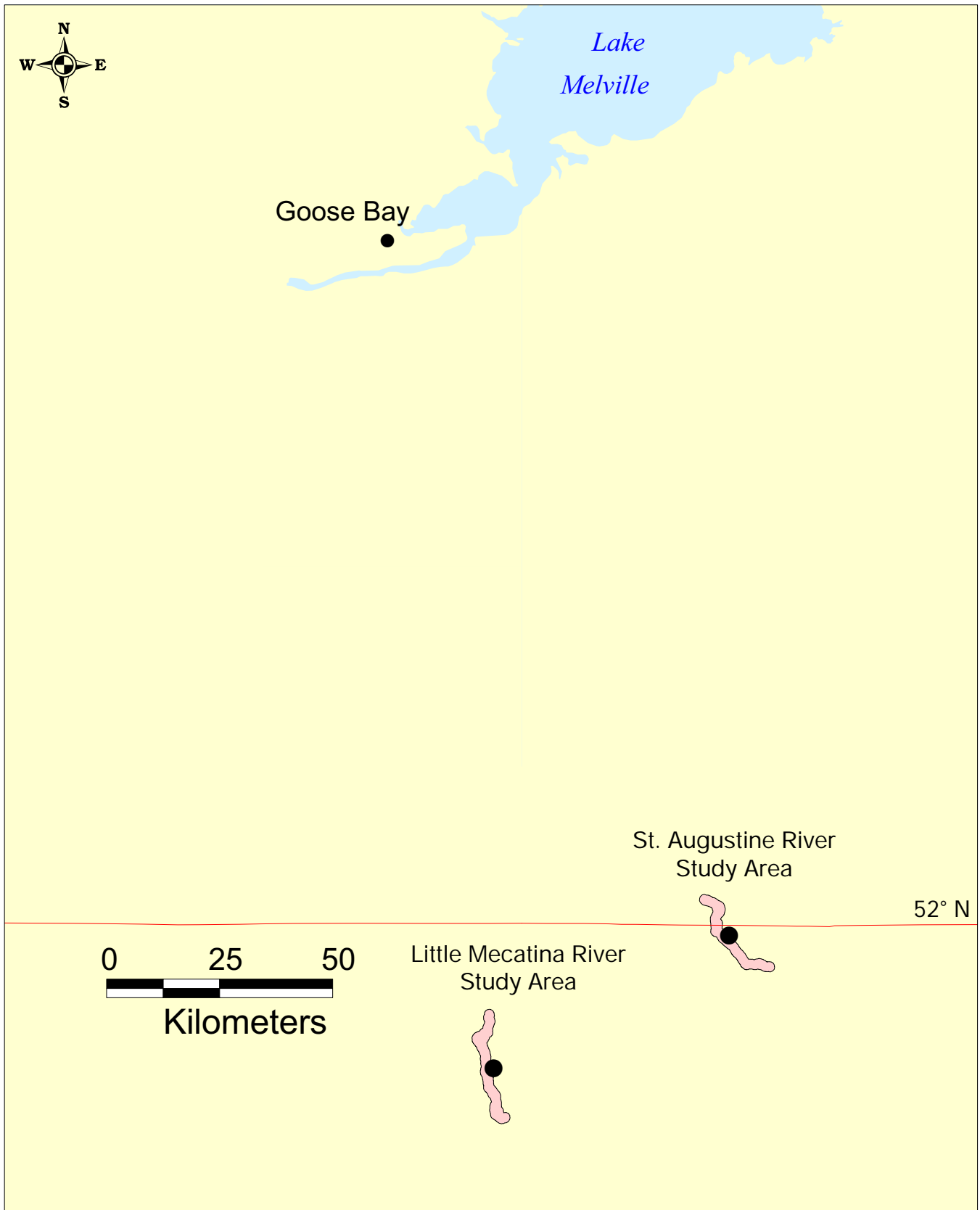
In September 2000, Jacques Whitford Environment Limited (JWEL) was contracted by the Institute for Environmental Monitoring and Research (IEMR) to determine the appropriateness of two locations as base camps for dedicated field investigations. Both sites, Petit Mecatina and St. Augustine Rivers are within the Province of Quebec, located inside and outside the Military Training Area (MTA) respectively (Figure 1.1). These sites were identified during a workshop focused on this topic held in Halifax, Nova Scotia during May 2000. Both locations are similar in many features except that the St. Augustine area is more accessible to land use activity (*e.g.* boating, snowmobiling) and is oriented in an east-west direction while the Petit Mecatina area is oriented north-south and is relatively isolated.

As these locations were selected as base camps theoretically operational year round, the spring workshop identified several important considerations to enable future operations. These include: accessibility by float/ski plane, area for helicopter access, adjacent to a source of clear running water, above potential Spring flooding limits, boating access for at least 10 km up- and down-stream, and a source of firewood and simple construction materials for platforms and other structures.

1.1 OBJECTIVES

As indicated above, the overall goal of this investigation was to determine the appropriateness of the Petit Mecatina and St. Augustine River sites as base camps for future research on the environmental effects of Low-level Flying (LLF) activity. Specific objectives included:

- 1/ To survey portions of the two river valleys to delineate the most appropriate 20 km stretch of each which can then be designated River Valley Ecosystem Research Sites.
- 2/ The sites should be as compatible as possible relative to physiography, vegetative cover, river characteristics (slow and meandering, fast and narrow), valley width and slope. Suitable access by fixed wing aircraft (floats and skis) is essential.
- 3/ Provide general comment on the presence/absence and possible abundance of wildlife species which will be the focus of research efforts such as: forest song birds, tree swallows, small mammals, northern flying squirrels and red squirrels, bats, porcupines, American marten, beaver, moose, black bear and waterfowl (especially Harlequin Duck).
- 4/ Complete a general description of dominant vegetation habitats with accompanying photographic (35 mm slides) records.
- 5/ Compile biophysical information collected by others (*i.e.* the Department of National Defence) to supplement observations from the field.
- 6/ Complete a report and 'Power Point' presentation on the results of the reconnaissance.



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**Jacques Whitford
Environment Limited**
Environmental Scientists
Consulting Engineers

Figure 1.1
Location of proposed Base Camps on Petit Mecatina
and St. Augustine Rivers, Quebec and Labrador.

2.0 STUDY TEAM

Mr. Perry Trimper (JWEL) was the Project Manager, providing advice and direction while serving as the liaison with IEMR on approach to the reconnaissance. Mr. Keith Oram, an environmental technician with JWEL, lead the field reconnaissance with the assistance of Mr. Colin Jones (IEMR) and Mr. Matt Davis, a helicopter pilot with Canadian Helicopters. Mr. Thomas Jung (IEMR) worked with Mr. Trimper and Mr. Oram on the design of the investigation and compilation of final report and presentation deliverables. Ms. Caroline Hong completed the 'Power Point' presentation in consultation with IEMR. Mr. Gerry Parker, a member of the Scientific Review Committee (IEMR) was responsible with Ms. Maureen Baker (IEMR) for overall management and contractual issues.

3.0 METHODOLOGY

3.1 Mobilization

Following contract award, the Study Team initiated a series of discussions with IEMR to develop consistent understanding of the objectives of the reconnaissance, particularly in light of two earlier workshops on this research proposal in May of 1999 and May 2000. Using the proposed approximate locations (Petit Mecatina - Latitude- 51 30' N; Longitude - 60 W, St. Augustine - Latitude- 51 25' N; Longitude - 59 20' W) from the latter workshop, JWEL and IEMR examined potential locations using 1:50,000 topographic map sheets in light of the various objectives. Areas for the field investigation were identified based on apparent accessibility by float plane, similar topographic and riverine features, and ease of access by boat from potential base camp locations (*i.e.* relative absence of rapids providing at least 20 km of accessible waterways). As a contingency for suitable floatplane access, secondary areas for the reconnaissance were also identified.

JWEL has previously completed on behalf of the Goose Bay Office, DND, seasonal aerial surveys for moose (late winter), woodland raptors, waterfowl and other wildlife (June-July), and specifically for Harlequin Duck on both the Petit Mecatina and St. Augustine Rivers. All observations of these species plus other wildlife (including those species of interest listed above) were recorded on 1:50,000 topographic map sheets. JWEL approached the Goose Bay Office and received approval to incorporate this information in the reconnaissance report.

Prior to departure the Military Coordination Centre (MCC) was contacted to ensure the study team's activities, did not conflict with investigations associated with the recent crash of a German Air Force Tornado on the Petit Mecatina River. As the crash site was estimated at 35 nautical miles south, the study team was cleared to proceed. Following standard safety protocols, MCC was also informed of the Study Team's temporal and spatial activities in the MTA, as a means of avoiding contacts with LLF jets in the vicinity of the Petit Mecatina River.

3.2 Field Investigations

The field reconnaissance occurred during 10-12 September 2000. Access to the proposed areas was gained using a Bell 206 Long Ranger helicopter. The first priority was to confirm the suitability of proposed base camp locations and ease of access by floatplane. To maximize fuel efficiency, the Study Team removed all extraneous equipment and then completed a description of the riparian (up to 1km from shoreline) dominant vegetation types (from the helicopter) at a 1:50,000 scale. Parameters of interest were determined in advance for the field team as a means of providing structure and minimum details for the data collection. Foot surveys for evidence of species of interest in selected habitats were also completed.

3.3 Data Compilation and Presentation

Notes on the presence/absence and relative abundance of species of interest were compiled with information recorded previously by surveys for the Goose Bay Office, DND. Figures were digitized from sketches and mapping completed in the field indicating proposed facilities, vegetation, wildlife use and other relevant features. A series of photos depicting various views at each Base Camp was also completed (Appendix A). In addition to the preparation of this report, JWEL also prepared a 'Power Point' presentation to be used by IEMR for upcoming meetings and discussions.

4.0 RESULTS

In terms of physical characteristics, the identified sites for Base Camps proved to be remarkably similar (Table 4.1). The sites are approximately 58 km apart, separated by 15 minutes of latitude and 47 minutes of longitude. While the valley at the St. Augustine River site is wider (5.5 km versus 3.0 km), the slopes are similar in height and shape. An extensive area is available for local boat access and floatplanes will be able to land at both Base Camps even during low water periods. River width and current were also similar at each proposed site.

Table 4.1 Comparison of Base Camp Physical Features, Petit Mecatina and St. Augustine Rivers, Quebec.

PARAMETER	PETIT MECATINA	ST. AUGUSTINE
Location	51 42.647/-60 07.005	51 57.719/-59 20.467
Elevation	250 m ASL	50 m ASL
Height and width of valley	400 m high 3,000 m wide	400 m high 5,500 m wide
River access upstream	< 10 km	>10 km
River access downstream	> 10 km	>10 km
Tributaries within 10 km	several brooks and some accessible rivers	several brooks and some accessible rivers
River width	September = 137 m Spring flood (est.) = 162 m	September = 170 m Spring flood (est.) = 223 m
Widest point within 10 km upstream	1,500 m	500 m
Widest point within 10 km downstream	1,000 m	250 m
Fixed-wing access	Float plane capable of landing at Base Camp during low-water level	Float plane capable of landing at Base Camp during low-water level
Orientation, navigation concerns at access point	Excellent location, prevailing winds aid landings/departures	Excellent location, prevailing winds aid landings/departures
Firewood/logs	Suitable source available	Suitable source available
Drinking water	Most rivers discoloured by silt, need to access nearby brooks probably by boat	Most rivers discoloured by silt, need to access nearby brooks probably by boat

Note: Locations refer to the Base Camp unless indicated otherwise.

Vegetative cover at both locations was typical of the region, with a some influence of fire history (Table 4.2) (Figures 4.1 and 4.2).

Table 4.2 Comparison of Base Camp Vegetative Cover, Petit Mecatina and St. Augustine Rivers, Quebec.

PARAMETER	PETIT MECATINA	ST. AUGUSTINE
Base Camp	Closed Coniferous to Mixed forest	Closed Coniferous to Mixed forest
Total Area Inventoried	66.3 km ²	58.5 km ²
Dominant vegetation types in terms of km ² and %	Closed Coniferous Forest = 27.2 km ² (41.1%) Open Coniferous Forest = 21.1 km ² (31.8%) Old Burn = 2.0 km ² (2.9%) Mixed Deciduous and Coniferous Forest = 6.7 km ² (10.1%) Deciduous Forest = 0.1 km ² (0.2%) Wetland = 0.3 km ² (0.5%)	Closed Coniferous Forest = 20.9 km ² (35.8%) Open Coniferous Forest = 18.9 km ² (32.4%) Old Burn = 9.2 km ² (15.7%) Mixed Deciduous and Coniferous Forest = 3.2 km ² (5.5%) Deciduous Forest = 2.1 km ² (3.5%)
Relationship of dominant vegetation types to elevation and proximity to river	A Band of Willow/Alders (5-10m) along the shoreline then with predominately Closed Coniferous and Mixed forest in a band along the river. Trends show higher elevations have Closed Coniferous forest, mixed forest and Deciduous, and lower elevations have old burns and open coniferous forest.	A Band of Willow/Alders (5-10m) along the shoreline then with predominately Closed Coniferous forest in a band along the river. Trends show higher elevations have Closed Coniferous forest, mixed forest and Deciduous, and lower elevations have old burns and open coniferous forest.

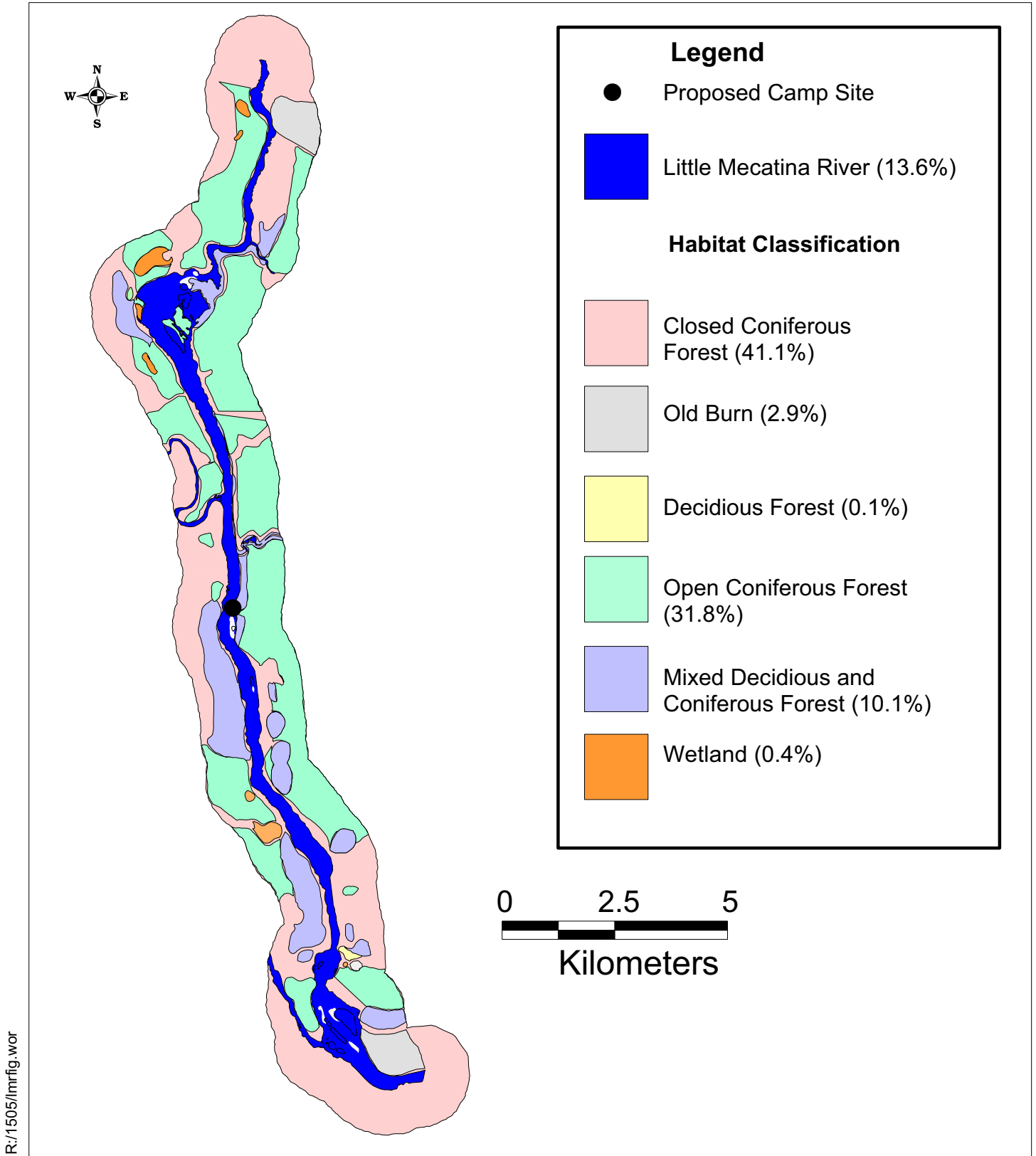


Figure 4.1 Vegetation distribution, proposed Petit Mecatina Base Camp, Quebec.

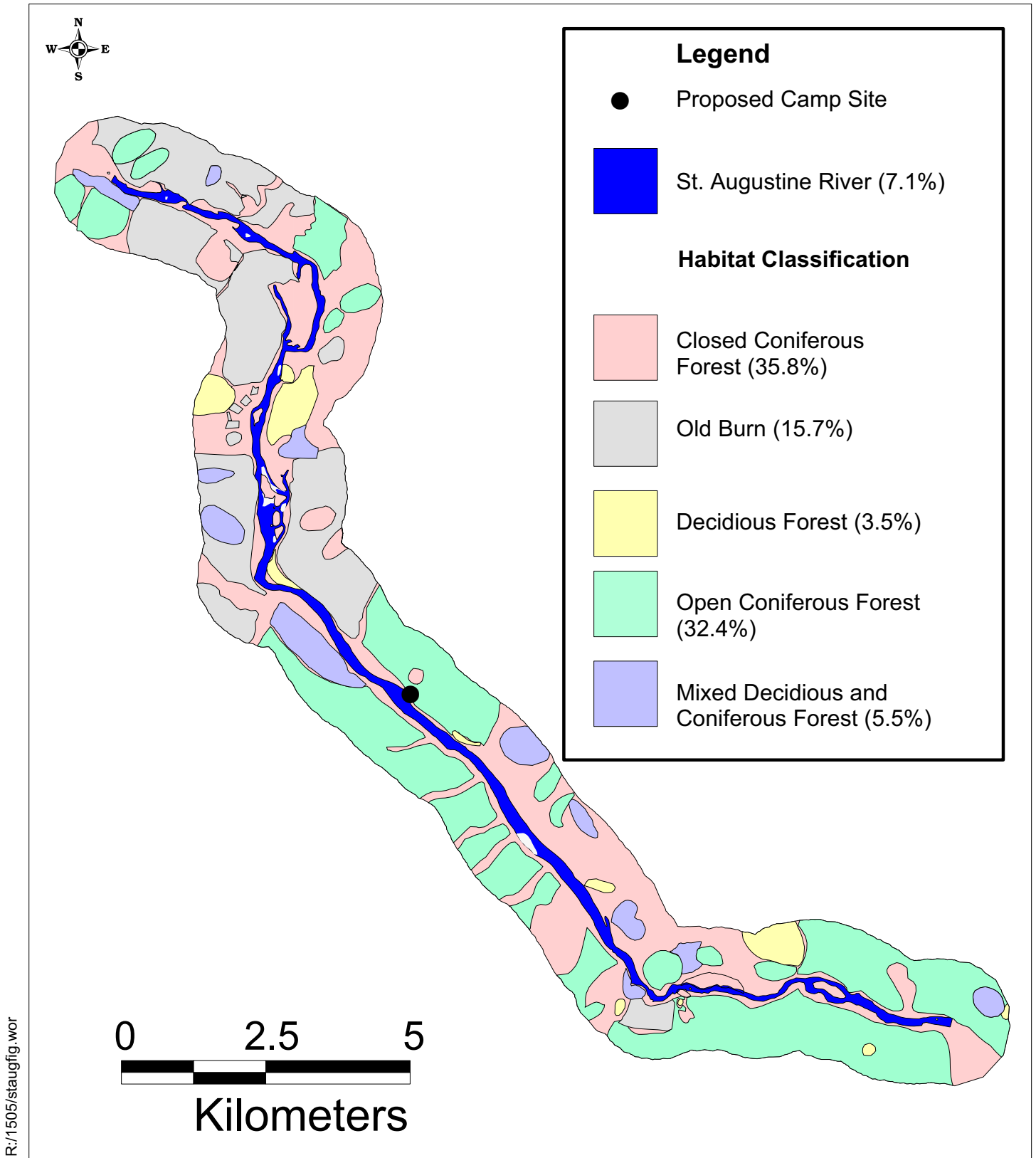


Figure 4.2 Vegetation distribution, proposed St. Augustine Base Camp, Quebec.

Despite the late timing of the field surveys, sightings or sign of most of the species of interest were noted at both proposed sites (Table 4.3). Additionally, previous surveys by JWEL for DND provided supplementary information. Only Harlequin Duck have not been observed during either field investigation. Most other species appeared to be common.

Table 4.3 Comparison of Wildlife and Habitat Features, Petit Mecatina and St. Augustine Rivers, Quebec.

SPECIES OF INTEREST	PETIT MECATINA	ST. AUGUSTINE
Harlequin Duck	- No evidence on 09/00 - 05/98 DND surveys nil - Habitat appears marginal on larger tributaries	- No evidence on 09/00 - 05/97 DND surveys on R. Mouche nil - Habitat appears appropriate on R. Mouche
Tree Swallow	- 1 observed on 09/00 - Habitat appears suitable	- No evidence on 09/00 - Habitat appears suitable
Canada Goose	- 12 observed near Base Camp in 09/00	-No evidence in 09/00
Song Birds	- Wilson's Warbler, Yellow Warbler, Dark-eyed Junco, Yellow-rumped Warbler, and Fox Sparrow recorded in 09/00 - Riparian habitat in particular appears rich for these species	- Boreal Chickadee, Fox Sparrow, Canada Jay, Ruby-crowned Kinglet, unknown warbler species, and unknown Flycatcher species recorded in 09/00 - Riparian habitat in particular appears rich for these species
Osprey	- 4 nests identified on 09/00 - 1995-1997 DND surveys confirmed reproductive success at 2 of these nests - Other suitable nest trees	- No evidence on 09/00 - 1996 DND surveys nil - Mature nest trees identified but no nests
Beaver	- 1 active colony identified within 1km of Base Camp on 09/00	1 abandoned lodge within 1 km of Base Camp on 09/00
Black Bear	- Tracks plentiful along shoreline on 09/00	- Tracks plentiful along shoreline on 09/00
Muskrat	- Tracks noted along shoreline on 09/00	- Tracks noted along shoreline on 09/00
Moose	- Old tracks noted on Sandy Island on 09/00	- No evidence on 09/00

SPECIES OF INTEREST	PETIT MECATINA	ST. AUGUSTINE
Red Fox	- Old tracks noted along shoreline on 09/00	- Old tracks noted along shoreline on 09/00
Porcupine	- No evidence on 09/00	- Old sign on spruce trees at Base Camp on 09/00
Red Squirrel	- Calls noted in mature Spruce forest at Base Camp on 09/00	- Individuals observed and heard in mature Spruce forest at Base Camp on 09/00

Notes:

1. The timing of the September 2000 reconnaissance was probably too late in the season to confirm the presence of this species.
2. 2000 was a relatively low reproductive year for Osprey.
3. All DND surveys indicated were completed by JWEL, Happy Valley-Goose Bay, Labrador

As noted previously, land use activity is evident in the vicinity of the proposed Base Camps, particularly on the St. Augustine River. A cabin was identified at this location and the reconnaissance team noted evidence of recent trapping and boating activity by others. Evidence of contemporary land use activities was also noted on the Petit Mecatina River location to a lesser degree. Snowmobiling and other activity have been noted by JWEL on previous moose wintering surveys.

5.0 CONCLUSIONS

Based on the field investigations completed during September 2000, it is the opinion of JWEL that the sites proposed on the Petit Mecatina and St. Augustine Rivers, will serve as suitable Base Camps for future river valley field investigations. Both sites exhibit similar physical, vegetative and wildlife characteristics to allow possible monitoring and 'cause and effect' research vis-a-vis the biophysical effects of LLF. The juxtaposition of the Base Camp locations regarding the Petit Mecatina River Valley will allow observers excellent vantage for LLF overflights within the MTA (experimental area). From a logistics perspective, both sites are remotely accessible by float/ski planes with an extensive network of riverine habitat for local access.

APPENDIX A

PHOTOS OF BASE CAMPS AT
PETIT MECATINA AND ST. AUGUSTINE RIVERS, QUEBEC

10-12 SEPTEMBER 2000



Little Mecatina River Base Camp Site



St. Augustine Base Camp Site