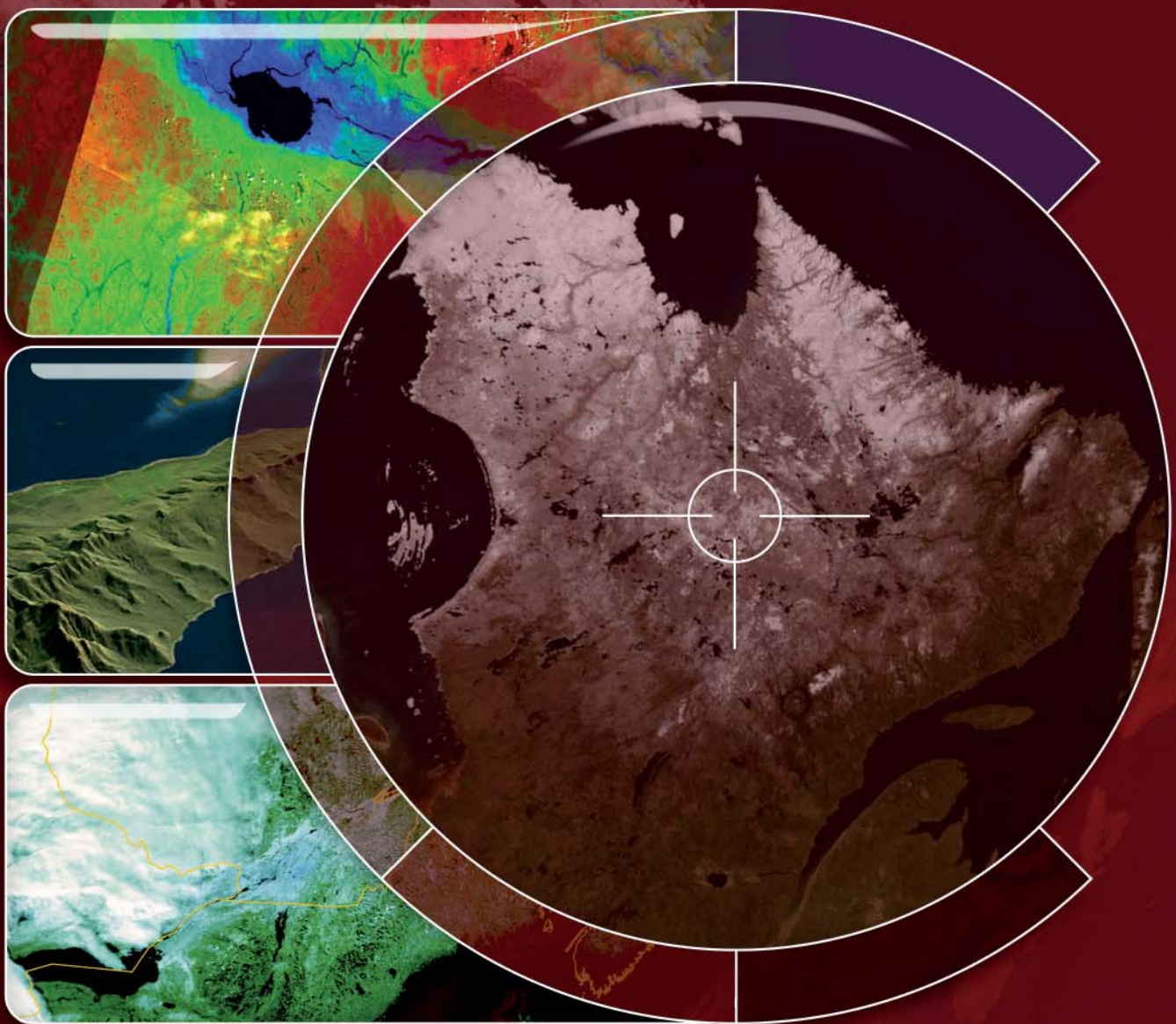


Exploration Targets for Porphyry Cu-Au \pm Mo Deposits, James Bay Region

Daniel Lamothe
2008



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Introduction

This document presents the results of a favourability study of the potential for porphyry Cu-Au ± Mo deposits in the James Bay region. The area covered by the study extends from latitude N50° to N54° and from longitude 72°W to 78°W (figure 1). Through data processing, 32 relevant geological parameters are combined using a “hybrid fuzzy logic” approach where the individual weight of each parameter is calculated by the “weight of evidence” method. This method measures the probability of spatial association of each parameter with a set of 61 porphyry Cu-Au ± Mo deposits located within the study area. The final combination of parameters was achieved using standard fuzzy logic operators. FUZZYGAMMA operators were used and calibrated to obtain a background value of about 0.5, so as to avoid overweighing the results of parameter combinations. The resulting favourability map was subsequently validated using 11 deposits of the same type that had not been used to calculate the probability of association. Due to the types of mineral occurrences used for data processing, largely consisting of showings and worked deposits, the results are not as accurate as in previous studies conducted by the author.

It is important to point out that this assessment is based on all digital data available in Québec’s Geomining Information System (SIGEOM) as of August 1, 2008. With the exception of drilling data and approximately 10,700 lithochemistry analytical results taken from assessment reports, most of the digital data used in the study are derived from mapping surveys conduc-

ted by the MRNF. In many cases, it is possible that the potential of an area may have been underestimated due to a lack of relevant data in SIGEOM. The results of data processing should therefore be considered as a transitory and partial image.

High-Favourability Zones for Porphyry Cu-Au ± Mo Deposits and Exploration Targets

The favourability map for porphyry Cu-Au ± Mo deposits in the James Bay region (figures 1 and 2) is available on the MRNF website (Maps section) and in GESTIM (Consultation module, SIGEOM section). It will also be displayed for the duration of Québec Exploration 2008 in Salon Montcalm. The map at a scale of 1/500,000 shows the estimated favourability as a colour scale ranging from red (high favourability) to dark blue (low or unknown favourability). The map also shows, in violet, high-favourability zones (HFZ) that represent the highest range of values encompassing 80% of the 72 known porphyry Cu-Au ± Mo deposits in the area.

The 198 high-potential targets for porphyry Cu-Au ± Mo deposits shown in figures 1 and 2 correspond to unstaked portions of HFZ as of November 1, 2008. They are briefly described in Table 1.

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Table 1 - High-potential targets for porphyry Cu-Au ± Mo deposits, unstaked as of November 1, 2008.

Target no.	NTS Sheet	Easting	Northing	Area (km ²)	Target no.	NTS Sheet	Easting	Northing	Area (km ²)
I04-1	32I04	580336	5541935	0,50	C01-4	33C01	416126	5782418	1,91
I04-2	32I04	581395	5554694	8,99	C02-1	33C02	366332	5775221	0,60
I05-1	32I05	585042	5569600	1,16	C04-1	33C04	309332	5773421	0,20
J01-1	32J01	549641	5555457	1,76	C04-2	33C04	300945	5789566	1,79
J09-1	32J09	540936	5604851	4,64	C05-1	33C05	323384	5794892	10,55
J10-1	32J10	515973	5601358	4,68	C05-2	33C05	328552	5801190	1,32
J10-2	32J10	518429	5610221	0,94	C05-3	33C05	300397	5801656	2,10
J10-3	32J10	530312	5615492	11,51	C05-4	33C05	312831	5804883	10,62
J10-4	32J10	508235	5617571	5,83	C05-5	33C05	324655	5811918	2,74
J11-1	32J11	465500	5604726	6,32	C05-6	33C05	304988	5813856	125,80
J11-2	32J11	476912	5605225	2,67	C05-7	33C05	324732	5818288	0,48
J11-3	32J11	488292	5610701	0,20	C06-1	33C06	338953	5792570	0,39
J15-1	32J15	512410	5622795	11,14	C06-2	33C06	352072	5798403	0,52
J15-2	32J15	529304	5633660	20,67	C06-3	33C06	336403	5799710	37,08
J15-3	32J15	519723	5633712	10,51	C06-4	33C06	357971	5805534	40,99
J15-4	32J15	533968	5648162	10,32	C06-5	33C06	340798	5807549	16,94
K01-1	32K01	410055	5541784	6,76	C06-6	33C06	359501	5814701	24,35
K01-2	32K01	400217	5543732	3,96	C07-1	33C07	386123	5813890	0,92
K01-3	32K01	420556	5545787	1,64	C08-1	33C08	412932	5800821	0,20
K02-1	32K02	389681	5541315	3,48	C09-1	33C09	428710	5820352	1,34
K02-2	32K02	387609	5554316	3,52	C10-1	33C10	383892	5822401	0,40
K09-1	32K09	399932	5615431	1,64	C10-2	33C10	386488	5834386	0,67
K12-1	32K12	316922	5613288	2,93	C10-3	33C10	372408	5837038	5,99
K15-1	32K15	378908	5630796	6,40	C10-4	33C10	381665	5842888	0,12
K16-1	32K16	394634	5628275	19,47	C11-1	33C11	357571	5820376	31,79
O01-1	32O01	549688	5658608	18,85	C11-2	33C11	342190	5821558	18,92
A07-1	33A07	667883	5797068	0,61	C11-3	33C11	337124	5841444	0,34
A08-1	33A08	682561	5814224	0,63	C15-1	33C15	380363	5848672	0,52
B01-1	33B01	545517	5783807	0,56	C15-2	33C15	387787	5854631	1,67
B03-1	33B03	473307	5777732	4,16	C15-3	33C15	390599	5867665	0,92
B03-2	33B03	492500	5784145	5,51	F02-1	33F02	366411	5894903	5,31
B04-1	33B04	456344	5762702	3,97	F04-1	33F04	308532	5877221	0,52
B05-1	33B05	450259	5801502	20,19	F04-2	33F04	314798	5883354	0,12
B05-2	33B05	439022	5803667	3,44	F04-3	33F04	324333	5888088	1,50
B05-3	33B05	459260	5810768	7,22	F04-4	33F04	303123	5891984	3,27
B06-1	33B06	495033	5792948	10,04	F04-5	33F04	331772	5897395	8,63
B06-2	33B06	480523	5795258	5,15	F04-6	33F04	325679	5901073	5,90
B06-3	33B06	469376	5803947	10,72	F05-1	33F05	321608	5905978	6,40
B07-1	33B07	512585	5792530	2,72	F05-2	33F05	305304	5908039	12,88
B08-1	33B08	542632	5800838	0,48	F05-3	33F05	332915	5914479	2,67
B08-2	33B08	562132	5801621	0,20	F05-4	33F05	327946	5918192	0,56
B09-1	33B09	556932	5830221	0,20	F05-5	33F05	331606	5920365	1,49
B09-2	33B09	557143	5838515	1,36	F06-1	33F06	333659	5905657	0,44
B10-1	33B10	519367	5825337	0,21	F06-2	33F06	351493	5915415	0,90
B15-1	33B15	523349	5866682	0,92	F06-3	33F06	339913	5925330	2,98
B16-1	33B16	557458	5852443	1,84	F06-4	33F06	349630	5926027	18,14
B16-2	33B16	547532	5867321	0,40	F07-1	33F07	375774	5903235	0,63
C01-1	33C01	423009	5770399	0,72	F07-2	33F07	384152	5917091	4,78
C01-2	33C01	406363	5779118	0,90	F07-3	33F07	388284	5926612	3,36
C01-3	33C01	426853	5780856	0,92					

Table 1 (continued) - High-potential targets for porphyry Cu-Au ± Mo deposits, unstaked as of November 1, 2008.

Target no.	NTS Sheet	Easting	Northing	Area (km ²)	Target no.	NTS Sheet	Easting	Northing	Area (km ²)
F09-1	33F09	431280	5932505	6,02	G06-3	33G06	471064	5923341	6,84
F09-2	33F09	400213	5935878	27,94	G06-4	33G06	477097	5923768	5,61
F09-3	33F09	429856	5940098	0,88	G11-1	33G11	490824	5929912	9,72
F09-4	33F09	420229	5940829	24,41	G11-2	33G11	470299	5930580	21,56
F09-5	33F09	403817	5945125	1,66	G11-3	33G11	498475	5930649	1,96
F09-6	33F09	433897	5946754	1,29	G11-4	33G11	481161	5931810	8,97
F09-7	33F09	411607	5947474	10,09	G11-5	33G11	492540	5934299	0,92
F09-8	33F09	423514	5948551	3,12	G11-6	33G11	473470	5935932	6,25
F09-9	33F09	432054	5953706	25,77	G11-7	33G11	468132	5940521	0,40
F10-1	33F10	381732	5931221	1,16	G11-8	33G11	467715	5945604	0,48
F10-2	33F10	372239	5934437	1,78	G11-9	33G11	487467	5945986	18,64
F10-3	33F10	382532	5939621	1,16	G11-10	33G11	496566	5951991	5,56
F10-4	33F10	399852	5943149	7,12	G11-11	33G11	473898	5952695	4,56
F10-5	33F10	390422	5943795	23,39	G11-12	33G11	491607	5952784	8,52
F10-6	33F10	389364	5951141	1,00	G11-13	33G11	494512	5955670	1,64
F10-7	33F10	395532	5955421	1,16	G12-1	33G12	443441	5929157	0,88
F11-1	33F11	334217	5931456	1,60	G12-2	33G12	460406	5931704	9,88
F11-2	33F11	356613	5936289	16,58	G12-3	33G12	449804	5931761	2,00
F11-3	33F11	362821	5940532	0,36	G12-4	33G12	440432	5932241	8,00
F11-4	33F11	344784	5942962	4,24	G12-5	33G12	456274	5933990	8,36
F11-5	33F11	336772	5945128	3,96	G12-6	33G12	446460	5935885	2,00
F12-1	33F12	313884	5930120	17,12	G12-7	33G12	444473	5940071	10,78
F12-2	33F12	327740	5941818	1,71	G12-8	33G12	438804	5940579	6,65
F12-3	33F12	326868	5947482	7,83	G12-9	33G12	460208	5941102	1,88
F12-4	33F12	309773	5954731	21,31	G12-10	33G12	453992	5945054	4,25
F12-5	33F12	324932	5956754	6,84	G12-11	33G12	459932	5945421	0,20
F15-1	33F15	395820	5961002	0,22	G12-12	33G12	457987	5948561	4,16
F15-2	33F15	378406	5962787	16,60	G12-13	33G12	443348	5949099	18,08
F15-3	33F15	388627	5963595	0,92	G12-14	33G12	454319	5952334	3,12
F15-4	33F15	398793	5967686	2,08	G12-15	33G12	463499	5953204	3,72
F15-5	33F15	387479	5970915	1,36	G12-16	33G12	451763	5955135	3,80
F15-6	33F15	398847	5974092	13,44	G12-17	33G12	444984	5955895	0,37
F15-7	33F15	383812	5977301	1,00	G13-1	33G13	465732	5957221	1,16
F15-8	33F15	373424	5981831	1,56	G13-2	33G13	439187	5958062	24,73
F15-9	33F15	380356	5983669	1,00	G13-3	33G13	449481	5962060	16,72
F16-1	33F16	406586	5962426	5,72	G13-4	33G13	438932	5969529	29,06
F16-2	33F16	403981	5966576	7,64	G13-5	33G13	453665	5971791	41,23
F16-3	33F16	413643	5969467	29,41	G13-6	33G13	443556	5978535	1,96
F16-4	33F16	420905	5970501	18,56	G13-7	33G13	451428	5979193	6,40
F16-5	33F16	427826	5971769	2,80	G13-8	33G13	439532	5983221	0,20
F16-6	33F16	431796	5973632	2,12	G14-1	33G14	487373	5958002	6,04
F16-7	33F16	429990	5978468	23,80	G14-2	33G14	468532	5961621	0,52
F16-8	33F16	407972	5981421	1,00	G14-3	33G14	492109	5966490	1,04
F16-9	33F16	433833	5982665	2,20	G14-4	33G14	494585	5972488	0,60
G03-1	33G03	492115	5888997	2,36	G14-5	33G14	473198	5974821	0,24
G05-2	33G05	441765	5921575	30,54	G14-6	33G14	482598	5974838	0,48
G05-3	33G05	458602	5925319	71,95	G16-1	33G16	558732	5980821	1,16
G05-4	33G05	435836	5927754	1,68	H09-1	33H09	686335	5944585	1,22
G06-1	33G06	495841	5922323	5,69	H09-2	33H09	692732	5955621	0,20
G06-2	33G06	484206	5921236	8,49					

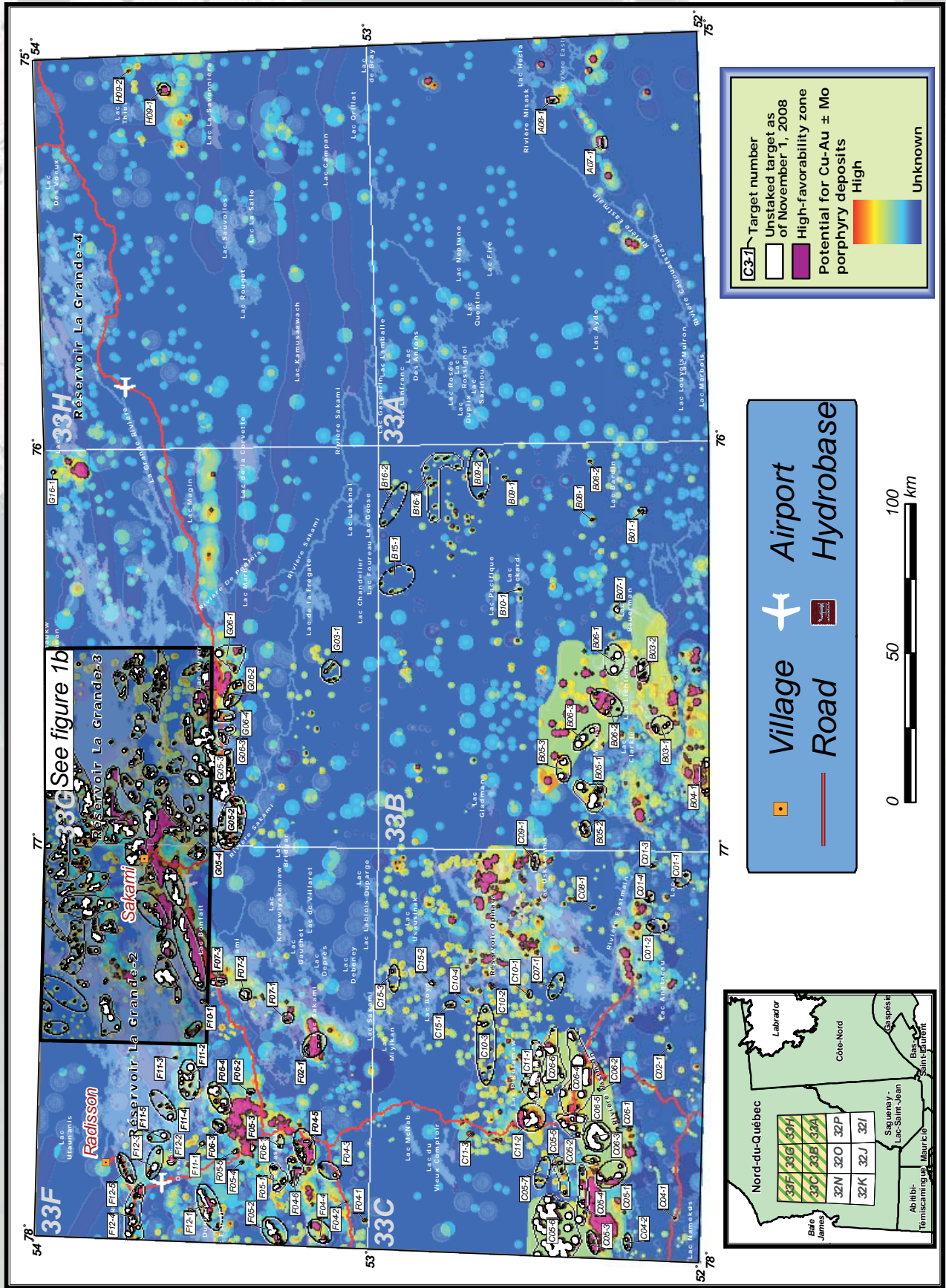


Figure 1a – Potential for porphyry Cu-Au ± Mo deposits in the north half of the James Bay region. Violet zones correspond to High-Favourability Zones (HFZ). Targets (white zones) correspond to unstaked portions of HFZ as of November 1, 2008 (listed in Table 1).

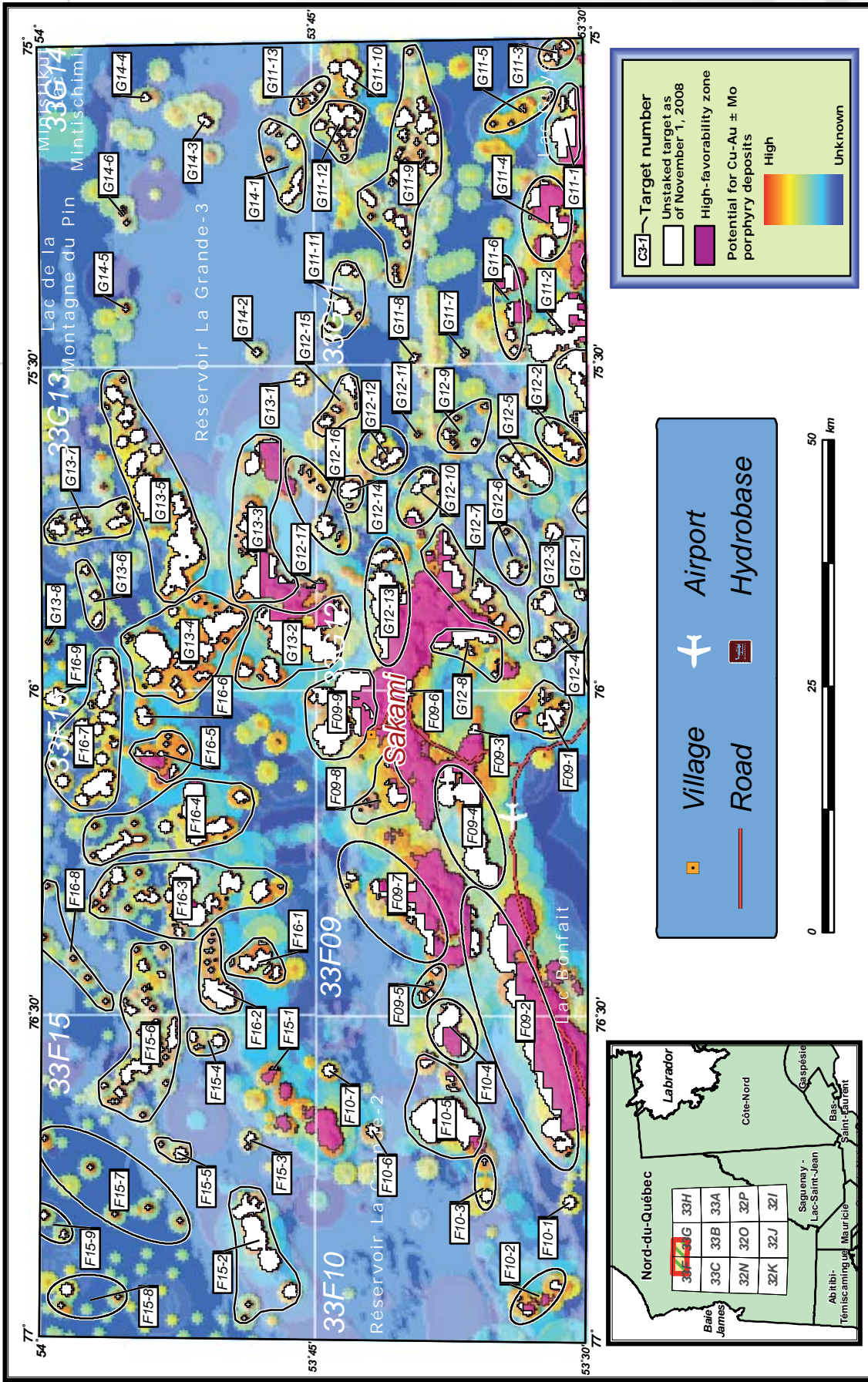


Figure 1b – Close-up of the north part of Figure 1a.

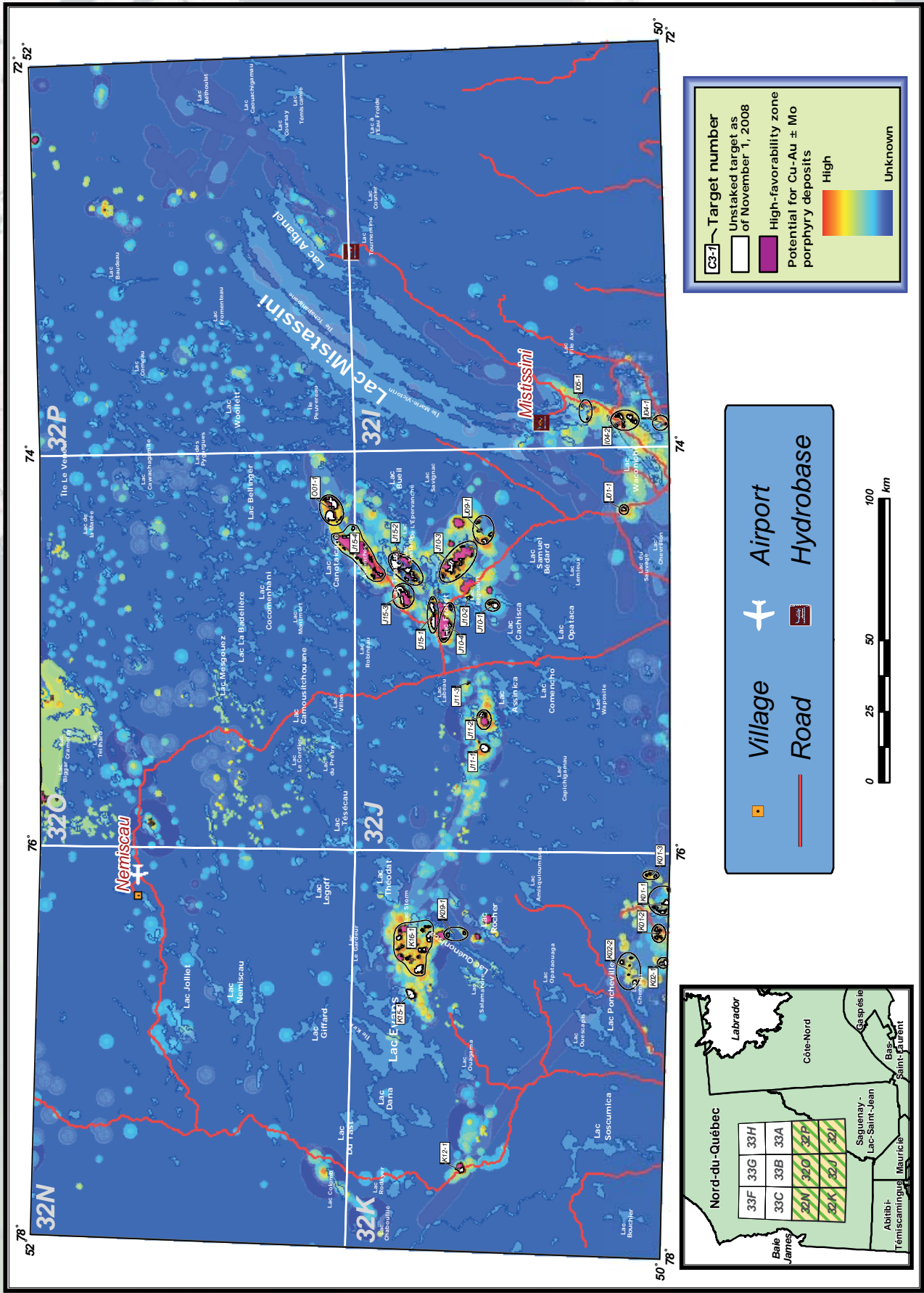
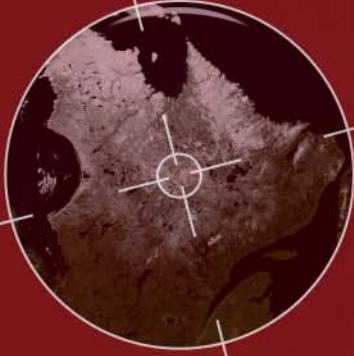


Figure 2 – Potential for porphyry Cu-Au ± Mo deposits in the south half of the James Bay region. Violet zones correspond to High-Favourability Zones (HFZ). Targets (white zones) correspond to unstaked portions of HFZ as of November 1, 2008 (listed in Table 1).



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