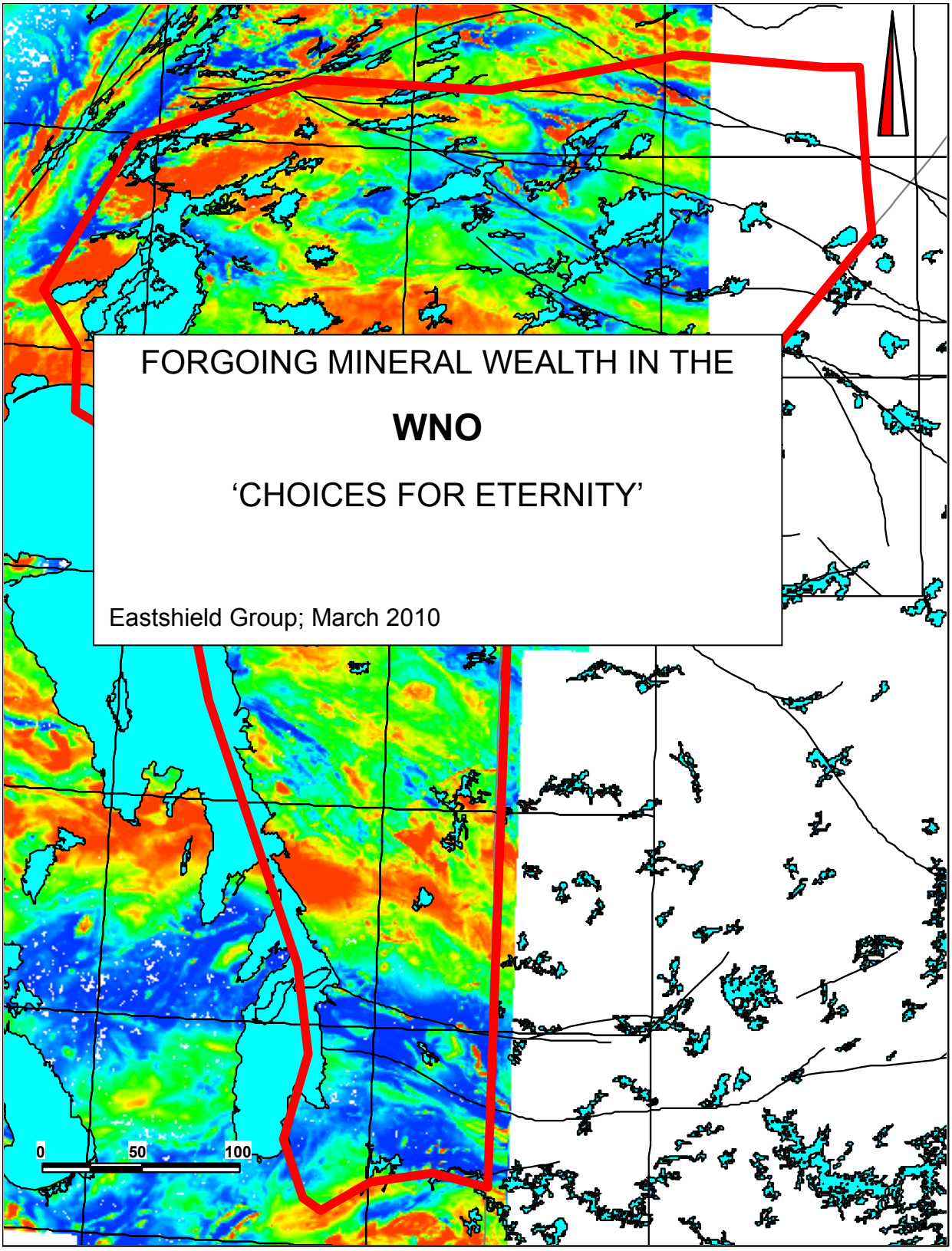
FORGOING MINERAL WEALTH IN THE
WNO
'CHOICES FOR ETERNITY'
Eastshield Group; March 2010
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INTRODUCTION

Establishing new parks covering the east side of Lake Winnipeg (WNO; Wabanong Nakaygum Okimawin) in Manitoba raises numerous questions. This paper examines the mineral potential of the area in the context of responsible stewardship of the land, its people and its resources. It is assumed that once made into a park, all commercial developments would not be allowed including mining, forestry and hydro development. The argument presented here is that it **is not responsible stewardship** to establish a park over an area (East Side lake Winnipeg) where most of the mineral development and other **potential is simply not known.**

To deny the people of Manitoba and the region on the east side the possible benefits of tens of billions of dollars worth of development over future centuries is simply irresponsible. The current plan to develop park over much of this area can only be viewed as a fanciful whim rather than responsible stewardship. This is especially true with the knowledge that the current geotechnical database is not complete and out of date and is not adequate to make informed decisions on these matters. Twenty two percent of Manitoba currently set aside as Parks, Park Reserves or areas of Special Interest. With 35 % of the WNO currently in these categories, one has every reason to question the need to set aside any new areas for parks. Should the World Heritage Park be established 68% of the WNO would have some form of protective designation.

It is argued here that the provincial government is morally obligated to bring the public domain geotechnical database up to modern standards before even thinking about new park designations. In addition, sufficient time must be allowed for this data to be processed and prospective areas systematically explored and evaluated. Only then can informed decisions be made in the best interests of the people of Manitoba and the residents of the WNO.

Provincial government ministers have argued that **foreign** interests determine types of development or non-development by their threat of court action if **their** plans are not followed. This state of affairs essentially means that governance of the province is being ceded to foreign interests. This begs the question of who is looking after the long term interests of the people of Manitoba and in particular the people of the WNO.

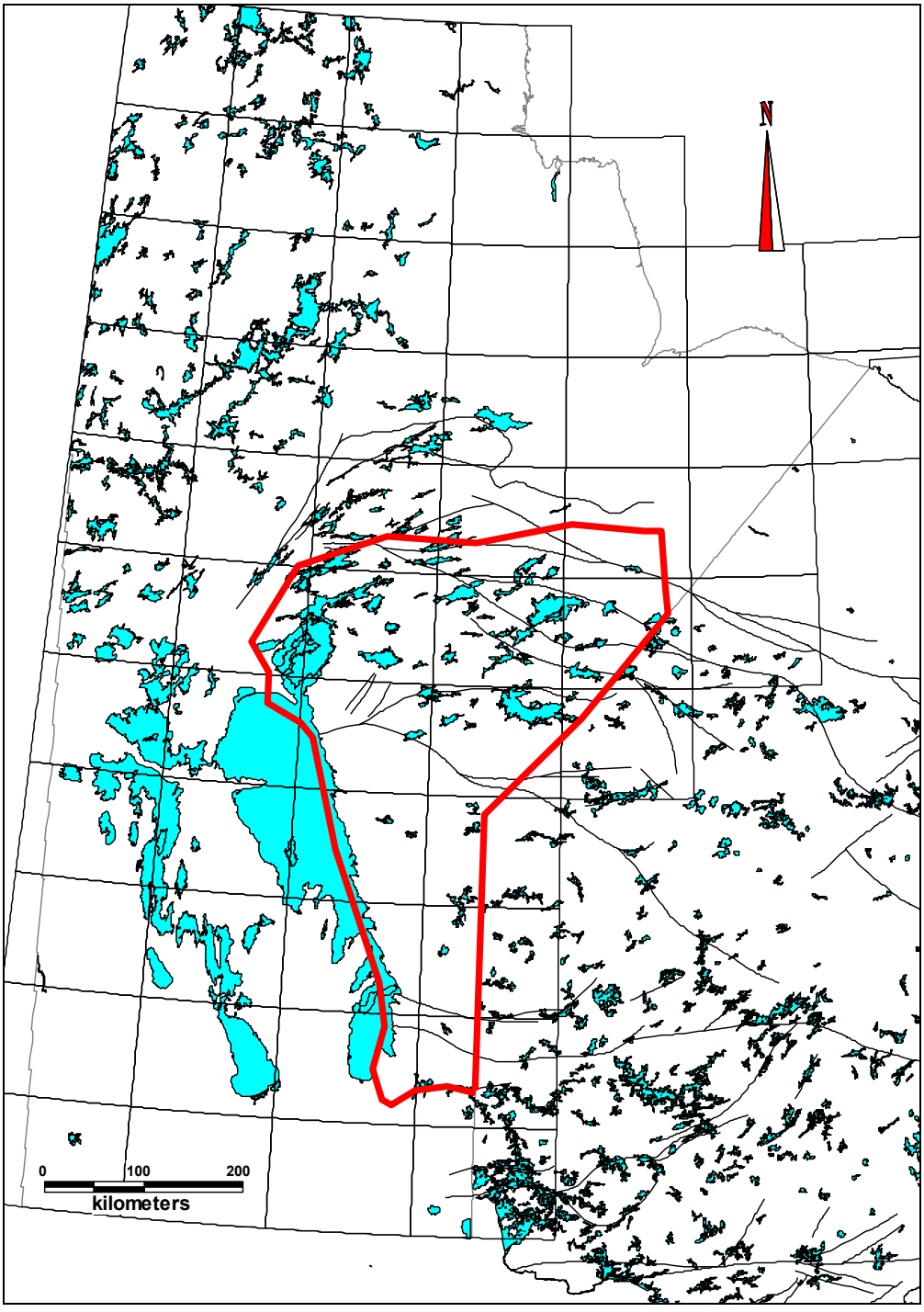

FIGURE 1 LOCATION OF WNO (Wabanong Nakaygum Okimawin; east side of the lake governance). The WNO contains the area being considered for a Heritage park. The WNO covers an area of 120,700 square kilometres or 19% of the entire province.

MINERAL POTENTIAL

The estimation of a region's mineral potential is a near impossible task. It is part reason, part history, part art and part science and is never exact. Many measures are often used to establish this potential, all are prone to error. Some of the features that are frequently used include:

- Exploration history
- Current exploration levels
- Mineral deposit models
- Evaluation of complete geotechnical databases

Each of these will be examined in some detail however it can be pointed out that without a complete up to date geotechnical database and decades of exploration, the ultimate mineral potential of an area cannot be determined with any degree of accuracy.

The area is known to host significant potential for:

- Gold from traditional or known geological trends
- Copper and zinc from known geological trends
- Vanadium titanium and iron
- Lithium and Rare Earth Elements

In addition there is reason to believe that new models derived from recent discoveries around the world indicate potential for:

- Copper Nickel in magmatic settings
- Gold in gneissic terrains
- Uranium in late igneous settings
- Iron oxide Cu-Au in igneous settings.
- Diamonds in late kimberlitic intrusives in ancient cratonic rocks

EXPLORATION HISTORY

The exploration history of an area does not determine the mineral potential. This method has been in common usage by provincial ministries and agencies and is demonstrably flawed.

There are at least 4 good examples of major mineral discoveries in Canada in the last 20 years in areas where there had been no exploration history to speak of. These examples would include:

- Copper, Nickel and Cobalt at Voiseys Bay in Labrador.
- Diamonds in the Northwest Territories, Saskatchewan, Ontario and Quebec.
- Gold in northern Quebec
- Base Metals, Nickel and chromite in Ontario

All of these discoveries were in areas or for commodities that were not supposed to be there by prevailing geological thinking at the time. Cumulatively these resources will contribute well over 100 billion dollars of new wealth to Canada over their lifetimes.

The exploration history does provide an idea of who has been looking for what in the area and how thorough their efforts may have been. Figure 2 shows the location of reported exploration work in the WNO over the last half century. Figure 3 shows the location of exploration diamond drilling work in the area over the same period. As evident in Figure 2, much of the area has undergone no exploration at all. Most of the drilling efforts have been directed at the few trends that are known to be productive.

There have been a number of gold producing mines within the WNO. One gold mine is currently in production in Bissett. Collectively these mines have produced in excess of 2 billion dollars in wealth for the people of the province. These developed deposits all occur within well established 'greenstone' belts known to be favourable for gold and base metal deposits. Exploration has only been moderate over part of the WNO with a very large portion having undergone virtually no effective exploration at all.

Figure 4 shows current (2010) mineral holdings in the WNO. Of the 120,700 square kilometres making up the WNO, 2057 square kilometres are covered by mineral claims and a further 2413 square kilometres covered by Mineral Exploration Licences.

The mineral holdings are temporary rights granted by the Province to explore for minerals. These rights are granted for 2 to 3 year periods during which the holder must perform exploration to a minimum dollar value. This work must be documented and submitted to the provincial government for evaluation before the dollar figure claimed is accepted. In order to hold the rights longer, the holder must continue to perform exploration to certain

minimum dollar figures annually. Failure to meet the expenditure requirements result in the mineral rights reverting to the province.

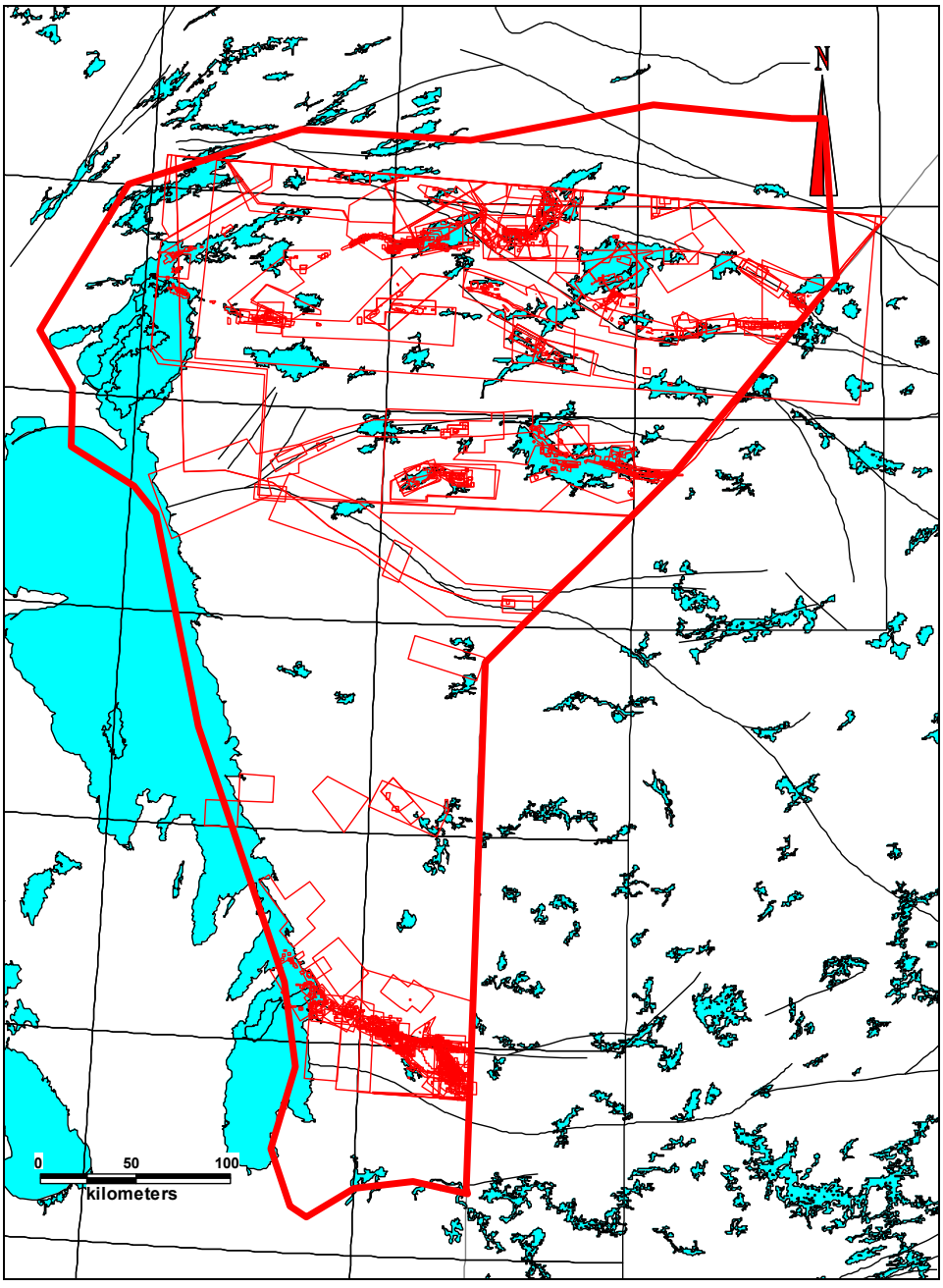

FIGURE 2 LOCATION OF HISTORICALLY REPORTED MINERAL EXPLORATION ACTIVITIES. Exploration projects outlined in red.

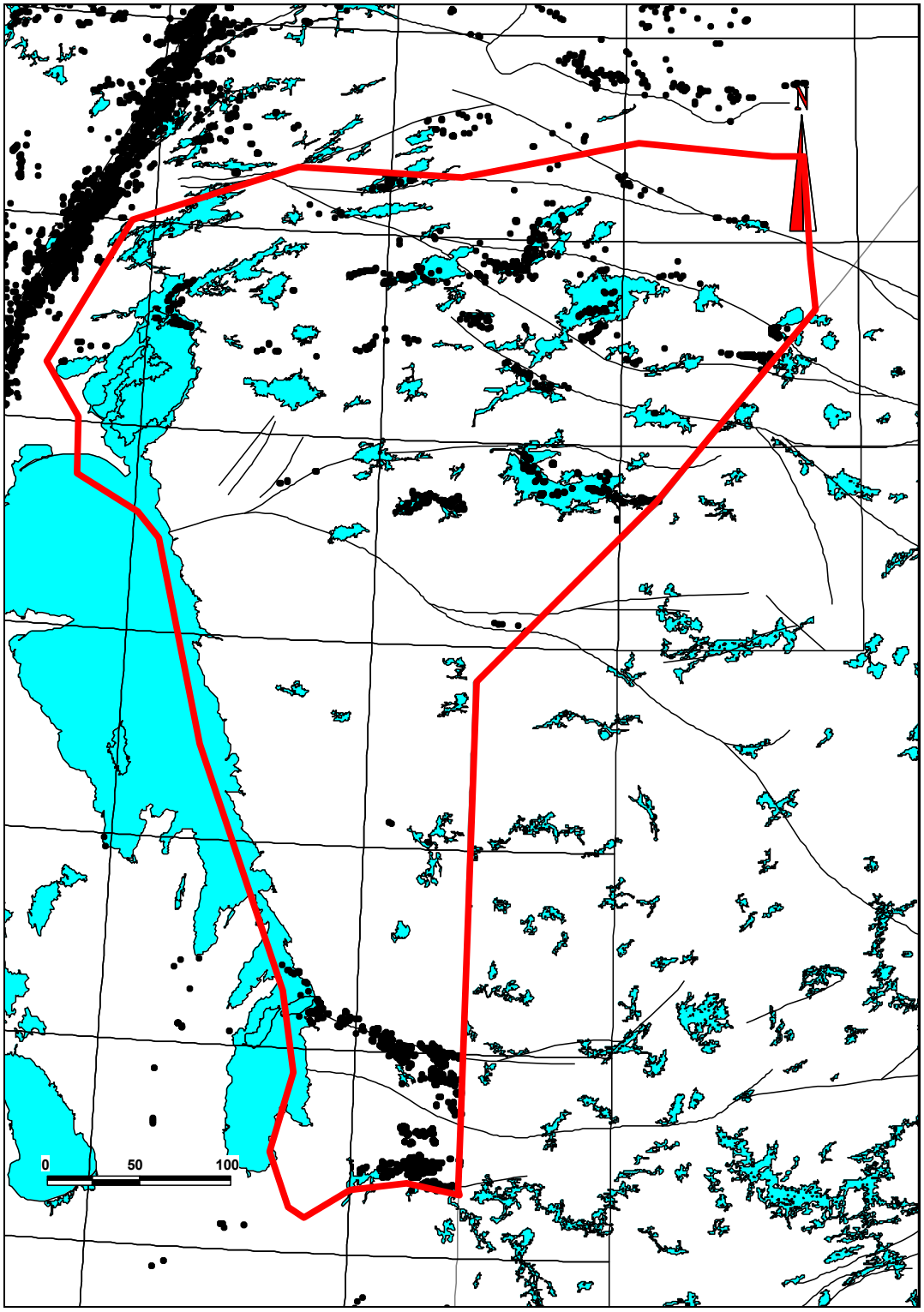

FIGURE 3 DIAMOND DRILL HOLE LOCATIONS (black dots); Note most holes concentrated along known mineral hosting trends.

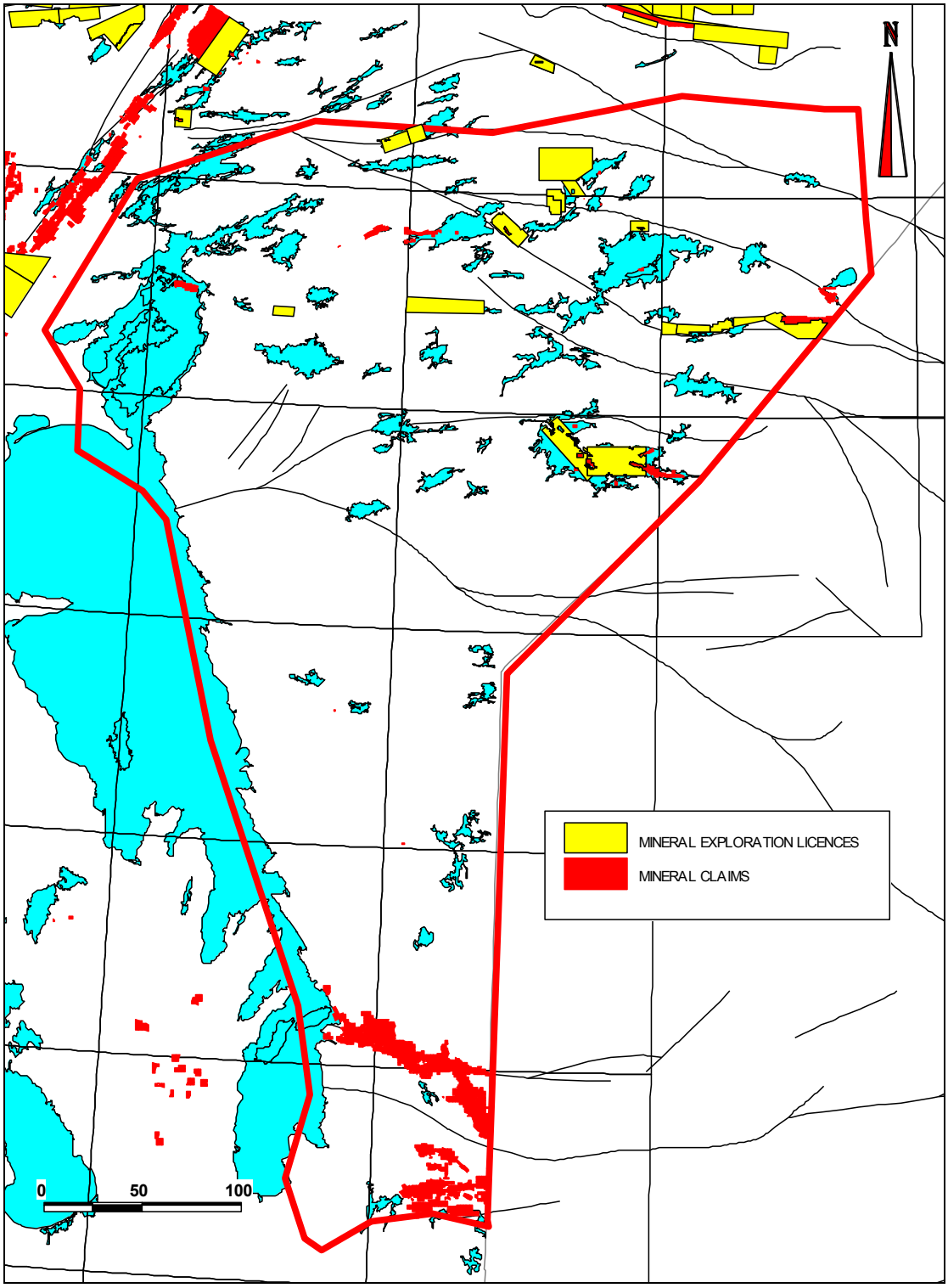

FIGURE 4 CURRENT EXPLORATION (2010) Land positions.

EXPLORATION MODELS

Exploration by industry is commonly guided by ‘models’ for various mineral deposits. Models are broadly defined geological concepts that attempt to explain why mineral deposits are where they are found. These models evolve over time and with new discoveries. A significant portion of the world’s metals is currently being produced from deposits that had no model 20 years ago. It can be said that the whole of the East Side has not been looked at in terms of models developed in the last 20 years.

Using models to establish mineral potential does not accurately reflect the true mineral potential of an area. There are undoubtedly deposit types that have not been found anywhere to date. Some of these may occur in rocks that are deemed ‘not prospective’ using models available today.

One must be extremely cautious when using exploration models available today with data that is over half a century old.

EXPLORATION TECHNIQUES

Mineral exploration is largely limited by the techniques used. Not all techniques work on all deposits. New techniques are constantly in development and older techniques continually improved. The most primitive and most effective technique has been prospecting. Most of the East Side area has been subjected to only cursory prospecting activities in part because of difficulty in accessing most of the area. Although prospecting has been effective in the past, new techniques are gaining in importance as the easy to recognize, near surface mineral occurrences have been evaluated.

Most of the East Side has not been covered by current mineral exploration techniques. Mineral exploration is a lot like hunting. Success depends on one’s equipment, skill, patience, knowledge and a great deal of luck. Because one did not see a moose today does not mean they do not exist.

FUNDAMENTAL GEOTECHNICAL DATA

This data is generally of such a fundamental nature that governments generally acquire and maintain it for public access and good. The data is intrinsically valuable and forms the basis of many public policy and development decisions in most western democracies.

The data consists of:

-Topographic, elevations, waterbodies, vegitation etc.
-Airborne magnetic / radiometric / electromagnetic
-Lake sediment element content
-Till mineral and element content
-Geology rock type, alteration and mineralization
-Spectral data from satillite imagery
-Lineament analysis from satelite imagry and airborne magnetics

Figures 5 through 8 show the extent of the geotechnical data on the area. The intent is to show that very little data has been collected over large parts of the area. The topographic data and airborne magnetic, electromagnetic and radiometric data are largely to standards and equipment prevalent in the 1960's.

Table 2 shows the extent and general character of the existing Geotechnical data for the WNO.

TABLE 1 AVAILABLE GEOTECHNICAL DATA

Data type	Acquired by	typical Age of data	% Coverage	Density or spacing or scale of data	Comments
Topographic	Federal	30 + years	100	1:50,000	Sub standard over most of area
Airborne all types	Federal	40 + years	100	800m line spacing	No radiometrics, inadequate for many purposes
Lake Sediment	Federal Provincial	20	30	1/10 km sq	Minimal coverage
Tills	Provincial Corp.	10	30	1/20 km sq	Minimal coverage
Geology	Federal Provincial	40 variable	30	reconnaissance over most of area	Inadequate over most of area, should be completed after other data acquired
Lineament Analysis			0	N/A	No systematic analysis completed
Spectral Analysis			0	N/A	None completed; marginal current effectiveness in mineral exploration

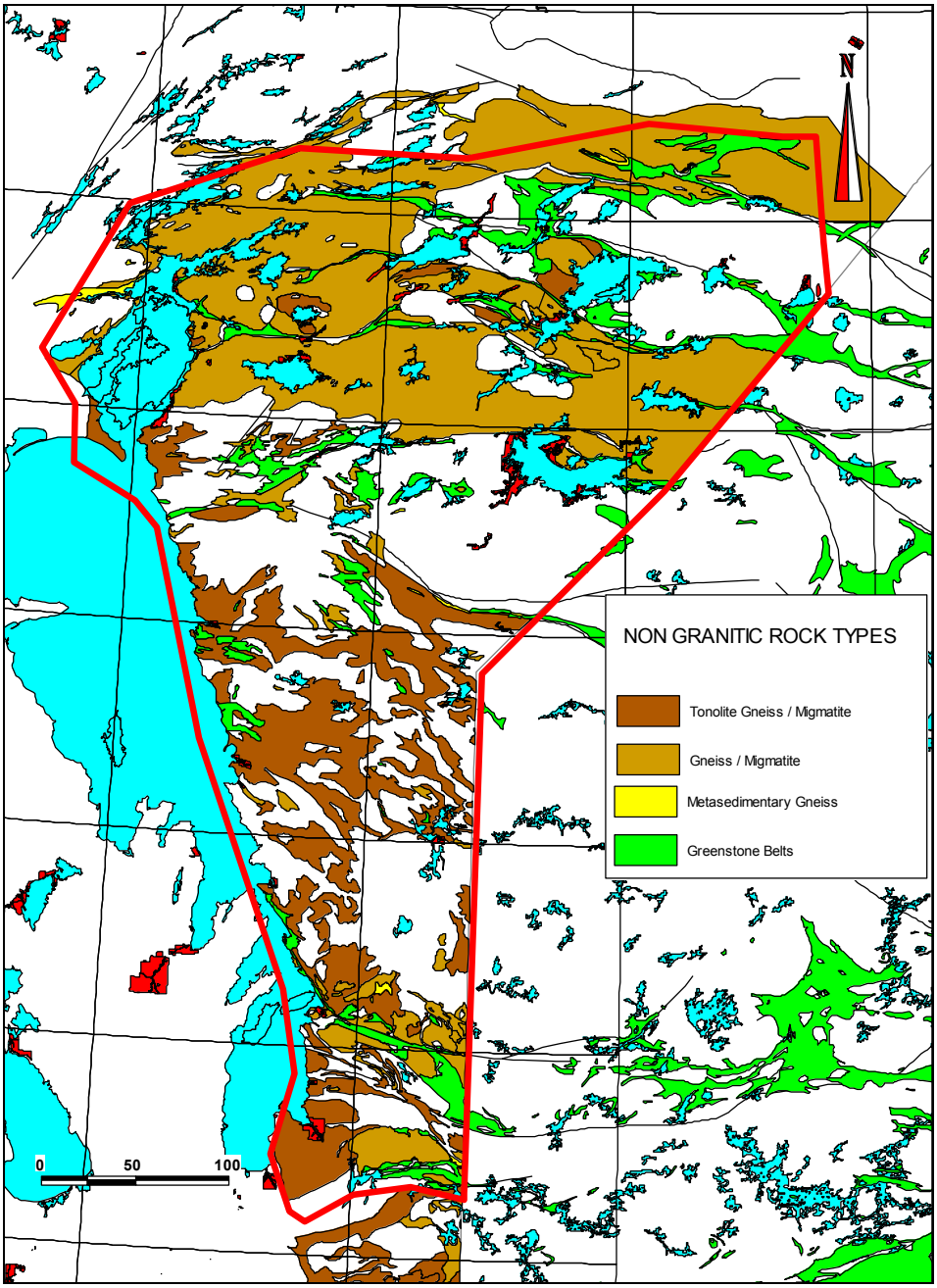

FIGURE 5 GEOLOGY Geological data from Provincial and Federal mapping efforts. Much of the area was only mapped in reconnaisance fashion in the 1970's. Greenstone areas are known to be highly prospective for gold and base metals yet some of them have only been mapped in a cursory manner. Other terrains host significant deposits elsewhere in the world.

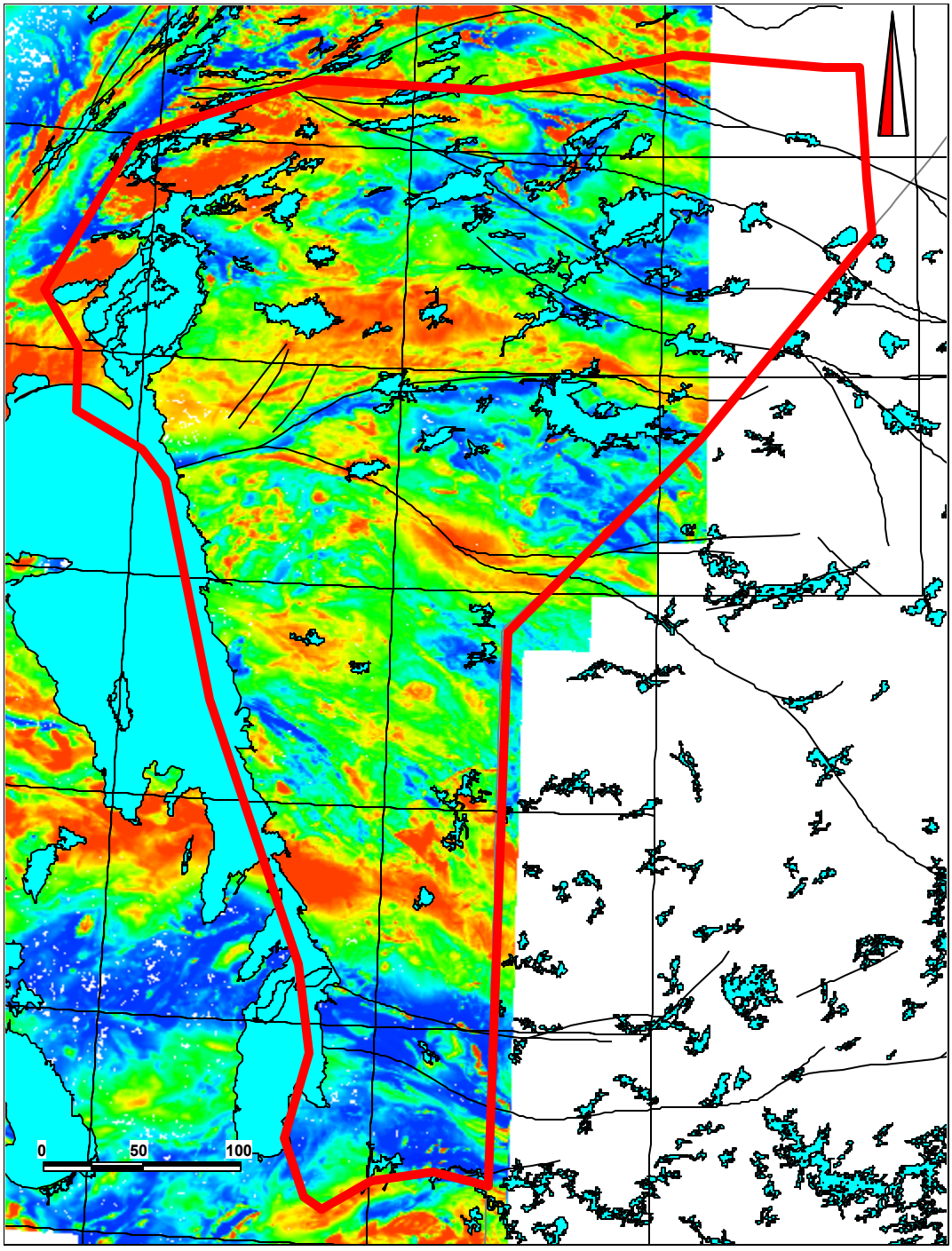

FIGURE 6 AIRBORNE MAGNETIC COVERAGE; Database includes radiometric data but no electromagnetic data. Total field magnetic data shown. This data aids in identifying rock types and trends as well as major breaks in the terrain.

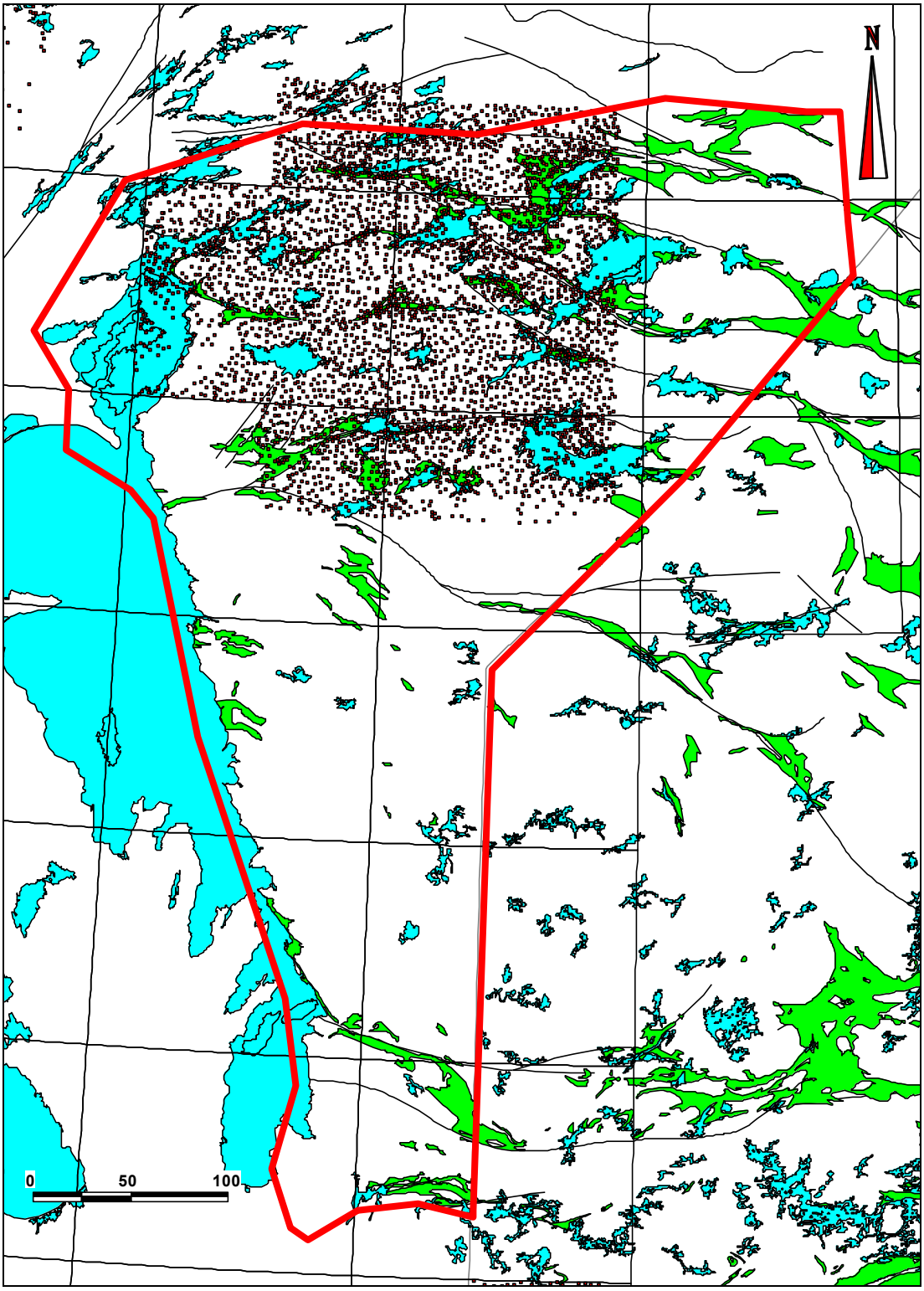

FIGURE 7 LAKE SEDIMENT SAMPLE SITES; Note most of area has no coverage.

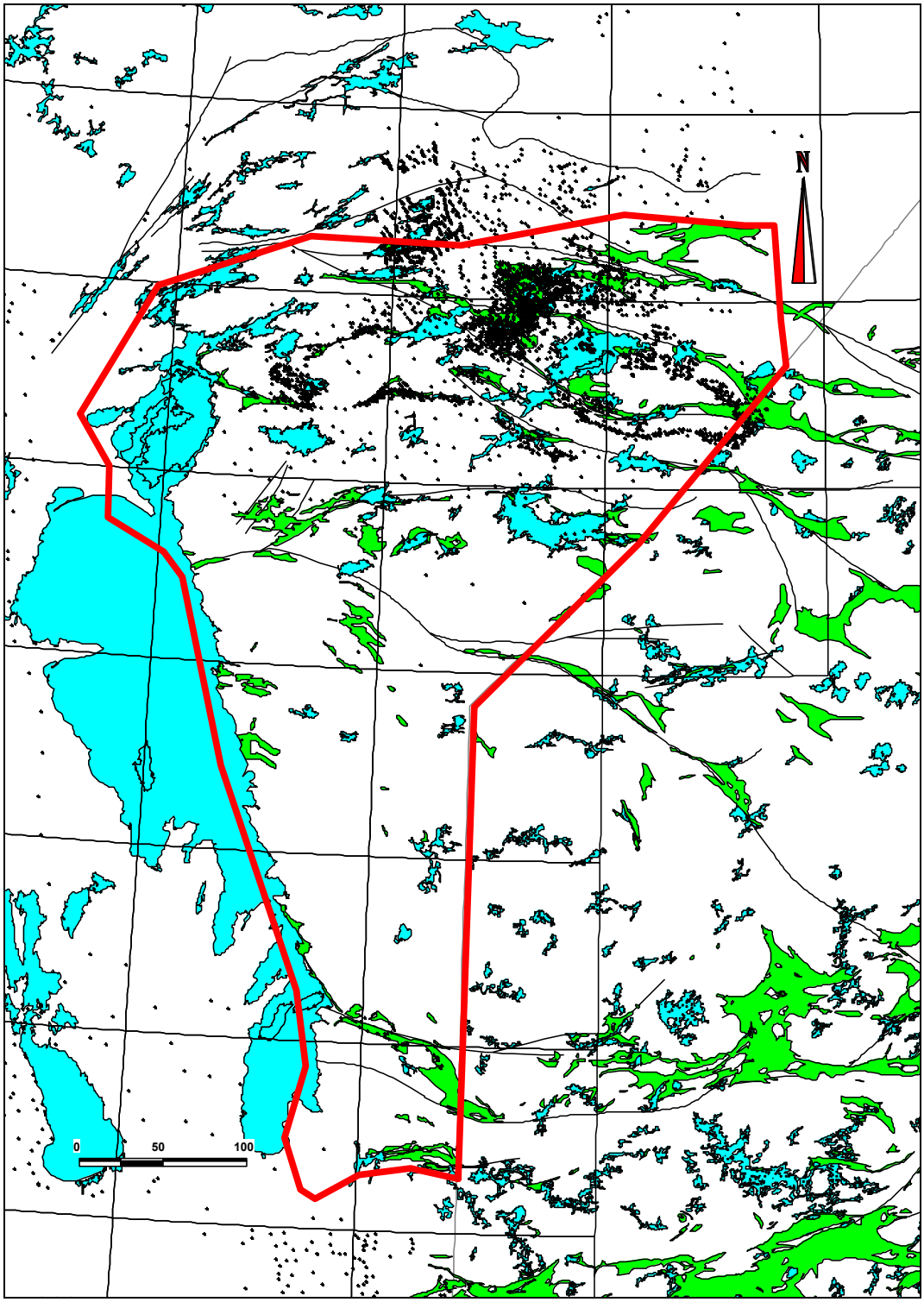

FIGURE 8 TILL SAMPLE SITES; Most of this work was done for Kimberlite indicator minerals and may require resampling for a broader range of elements.

PARKS

There is considerable confusion in the printed and electronic media regarding parks in the WNO. Table 2 shows the areas covered by the differing levels of parks and other protected areas. The table also shows the percentage of area that the proposed Heritage Park would take up. All locations (except the Heritage Park) and data were obtained from Manitoba government databases.

Of the 120,700 square kilometers in the WNO, mineral exploration is not currently allowed over approximately 20% of the area. If the proposed Heritage Park were added, over 50% of the area could never be explored.

TABLE 2 PARKS IN THE WNO

	Area Sq. Km.	% of WNO area	Conditions on Exploration / Mining
WNO	120,700	100.0	Consultation, engagement
Park	12,827	10.6	None allowed except Nopiming
Park Reserve	11,548	9.6	None allowed
Area of Special Interest	18,021	14.9	Additional permitting required
Heritage Park (Proposed)	40,000	33.1	None allowed
	Total	68.3	

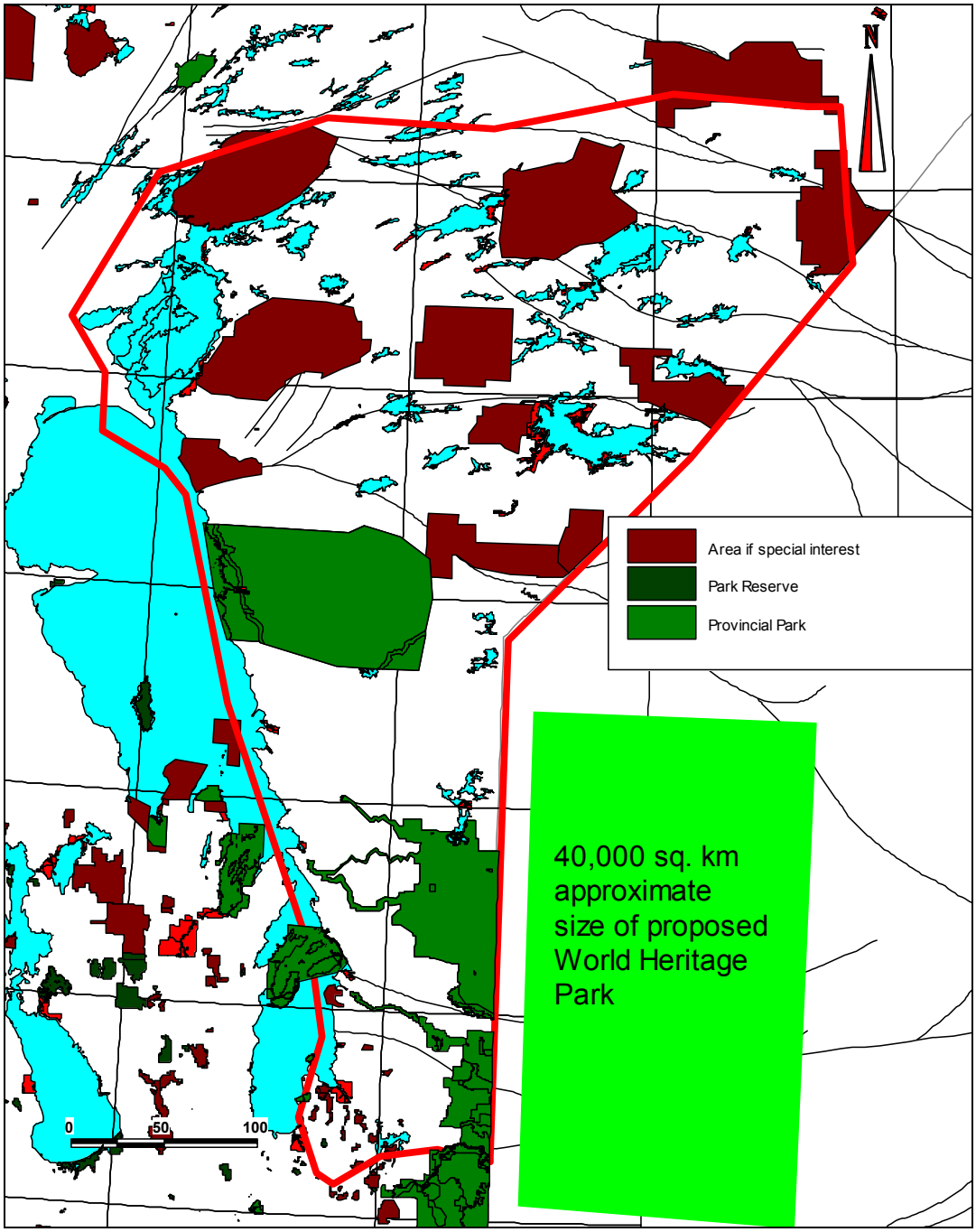

FIGURE 9 PARKS AND AREAS OF SPECIAL INTEREST WITHIN WNO

CONCLUSIONS

Regardless of commodity or technique, fundamental geotechnical data forms the basis of most early stage exploration and resource development plans. This same data should also be incorporated in making decisions on the location of parks. Since the Province and residents will be deprived of any resource wealth of the area forever. These decisions should **not** be made lightly or with questionable motives.

Commonly the geotechnical data is collected at a fairly broad scale and not uniformly across large areas. The collection of data is often based on costs and assumptions by public servants in an attempt to provide data for specific purposes. The broad spacing of this data is not usually adequate to identify individual mineral deposits. It frequently does indicate areas in which mineral deposits might occur and is of significant value to mineral exploration companies in the initial stages of exploration.

Ideally this data would be collected at a minimum uniform density across the entire province. This would require a long term commitment and significant funding. Something that successive governments have attempted to do when funds permit.

The public domain data on the East Side is woefully inadequate for long term Public Policy issues like the establishment of Parks. It can be argued that to establish a park in areas **with inadequate geotechnical data** will deprive the people of the area and province of untold opportunity forever.

Parks and wilderness areas are essential parts of the resources of the province. With 22% of the province currently designated as Park, Park Reserve or Area of Special Interest, one has to question the wisdom or need for additional parks. The establishment of a new 40,000 square kilometre park would double this percentage. Just how much park do Manitoban's need and what are the people of the province giving up to have it? The sad truth is that nobody knows and there isn't enough information to even make an intelligent guess.

The creation of parks in the province has proceeded rather haphazardly over much of the last century. In recent decades the idea of preserving a certain percentage of each of the ecosystems has been a guiding principle. In the mid-1990s the formal MELC review process, allowing ample input from many interested parties, was introduced and was highly successful in ensuring careful consideration in these matters. It is regrettable that the MELC review process has not been applied in the East Side area.

In recent years it has become popular for politicians to decree parks as a means of establishing some lasting legacy of their tenure and to boost political support among certain interest groups. That this is irresponsible should be self evident to any thinking individual. The principles on which parks are selected is based largely on pressures mounted by special interest groups whose sole purpose can be summarized as ‘preserve everything as it is now’.

Failure by to Province to act responsibly in this matter essentially fixes the status quo in perpetuity for residents of the WNO. It is not clear that this would be their chosen fate.

When the Province assumed control over mineral resources it was known that there would be costs associated with it. The responsible management of these resources was part of the deal. To ignore these responsibilities does a major disservice to all concerned and is not in the best interest of anyone.

RECOMMENDATIONS

It is recommended that the Province undertake the upgrading of the geotechnical database for the WNO area. A freeze on all new parks should be in effect until the resources of the region can be evaluated with the new data. This may entail several decades and may require additional exploration incentives for the area.

Costs and general parameters are outlined in Table 3. This work would likely take 5 years to complete. Results from the program would undoubtedly stimulate mineral exploration in the area for some time. The Province would likely recover all costs in taxes from these activities alone.

Total costs of the program are estimated at $50,000,000. This cost is less than one half of all expenditures made in Manitoba by exploration companies in 2007 alone. At first glance the price may seem high however it must be measured against the possible loss of potential for 10’s of billions in development over centuries.

TABLE 3 RECOMMENDED UPGRADE TO GEOTECHNICAL DATABASE AND ESTIMATED COSTS

Data type	Recommended	units	Estimated costs
Topographic	Update		$ 2,000,000.00
Airborne all types	Resurvey with modern digital instruments, and GPS, Include electromagnetic component.	300,000 line km	$ 34,000,000.00
Lake Sediment	Complete entire area at density of 1 sample per 10 sq km	8000 sites	$ 2,400,000.00
Tills	Complete entire area at density of 1 sample per 20 sq km	4000 sites	$ 4,800,000.00
Geology	Complete mapping of all greenstone areas with inclusion of alteration and mineral species.		$ 5,000,000.00
Lineament Analysis	Undertake complete analysis using updated airborne magnetic and radar sat data		$ 800,000.00
Spectral Analysis	Acquire and make available to public 128 cannel multispectral satellite data, complete with preliminary analysis		$ 1,000,000.00
		total	$ 50,000,000.00