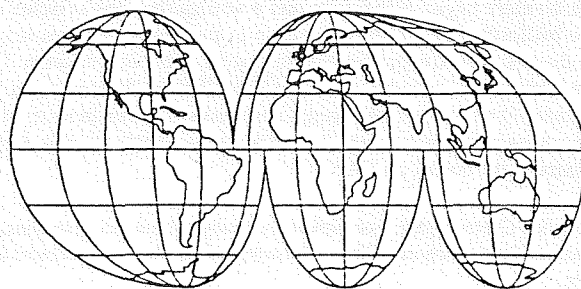

CARTOUCHE

The operational publication of the Canadian Cartographic Association
Revue de l'Association canadienne de cartographie



CARTOUCHE

Number 14. Summer, 1994

numéro 14.été, 1994.

In this issue/ Dans ce numéro

The Editor's file/ filière du éditeur	4
President's message/ mot du président	4
Interest Groups/ groupes d'intérêt	6-11
Un atlas électronique sur l'évolution de l'agriculture du Québec	12
J.B. Harley Research Fellowships	14
To Ink or Not to Ink	15
La gestion intégrée des ressources en milieu forestier	16
Corporate News	18

ISSN 1183-2045

Editor & CCA Secretary/Éditeur responsable et secrétaire de l'acc:

James Britton

Cartography and Geographic Information Systems Departments.

School of Natural Resources, Sir Sandford Fleming College, Lindsay, ON, Canada. K9V 5E6

Phone/Tél: (705) 324-9144

Fax/Télécopieur: (705) 878-9312

E-Mail/Cour élect: JBritton@flemingc.on.ca

CCA Office/ Bureau central de L'ACC

c/o Geography Department,

University of Calgary, Calgary, AB, Canada. T2N 1N4

Phone/Tél: (403) 220-4892 or 220-5597

Fax/Télécopieur: (403) 282-6561

Membership lists/liste d'inscription:

Monika Rieger

mkrieger@acs.ucalgary.ca

Cartouche is produced quarterly by the Canadian Cartographic Association.

Content Deadlines are: January 10, March 31, June 30, & September 30. (see back cover)

You are welcome (urged!) to submit items to be considered for publication. It is the current policy of the editor to provide dual language copy for editorial content and journal mechanics. All other articles appear in language of submission. While every effort is made to ensure accuracy of content, the editor (*like all cartographers!*) cannot be responsible for errors in compilation, or loss of any item submitted. Opinions expressed in the editorials and submitted articles and letters are not necessarily those of the Canadian Cartographic Association.

Cartouche est publié trimestriellement par l'Association canadienne de cartographie.

Les dates limites pour l'envoi d'articles ou de documents sont les suivantes: 10 janvier, 31 mars, 30 juin, 30 septembre (voir la dernière page). N'hésitez pas à soumettre des articles (vous êtes même priés de le faire!) que vous désirez publier dans le bulletin. Présentement, selon la politique en vigueur, l'éditeur doit publier en français et en anglais, l'éditorial ainsi que la description du processus de publication du bulletin. Le reste des articles paraîtront dans la langue dans laquelle ils ont été écrits. Bien que beaucoup d'efforts sont déployés en vue d'éviter de tels problèmes, l'éditeur (*de même que les cartographes!*) ne seront pas tenus responsables des erreurs de compilation ou de la perte d'articles qui leur seront soumis. Les opinions exprimées dans le cadre des éditoriaux, des articles et des lettres publiées dans le bulletin ne reflètent pas nécessairement celles de l'A.C.C..

The Canadian Cartographic Association gratefully acknowledges the financial support given by the Social Sciences and Humanities Research Council of Canada. L'Association canadienne de cartographie remercie vivement le Conseil de recherches en sciences humaines du Canada pour son apport financier.

Our Cover: *Commentary on democratic participation....*, Author Unknown, circa 1994

The Canadian Cartographic Association L' Association canadienne de cartographie

CCA Executive/ Comité Exécutif de l'ACC (1993/1994)

President/Président: *Alun Hughes*
Geography, Brock University
St. Catharines, ON L2S 3A1

Phone/Tél: (905) 688-5550 Ext.3489
Fax/Téléc: (905) 688-2789
E-Mail/Courr. élect: ahughes@spartan.ac.brocku.ca

Vice-President/Vice-président: *Marcia Faurer*
Geography, University of Winnipeg
515 Portage, Winnipeg, MB R3B 2E9

Phone/Tél: (204) 786-9481
Fax/Téléc: (204) 786-1824
E-Mail/Courr. élect : Faurer@uwpg02.uwinnipeg.ca

Treasurer/trésorier: *Shelley Laskin*
Globe Graphics
664 Balliol Street Toronto, ON M4S 1E7

Phone/Tél: (416) 481-9513
Fax/Téléc: (416) 481-0552

Past-President: *Majella Gauthier*
Département de géographie.
Université du Québec à Chicoutimi
555, boul. de université, Chicoutimi, QC G7H 2B1

Phone/Tél: (418) 545-5096
Fax/Téléc: (418) 545-5012
E-Mail/Courr. élect : MGauthie@uqac.quebec.ca

Interest Group Chairpersons/Chefs de Groups d'Intérêt.

Computer mapping-GIS/automation-SIG: *Y. C. Lee*
GIS Division, EMR
615 Booth Street, Ottawa, ON. K1A 0E9

Phone/Tél: (613) 996-2812
Fax/Téléc: (613) 952-0916
E-Mail/Courr. élect : ycleee@gisd.emr.ca

Education/éducation: *Nigel Waters*
Geography, University of Calgary
2500 University Drive
Calgary, AB T2N 1N4

Phone/Tél: (403) 220-6398
Fax/Téléc: (403) 282-6561
E-Mail/Courr. élect : water@acs.ucalgary.ca

History /histoire de la cartographie: *Iain Taylor*
Geographical Services Division, EMR
615 Booth Street, Ottawa, ON. K1A 0E9

Phone/Tél: (613) 992-4028
Fax/Téléc: (613) 996-8282

Map Use & Design/conception et utilisation des cartes: *Christine Earl*
Geography, Carleton University
Ottawa, ON. K1S 5B6

Phone/Tél: (613) 788-2600 Ext 2570
Fax/Téléc : (613) 788-4301
E-Mail/Courr. élect : cearl@ccs.carleton.ca

Technology/technologie: *Patricia Chalk*
Geography, University of Western Ontario
London, ON N6A 5C2

Phone/Tél: (519) 661-3425
E-Mail/Courr. élect : chalk@vaxr.ssc1.uwo.ca

1994 Annual Meeting Head/Chef, Congès Annuel 1994: *David Douglas*
Geography, University of Ottawa
Ottawa, ON K1A 5F2

Phone/Tél: (613) 564-4045
Fax/Téléc: (613) 564-3304
E-Mail/Courr. élect : dhdad@acadvm1.uottawa.ca

CIG Technical Councillor for Cartography: *R. Norman Drummond*
Geography Department, McGill University
805 Sherbrooke Street W., Montréal, QC H3A 2K6

Phone/Tél: (514) 398-4939
Fax/Téléc : (514) 398-7437
E-Mail/Courr. élect : in23@musicb.mcgill.ca

Cartographica Editor: *Bernard Gutsell*
12 Goodview Road, Willowdale, ON M2J 2K5

The Editor's File/ filière du éditeur

This issue was about 90% complete at the deadline for distribution at the AGM. (Yes, I know you were going to get around to sending that article, but it did not arrive yet!) The last few parts came in early August. Unfortunately, the network at SSFC was down due to renovations and I could not get access to any internet files. Not that this mattered because there was no computer at home to complete *Cartouche*. In fact, there would soon be no home to house me or the computer. A few days before the AGM I found out that I had been accepted into graduate studies overseas and I had a month to sell up and move out. Until then, I had been expecting to study in Canada and stay on in the role of Editor for one more year.

Weldon Hiebert, of the University of Winnipeg, had indicated his interest and ability to take over the role of editor, and with the passing of the Constitutional changes regarding the editor position, the executive felt that Weldon should take over the role of editor effective issue number 15. Little did Weldon know that I had been without computer resources for most of the summer and that I had spent my time selling most of my possessions and trying to get organized to leave for a year away! He has graciously agreed to complete and print this issue and update the Editorial information for his "reign at the helm". Or is that "rain in hell"?

Look for some thoughts on Editorship in a future issue. The one thing I do want to say now is that the membership-at-large *must* increase the amount of input to the editor if it wants a timely and robust magazine. I know you have heard that before, but it really has to happen.

A quick preview of events at the 1994 AGM shows Janet Mersey, Carol Marley, and Morrie Portnoff winning the elections to the 1994/95 executive. Congratulations to them all and thanks to those who stood for nomination. Janet, Carol and Morrie join Marcia Faurer (President), Alun Hughes (Past-president), Shelley Laskin (Treasurer and acting Secretary), Patricia Chalk (Technology SIG Chair), Nigel Waters (Education SIG Chair) and Y. C. Lee (Computer mapping-GIS SIG chair) to form the 1994/95 executive. Thanks also go out to Majella Gauthier who leaves the executive from his position as 1993/94 past president, and retiring SIG chairs Christine Earl and Iain Taylor. Look for more details in upcoming issues.

President's message/ mot du président

by/par
Alun Hughes

Liberating Government Data

In a timely article in the last issue of *Cartouche*, Christine Earl draws attention to a disturbing trend in government policy on the dissemination of geographic information, a trend she sees as marked by price hikes, cancellations and restrictions on use. The example she uses to illustrate her point is the map series produced by Statistics Canada showing the boundaries of enumeration areas, which because of exorbitant pricing and draconian licensing (she describes the license agreement as 'restrictive, negative and threatening') is being placed out of the reach of university teaching departments and map libraries.

Christine's example is a standard paper product, but like most other current map series it also exists in digital form. Herein lies a key to the problem, for government (at least in Canada) is still in the process of coming to terms with the digital revolution. It now generates a vast amount of digital data, but lacks general policies governing the dissemination process — what data should be released, in what form, on what terms, at what cost, and so on. Given the speed with which the digital revolution occurred this is not surprising, and the upshot is that departments and agencies at all levels are now playing catch-up and working on the necessary policy. Unfortunately, there are signs that the outcome may not be to everybody's liking, especially those of us who toil in colleges and universities.

This year's annual meeting of the Association of Canadian Map Libraries and Archives at the University of Guelph featured a panel discussion called 'Public Access to Cartographic Information: Government Perspectives,' with panellists from National Resources Canada (formerly Energy, Mines and Resources), Statistics Canada and the Ontario Ministry of Natural Resources. Evidently the situation is still one of appreciable flux. The panellists were noticeably short on details of what exactly academic users of government data might expect, and were unanimous in emphasising that nothing is yet cast in stone. Sufficient was said, however, to cause considerable disquiet amongst the map librarians present, as was very evident in the

discussion that followed the presentations.

To be sure, the Statistics Canada representative did talk about the Data Liberation Initiative, a major five-year pilot project spearheaded by the Social Science Federation of Canada, which extends the role of the existing federal Depository Services Program to cover electronic data files, starting with the dissemination of Statistics Canada data, in part through the Internet, to publically-funded research libraries. The motive is entirely laudable, to increase the flow of information from government to the public and in particular to the research and education community, but if the draft guidelines are any indication the Initiative falls far, far short of the free and open access enjoyed by our colleagues in the United States.

It was clear from all three presentations that two considerations seem to dominate government thinking, the need to recover cost and the need to maintain tight control over the data (a motive which one participant at the Guelph session, significantly a map librarian from the States, viewed as little short of sinister). The implications for academic users are potentially quite serious. There is not space here to discuss these matters in detail, but I will reproduce an important motion subsequently passed at the ACMLA Annual General Meeting, for this motion nicely captures the concerns of map librarians and, I am sure, the academics they serve:

Whereas: The Association of Canadian Map Libraries and Archives - has a mandate to facilitate access to cartographic information within the academic community in Canada - responds to the needs of library users engaged in the training of Canadian youth in those disciplines which use, analyze and interpret geographically referenced data - responds to the needs of library clients engaged in academic research

Be it resolved that the ACMLA convey to the relevant government ministries and other interested organizations and individuals its members' serious concern for the long term impact on Canadian development of punitive government copyright, licensing and cost recovery policies which - limit the access of Canadian students and researchers to Canadian data - result in Canadian university students being taught using U.S. examples and data - lead to the potential creation of an information elite and an information disenfranchised population

The Association believes that an urgent and immediate review of policies regarding the following

should be undertaken - licensing of digital products to the academic community of Canada - pricing structures of digital products - cost recovery based pricing structures for paper products - depository arrangements

We are at a critical juncture. Decisions now being made are going to affect our access to digital data for the foreseeable future. Map librarians are apprehensive about what lies in store and are uniting to campaign for government policies that recognize the realities of the academic world, and provide for data 'liberation' in the true sense of the word. Let us join them!

PUBLICATIONS BY THE ICA COMMISSION ON EDUCATION AND TRAINING

by/par
Peter Keller

The ICA Commission on Education and Training has published a number of interesting proceedings over the last few years. These include:

TEACHING SURVEYING AND MAPPING ASPECTS OF VISUALIZATION AND GIS

Proceedings from a workshop held at the University of Maryland, College Park, MD, August 6-8, 1992. This volume includes sixteen papers.

ELECTRONIC ATLASES

Proceedings of a seminar on electronic atlases held in Visegrad, Hungary, April 27-29, 1993. This text includes over 20 pages and notes.

TEACHING THE HISTORY OF CARTOGRAPHY II

Proceedings from a workshop held at the Newberry Library, Chicago, June 23, 1993. This volume includes 6 papers. The first and third reference were published by the Faculty of Geographical Sciences, University of Utrecht. The Electronic atlas issue was published by the Cartographic Institute of Eotvos, Lorand University, Budapest, Hungary.

Copies of these proceedings can be ordered from: Faculty of Geographical Sciences Cartography Section Utrecht University Heidelberglaan 2 P.O. Box 80115 3508 TC Utrecht The Netherlands Fax: 31 30 540604 It is my understanding that the reports cost US \$ 10.00.

Automation/ automation

by/par
Y. C. Lee

Internet and the World of Free Information

Part 2

This is the second article on Internet. Part 1 is a general introduction to the Internet, and it can be found in *Cartouche*, Number 12, Winter, 1993, pp. 10-11. This part describes a small portion of the many GIS-related information that can be found on the net. If you have discovered something that are of interest, please share with us.

FAQ for GIS

Please refer to an article on the 1994 Spring issue (number 13) of *Cartouche* for a more detail description of the list of frequently asked questions and their answers on GIS. I have included part of the information here for your convenience.

The list can be obtained via anonymous FTP on dg-rtp.dg.com (128.222.1.2) in the file /gis/faq, or abraxas.adelphi.edu (132.156.32.209) in the file /pub/gis/FAQ

You can obtain the same through e-mail by sending the following message to ftpmail@decwrl.dec.com:

```
connect dg-rtp.dg.com
chunksize 100000
chdir gis
get faq
quit
```

Free Software

GRASS (Geographic Resources Analysis Support System) is a public domain GIS developed by the U.S. Army Corps of Engineers. It provides data representations in vector, raster, and point formats. Documentation on GRASS can be obtained from the /grass/grassInfoCenter/GICdocs directory in host moon.cecer.army.mil. The release 4.0 in the directory /grass/grass4.0 would work on Sun workstations.

MOSS (Map Overlay and Statistical System) is a public domain raster-based software developed by the Bureau of Land Management's Denver Service

Center for cartographic manipulation. It is PC-based and requires other packages to support other GIS applications such as digitization, projection changes, and output. Documentation on MOSS (mossdoc.txt) resides in the /COGS/MOSS directory of host csu.org (128.138.213.21).

The GIS FAQ described above contains a list of public domain or shareware GISs together with information on how to obtain them.

The following contains an index of GIS utility software at that site.

Site: blm.gov File: 000-index

A few examples will give an indication of the stuff available:

48states.zip 48 usa states in moss export format
coast.zip lat/lon world coastline data
dlg2dxf.zip dlg to dxf converter
dxf2mif1.exe dxf to mapinfo (polyline), slower, handles lat/lon
dxfview.exe view dxf on pc screen (polylines)
mossview.exe view moss export file on pc screen (lines and polygons)
rast2vec.tar raster to vector, f77 src only, creates areas

Geographical Names

There are a number of telnet sites at which you can access interactively for information. A list of them appears in Chapter 6 of the Big Dummy's Guide to the Internet. For instance, the University of Michigan maintains a geographic name server which provides information about cities and other geographic features in the states. It also contains a small number of international cities as well. To access it, use the telnet facility to connect to telnet.martini.eecs.umich.edu 3000 (note the 3000 and the space before it). Login is automatic and no password is required.

Standards

Spatial Archive and Interchange Format (SAIF, pronounced safe) is one of the two Canadian geomatics standards for the exchange of geographic data.

The SAIF specification is available from the following two FTP sites:

site: s2k-ftp.cs.berkeley.edu
directory: pub/sequoia/schema/STANDARDS/
SAIF

site: moon.cecer.army.mil
directory: ogis/related/SAIF3.1

The Draft Content Standards for Digital Spatial Metadata

Produced by the Federal Geographic Data Committee (FGDC), this document available from

Site: waisqvarsa.er.usgs.gov

File: wais/doc/metadata33194

The naming convention is that the numbers after metadata indicates the date of the document. For example, metadata33194 is dated 31st of March, 1994.

SDTS

The Spatial Data Transfer Standard is a Federal Information Processing Standard in the United States. The SDTS specification is available from.

Site: sdts.er.usgs.gov

File: sdts/README

This README file contains a description of the directories and subdirectories for articles, datasets, software, thesis, and documentation for SDTS.

GCNet

The Global Change Network (GCNet) was developed by the Canada Centre for Remote Sensing (CCRS) to access the directory of canadian and international data on global change, link to other related networks, query the CCRS image inventory, and obtain information on other services provided by Natural Resources Canada.

To access GCNet on the Internet, type
telnet gcnnet.ccrs.emr.ca (132.156.47.218)
and enter GCNET as the username. If you are on a SUN terminal, you might have to start a new shell tool and
set term=vt100

Bibliography

This file describes the GIS Master Bibliography Project at the Ohio State University and information on how to access the bibliography.

Site: bastet.sbs.ohio-state.edu

File: biblio/biblio_description

Try these out and see what you think. If any other readers have data on other resources to share, please forward them to me.

Technology/ technologienext

by/par

Patricia Chalk

TECHNICAL ADVANCES IN ADOBE ILLUSTRATOR 5.0

I must take this opportunity to applaud the latest improvements in Illustrator 5.0. Two particularly useful additions are the capability of viewing EPS files and the layering feature. At long last cartographers may bring into Illustrator a scanned colour map as a colour or grey scale EPS file. If you currently draw maps using an earlier version of Illustrator that could only use PICT files for templates, seriously consider finding the funds to upgrade to 5.0 (or newly available 5.5). The quality of your cartographic life will jump several notches up the scale once you are able leave those PICT images behind.

Thanks to the long overdue introduction of the layering feature, scanned maps may be placed in one of the artwork layers. A quick test at the scanning stage will determine whether the attributes needed from the scan require full colour or grey scale imaging (grey scale yields a substantially smaller file size). With the improvement of this one feature 'drafting' the linework into the digital environment has become more accurate and less tedious. Once artwork components have been given a layer designation, that layer may be locked, removed from view, visible and printing or visible and not printing — all most convenient features.

Before layering, cartographers frequently were faced with TIHWAP: 'The Inadvertent Highlighting of the Wrong Attribute Problem'. In my experience, the potential for TIHWAP was highest when creating choropleth maps or any circumstance when sets of linework or text were close together. In the process of trying to select one component, another component would be highlighted instead or in addition. Although cartographers could remedy this problem through a series of locking and/or hiding operations the process became very tedious. With Illustrator 5.0 thoughtful assigning of artwork to particular layers and selective locking of the layers not currently in use prevents a great deal of frustration previously generated by TIHWAP.

Note: Cartographers should also explore the benefit of using the 'area select' option (located in Prefer-

ences) when creating or manipulating files which have shared polygon boundaries. With this feature polygons are highlighted by clicking within their bounds rather than along a segment of their boundaries.

Please bear in mind that the previous comments are drawn from experience using the program on a Quadra 650 with 24MB of RAM and a 230MB hard drive. Version 5.5 of Illustrator is now for available and packaged with Acrobat Exchange and Distiller. Comments from those of you using these packages would be beneficial to our membership. Is an upgrade to 5.5 worthwhile?

Education/ éducation

*by/par
Nigel Waters*

Cartographic Education, the Internet and Related Technologies

Introduction

This column deals with the potential role of the Internet and associated technologies in Cartographic Education. Four areas are considered: computer supported cooperative work (CSCW); electronic forums; file transfer protocol and bibliographic databases. After the rise of the personal computer in the late 1970s and early 1980s you could enter any popular bookstore such as Coles and see a vast number of books to help the enthusiast explore the world of computers. More recently the number of titles available in such general bookstores has been dropping off and in some stores computers have been relegated once again to the business section. But in the last year or two there has been an explosion of interest in the Internet and in one (non-academic) bookstore in Calgary I counted over fifteen titles devoted to this topic. This interest is also found in the newspapers (especially the Globe and Mail) and magazines (for example, Seabrook, 1994, in The New Yorker). If everyone else is taking advantage of the Internet then how might a cartographer involved in education find this an especially useful technology?

CSCW

Computer supported cooperative work has become increasingly popular in a variety of disciplines and there is now an extensive literature on the topic (for a general and wide ranging introduction see Galegher et al., 1990). The popularity of such an approach is due first to the increasing specialization of advanced research and second to the focus of governments on centers of excellence and research networks due to the recent paucity of tax dollars for publicly funded research. Specialization has resulted in many university departments having only one specialist in each area — if that. This was true of GIS when it first became popular in the 1980s and this was one reason for the development of the Core Curriculum by the National Center for Geographic Information and Analysis (NCGIA) at Santa Barbara. CSCW is important for GIS (see Goodchild, 1993) but it is also likely to become increasingly important for cartography and few Canadian geography departments have had the luxury of more than one specialist in cartography. The Internet is one method of carrying out CSCW cheaply, quickly and effectively. For most university researchers there are no associated real costs and the problem of spatial separation between researchers essentially becomes irrelevant.

The centers of excellence program has been used in many countries including Canada. In the US and in the UK it was used as a vehicle for supporting GIS research at a University level. In the former this led to the establishment of the NCGIA and in the latter to the Regional Research Labs (RRLs). Canada had no center of excellence awarded for GIS research in the initial programme and thus it was left behind after acting as the world pioneer in GIS in the early 1960s. A second round of the centers of excellence programme is currently under way in Canada and it would be a tremendous boost for cartographic and GIS education if a center was to be awarded in these areas. If this were to happen then the Internet and CSCW would have to play a major role in integrating the research.

Electronic Forums

One of the most popular ways of using the Internet is through electronic forums and list servers. A variety of these exist for GIS (including forums for GIS in transportation, for Arc/Info and Idrisi among others) and there is even a MAPS-L listserver. Perhaps the most active of all these lists is the GIS-L that is partly owned by David Mark and is based at the State University of New York in

Buffalo. This list generates between 30 and 50 messages a day and is specifically designed to avoid the isolation of GIS specialists and cartographers who are in departments where only one person is specializing in their subject. One way of using such a list in an academic course is to have students subscribe to the list for the duration of the course and have them participate in the discussion or at least monitor the list (to subscribe to any list you send a message to the listserver which says subscribe the list name and your name. Thus for GIS-L the message would be sent to: listserv@ubvm.cc.buffalo.edu and the message for me would be: subscribe GIS-L Nigel Waters). Electronic forums are now routinely being used in Calgary high schools to put them in touch with students in other provinces and in other countries.

ftp

The so-called anonymous file transfer protocol allows users access to files from remote sites. Thus organizations such as the NCGIA make many of their publications available in electronic form via ftp. This means that you can download this research through the Internet without having to pay for it. Details of the files that are available from the NCGIA are provided in their Newsletter. Many other organizations also make programs, data and publications available in this manner. ftp is well worth knowing about and using to its fullest.

Bibliographic Databases

Both the NCGIA and the Department of Geography at Ohio State University maintain extensive bibliographic databases on the GIS literature from the last four or five years. These databases can be downloaded from both those sites using the anonymous ftp described above. The databases come in a variety of formats and are usually compressed because single files may contain over 1,000 references. Once they have been transferred they can be decompressed and opened up using one of the popular bibliographic database formats such as Pro-Cite or my favorite, EndNote. Once they are in EndNote format they can be searched, sorted and easily incorporated into word-processing documents in almost any referencing style currently available. This again is all for free.

Conclusion

To work effectively in the '90s university, cartographers must avail themselves of the Internet in all its many guises. To get up to speed on this topic

neophytes might well want to consult one of the many "how-to" books alluded to in the introduction. One that I have found especially useful is the Canadian Internet Handbook, 1994 Edition (Carroll and Broadhead, 1994) but there are a host of others. Also available now is the magazine Internet World which is devoted solely to this topic and special issues of the mainstream computer and science magazines (see, for example, PC Magazine's vol. 13, #5, issue this year and for a look at the dark side of the Internet see Wallich, 1994). If all else fails there are probably a large number of Internet "gurus" on your own campus. Once you get fully into it you will be hooked.

References

- Carroll, J. and Broadhead, R. (1994) Canadian Internet Handbook. Prentice Hall Canada, Scarborough, Ontario
- Galegher, J., Kraut, R. E. and Egidio, C. (1990) Intellectual Teamwork: Social and Technological Foundations of Cooperative Work. Lawrence Erlbaum Associates. Hillsdale, New Jersey.
- Goodchild, M. F. (1993) Ten Year's Ahead: Dobson's Automated Geography in 1993. Professional Geographer, vol. 45, pp. 444-446.
- Seabrook, J. (1994) E-Mail from Bill. The New Yorker, vol. 69. #45, pp. 48-61.
- Wallich, P. (1994) Wire Pirates. Scientific American, vol. 270 #3, pp. 90-101.



Map Use and Design/ conception et utilisation des cartes

by/par
Christine Earl

X MARKS THE SPOT

The OVERBOARD cartoon strip of June 22 features a fearsome-looking pirate with black beard and cutlass standing in front of a desk at which a person wearing a seventeenth century hat is seated reading a book. "The Big Box?" the pirate asks. "With the fifty or sixty grand in it?" The seated person responds affirmatively. "Wow" says the daddy pirate, whereupon the scene expands to reveal a young pirate standing on a stool in front of a seventeenth century equivalent of a blackboard writing out 50 times the words "Next time I bury treasure I will draw a map."

I love this cartoon. It resonates with so many ordinary as well as mythological, not to mention nostalgic, mental constructs. It references old-fashioned school days and childhood adventure stories; links the nineteenth with the seventeenth century and blends them in a humorous way; comments upon this century's debate about culture vs nature; and, of course, taps the connection between the map (x marks the spot) and buried treasure.

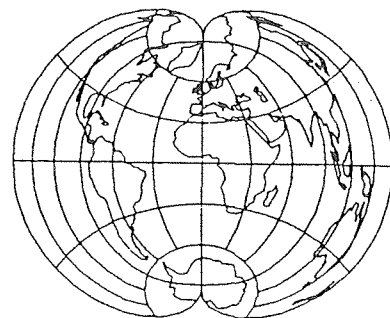
The deep belief in the hidden treasures contained in the blank spaces on the map or 'under' the location marks is fundamental to the fascination with maps. That is, it is not just the map itself as object or the data/information manifested on it, but the stimulus it is for the creative imagination that makes a map fascinating. In the cartoon, it is certainly the data on the map (the x) which is implied as important but it is the exciting buried treasure which will give the x its cachet. Can there exist a more powerful springboard for the imagination than the thought of buried treasure?

These days, in which we are assaulted with the babble of journalistic stories always featuring an 'expert' who is a scientist and evidence which is based on statistical data, and where maps are invariably characterized as technological products for the display of matters of fact, it is refreshing to remember that they can be imaginative constructions designed to stimulate rather than inform. And that they can indulge in the occasional touch of fantasy and illusion. I would like to encourage

cartographers to engage their audience with hints of buried treasure, allusions to a variety of historical and contemporary archetypes, and the occasional touch of whimsy. It has been convincingly argued that all maps display cultural and personal biases willy nilly, so go ahead and let the public in on the secret — touch the imagination, tickle the funny bone, tingle the emotions.

By way of illustration, I draw your attention to the map I am sending to the editor with this column and which is reproduced here in black and white. It is a portion of a map published in 1961 entitled "Travel Fun Map of Ontario" and is a road map published for BA, the British American Oil Company, which, in that era, was a major petro company with gas stations all over the province. To my astonishment, my father produced this map from a drawer two years ago (1992) to refer to as we were discussing driving in convoy from Niagara to Muskoka. I took delighted possession of it immediately and, although it is a bit torn, it is in good enough shape to bear reproduction here. You can see the humorous holiday vignettes featuring camping, fishing, golfing, etc. with cartoons of family members which reference and gently ridicule the cultural values prevailing at the time. Viewers of The Flintstones will recognize them.

With these parting thoughts I leave the office of Chair of Map Design and Use on the CCA Executive and I would like to thank my colleagues for an enjoyable term, and all members of the CCA for their continuing support for the association.





Un atlas électronique sur l'évolution de l'agriculture du Québec An Electronic Atlas of the Evolution of Agriculture in Quebec 1981-1991.

Un groupe d'étudiants en géographie-aménagement et en géomatique de l'Université du Québec à Chicoutimi vient de produire un atlas tout à fait original sur l'évolution de l'agriculture au Québec. En effet, vingt étudiants, sous la coordination du professeur Majella-J. Gauthier, ont réalisé au cours des derniers mois, un atlas conçu et produit à l'aide de l'ordinateur et surtout disponible uniquement sur disquette.

L'atlas, qui comprend 84 cartes en couleur, illustre 26 paires de variables agricoles se rattachant aux 97 MRC dans lesquelles l'agriculture est pratiquée. On y traite des cultures, des élevages, du capital et des revenus concernant les fermes de recensement, et on met surtout l'accent sur les changements qui se sont produits de 1981 à 1991.

Faut-il seulement se rappeler que pendant cette période, le nombre de fermes au Québec a diminué de 21%, que la superficie totale des fermes s'est contracté de 9%, que les terres en culture ont été réduites de 7% et, qu'à dollar constant, les revenus agricoles bruts ont malgré tout progressé de 10%. Ainsi, on est en droit de se demander comment a évolué l'agriculture du Québec au cours des dernières années et également de se poser la question si cela a changé uniformément dans le territoire.

Il est à noter qu'une autre étude a été menée parallèlement à cette analyse cartographique par Stéphan Bouchard; elle corrobore ce qui se dégage de l'atlas: il y a eu un net déplacement des variables significatives pour l'agriculture québécoise vers la région de Montréal et un rétrécissement de l'aire de dispersion de l'activité agricole (La dynamique de l'agriculture au Québec 1981-1991: étude centrographique).

L'atlas prend la forme d'une pochette explicative dans laquelle se trouve une disquette de 3,5 pouces. Il a été conçu pour être consulté sur des ordinateurs PC-compatibles possédant la plate-forme Windows et, il est laissé à l'utilisateur le loisir d'imprimer les cartes qui l'intéressent.

L'atlas veut atteindre les chercheurs, les professeurs, les étudiants de tous les niveaux, les bibliothèques des écoles secondaires, des CEGEP, des universités, les ministères québécois et canadiens, les producteurs agricoles, l'UPA (Union des producteurs agricoles), les planificateurs régionaux, les municipalités, les MRC; enfin, il y a tous ceux qui sont intéressés à la question.

The publication is the result of a collective project realized by twenty students of the Université du Québec à Chicoutimi (UQAC). The project consisted in producing a series of colour maps concerning the agricultural activities in the Province of Québec in order to show the changes between 1981 and 1991. The atlas presents 26 pairs of agricultural variables concerning 97 MRC (Municipalités Régionales de Comtés) where farming exists. The core of the atlas is made of maps illustrating the spatial distribution of the agricultural variables in 1991 and their evolution from 1981. Data, from Statistics Canada, describe what is in the census farms and concern themes like crops, livestock, capital values and receipts. The atlas is available only in electronic format: 3,5 inch disk; it is accompanied by a folder of descriptive notes. It is intended to be used with PC-compatible computers having the Windows platform (Paint Brush and Note Pad applications).

Notice bibliographique:

Les Laboratoires de Géographie (Projet collectif), 1994, Atlas électronique de l'évolution de l'agriculture du Québec 1981-1991 (version 1,0), Université du Québec à Chicoutimi,, Pour ordinateurs PC-compatibles sur plate-forme Windows, Applications Paint Brush et Bloc notes («Note Pad»), , Pochette de présentation 16 p. (21,5 X 28 cm) et une disquette (8,8 cm), 84 cartes.

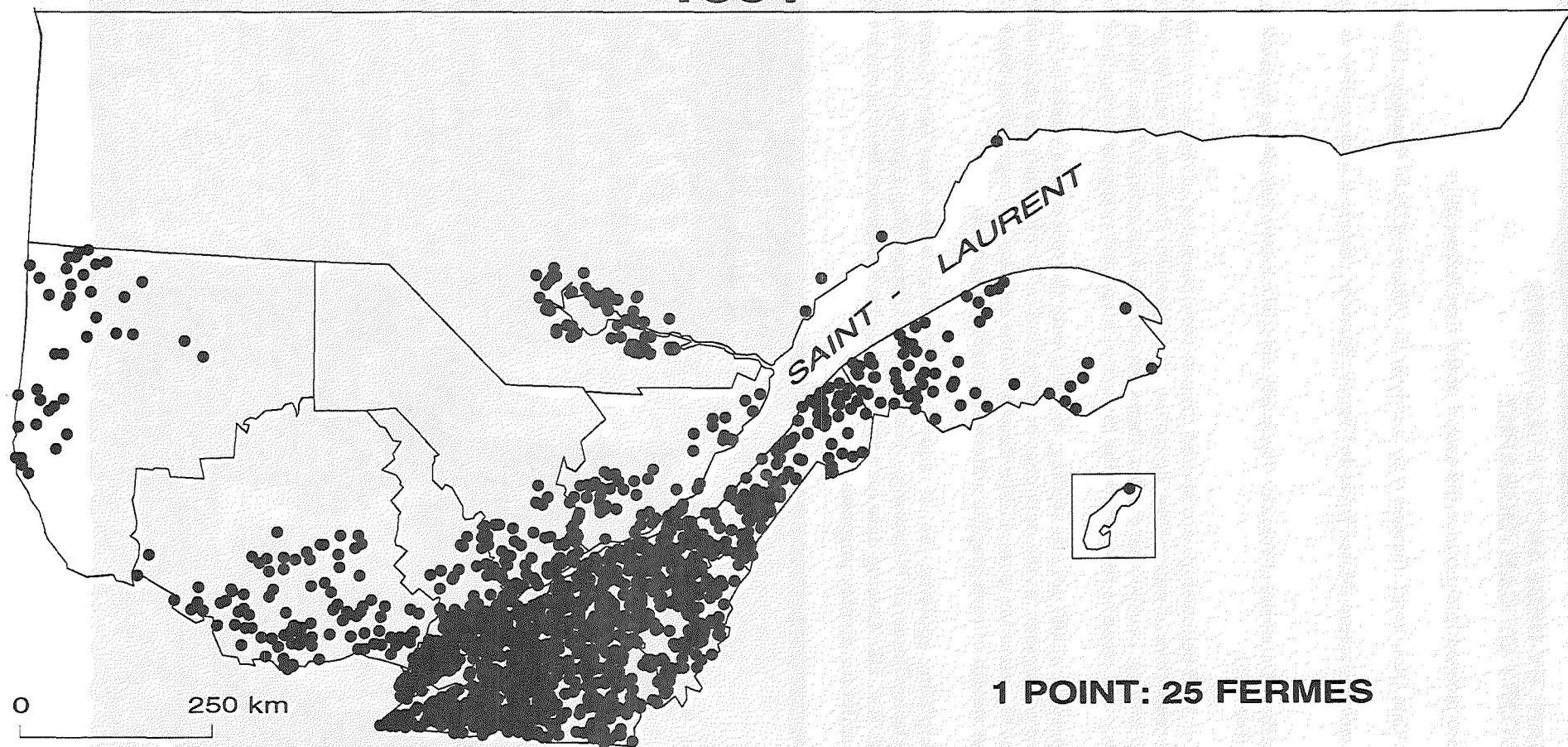
ISBN 2-920625-0908. G1141.J1.A8 1994. Prix: 17,50\$Can. (frais de poste non compris).

Pour commander l'Atlas (to order the Atlas):
Les Laboratoires de géographie,

Att. Majella-J. Gauthier,
Département des Sciences humaines,
Université du Québec à Chicoutimi,
555 boul. de l'Université,
Chicoutimi, Québec, Canada,
G7H 2B1
(Fax: 418- 545-5012).

06FERMES._91

FERMES 1991



SOURCE: STATISTIQUE CANADA

THE J.B. HARLEY RESEARCH FELLOWSHIPS IN THE HISTORY OF CARTOGRAPHY

The Trustees are pleased to announce the award of the first Fellowships:-

Dr Mead T. Cain (New York). *The maps of the Society for the Diffusion of Useful Knowledge*. [March 1994].

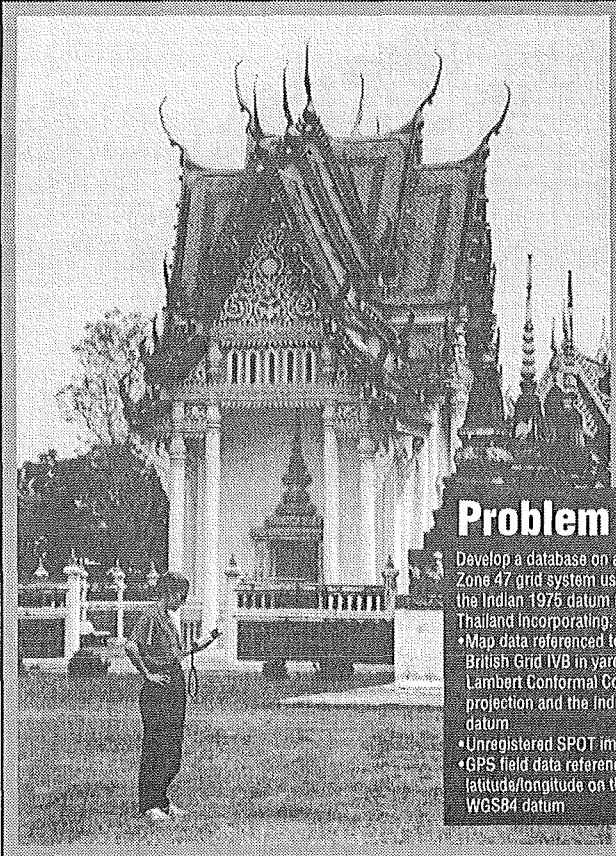
Dr Claire Lemoine-Isabeau (Musée Royal de l'Armée, Brussels). *Histoire de la cartographie du territoire belge*. [April 1994].

Roger A. Starling (University of Toronto). *Topography and power: English Renaissance drama and the production of space 1580-1640*. [For 1995].

Applications for 1995 Fellowships are invited from anyone pursuing advanced research in the history of cartography, irrespective of nationality, discipline, or profession. Preference will be given to interpretative studies in map history, irrespective of area, theme, or period. This reflects Brian Harley's own contribution to interdisciplinary and creative research in the history of maps and mapping throughout the world.

Awards are normally of 400 pounds sterling, to assist with the cost of two weeks in London. The Harley Fellowships are prestigious, as the only ones of their kind in Europe. They are endorsed by the British Library, National Maritime Museum, Public Record Office and Royal Geographical Society and aim to promote use of the great wealth of cartographic material available in London.

Anyone contemplating applying should request a Fellowships leaflet from Tony Campbell, Honorary Secretary, J.B. Harley Research Fellowships Trust, British Library Map Library, Great Russell Street London, WC1B 3DG UK. Closing date for applications is 1st November. Institutions are invited to request copies of the leaflet for display purposes.



Solution

IDRISI

VERSION 4.1

Now with full geodetic support, including forward and backward ellipsoidal projection, image resampling and full datum transformation using the Molodensky and NADCON procedures.

The IDRISI Project
The Clark Labs for Cartographic
Technology and Geographic Analysis
Clark University, 950 Main Street
Worcester, Massachusetts 01610-1477 • USA
Telephone: +1.508.793.7526
Fax: +1.508.793.8842
Bitnet: IDRISI@CLARKU
Internet: IDRISI@VAX.CLARKU.EDU

Problem

Develop a database on a UTM Zone 47 grid system using the Indian 1975 datum for Thailand incorporating:

- Map data referenced to a British Grid IVB in yards on a Lambert Conformal Conic projection and the Indian 1954 datum
- Unregistered SPOT imagery
- GPS field data referenced to latitude/longitude on the WGS84 datum

To Ink or Not to Ink

by
Steven Garner

Recently, I taught a summer course in introductory cartography at the University of Victoria. In preparation for the course, it was necessary to adjust some of the laboratory content due to changes in the curriculum within the Department. I decided to take the changes one step further and try an experiment.

For the past few years, introductory cartography has attempted to expose students to both traditional pen and ink cartographic techniques and computer-based production methods. Although many organizations still make use of traditional cartographic techniques (municipalities in particular) most appear to have or are in the process of adopting computer technology. I decided that, for the first time in this Department, I would concentrate only on the computer tools and eliminate the traditional methods from the course given the extent of their use. As might be expected, I was met with opposition from department members, students, and faculty from other institutions regarding my decision. This article is an attempt to defend my position.

Over the past five years, I have been involved, off and on, in teaching cartography at the introductory level. During this period, there has been continuing pressure from students, the business community and co-op programmes to train students in computer-based technologies. The result is that less emphasis has been placed on traditional techniques. Yet, despite the apparent change in how cartography is done, traditional techniques were maintained as forming the base from which a well rounded cartographer develops.

The argument for maintaining traditional methods in cartography is based on the premise that "if you do it the old way you will have a better appreciation for doing it the new way". I can not argue with this view. I am a traditionally-trained cartographer and have spent my share of hours bent over a draughting table and lettering templates. I certainly have a great appreciation for computer methods that allow me to make changes to my maps without anyone the wiser. But at what point do we make the decision that traditional techniques are irrelevant?

Another argument that is made for holding on to

traditional techniques is the quality of the hand drawn product. This again, I can not repute. Computer out-put has lagged behind the hardware and software development, although the gap appears to be lessening. All one has to do is compare a modern topographic map from North America with one from Switzerland. There is no comparison. The North American map is produced digitally from data collection to final production while Swiss maps are labour intensive including extensive field checks done for map accuracy — a practice little used in North America.

North American maps attempt to be quantitative while Swiss maps are more qualitative. Yet your likelihood of getting lost using a North American map is much greater given the lack of field checking, level of generalization and deficient visual impression of the landscape.

Another argument I have heard, although not usually explicitly mentioned, is that "I had to do it so you should have to do it". If we all really believed this, how did we get this far? Eventually, we would be learning so many irrelevant techniques that we will not have any time to do any work.

It is this last point that led to my decision to eliminate traditional techniques from the introductory cartography course. As we began to increase the computer technology content of the course, we found students were getting overwhelmed by learning different techniques. The course requires that students produce a final project at the end of the term in the form of a multi-variable thematic map. The quality of the final projects was falling as students struggled to learn all the techniques in a four month period.

We thus reached a cross roads in teaching the introductory course. Clearly, given the quality of student work, cartographic theory was suffering. I needed to simplify the technical skill portion of their education so that I could concentrate more on the theoretical considerations. One option was to eliminate computer cartography and return to traditional methods. Even proponents of traditional techniques agree this is not a wise decision. Not to mention students would not be satisfied with this approach to a modern education. Besides that, we already had a computer lab worth several tens of thousands of dollars.

My decision, thus, was to forgo traditional techniques in favour of computer cartography. There was some initial opposition. One of my students

was quite concerned that her employability would be harmed by not learning traditional techniques. A college faculty member was overheard denouncing the move saying it was a real shame that I had decided to drop the traditional methods.

Although faculty in the Department were supportive, there was some apprehension among the traditionalists. One faculty member, before realizing that I was teaching the course, told me he couldn't believe what they were doing ... getting rid of pen and ink cartography was ridiculous!

Of the concerns voiced to me, the one by my student was most distressing. Were her chances of getting a job really going to be harmed by not learning these techniques? This question leads to many other questions regarding the role of University in our society such as are we training people for good jobs or are we teaching them how to think? I subscribe to the latter. Thus, I explained, to the concerned student, that I felt it was my place as a university instructor to supply her with a solid grounding in cartographic theory not the technical skills to produce maps, at least not directly. I told her that there are many technical colleges that teach the techniques but few focus on placing cartography within context of geography, graphical communication and cartography's responsibility to society. Since our Department does not offer a degree in cartography, it is not our responsibility to make cartographers. We educate geographers in the theory and some techniques in cartography.

Now that the course is over and the damage is done, I have time to reflect on the success or failure of my decision. The rewards for me came with the production of the final projects. I was very impressed with the quality of maps. In particular, was an obvious change from trying to producing spectacular maps from previous years to producing ones that were clear, concise, and accurate. It was apparent to me from the projects and from talking to students that they were less concerned about manipulating the tool and more concerned about producing a good map. This was all the proof I needed to confirm that I made the right decision.

La gestion intégrée des ressources en milieu forestier

par
Bernard Lachance

Résumé

La gestion intégrée des ressources est un projet mené conjointement par les ministères québécois des Ressources naturelles et de l'Environnement et Faune. Ce projet porte sur le développement d'une nouvelle approche de planification de la gestion des ressources renouvelables, matière ligneuse, faune, eau et paysage. La GIR vise donc également à développer des outils d'aide à la décision.

Introduction

Le milieu forestier supporte de multiples ressources comme la matière ligneuse, la faune, l'eau et le paysage. Ces ressources constituent un ensemble d'éléments en relation étroite les uns avec les autres, qui forment des écosystèmes complexes et souvent fragiles. Le milieu forestier est également le théâtre de nombreuses activités récréatives, économiques ou autres.

Le projet interministériel de gestion intégrée des ressources (GIR) constitue un défi conceptuel et technologique de taille, puisqu'il vise à établir des liens d'interdépendance entre les ressources et à se doter d'outils nouveaux qui permettront d'en améliorer la gestion. Il faut comprendre que ce projet pourrait avoir une très grande portée car il est susceptible de modifier de manière fondamentale la compréhension que nous avons des écosystèmes forestiers et de l'impact des interventions humaines sur les composantes de ces écosystèmes.

Le projet GIR s'inscrit dans la foulée de la Stratégie mondiale de la conservation. Il permettra de poursuivre dans nos actions un objectif de développement durable. Il exige que plusieurs disciplines mettent leurs connaissances en commun pour en arriver à une compréhension mutuelle de leurs objectifs, de façon à améliorer la prise de décision et à tirer le meilleur parti possible des multiples ressources d'un territoire.

L'objectif du projet

L'objectif principal du projet consiste à établir, à partir des informations existantes, les relations

entre certains éléments d'un écosystème et à les traduire dans des modèles permettant la simulation de scénarios d'intervention. Par conséquent, on se dotera d'outils d'aide à la prise de décision décrivant mieux la pertinence et les conséquences des aménagements proposés.

Les sites d'expérimentation

Deux territoires pilotes ont été retenus pour mener à bien cette expérimentation. Le premier est la réserve faunique Mastigouche, en zone de forêt feuillue, dans le domaine de l'érablière à bouleau jaune. Le deuxième territoire est la partie centre sud de la réserve faunique Des Laurentides, en zone de forêt boréale, dont près de 70% de la superficie est située dans le domaine de la sapinière à épinette noire et 30% dans celui de la sapinière à bouleau blanc.

L'apport de la géomatique

L'apport de la géomatique est essentiel pour mener à terme cette étude de faisabilité de la gestion intégrée des ressources en milieu forestier. Cette discipline nous a permis d'améliorer notre connaissance du territoire et des ressources à partir de la carte de base et la carte écoforestière à l'échelle 1:20 000. Nous avons pu:

- cartographier le territoire selon les thématiques suivantes: l'eau, la matière ligneuse, les paysages, et la faune;

- cartographier les habitats fauniques selon différentes espèces représentatives du milieu. Cette cartographie est effectuée à partir d'outils de modélisation d'habitat développé sur la base de l'indice de la qualité de l'habitat. Ainsi, nous avons décrit le territoire en terme de qualité actuelle et de potentiel d'habitat pour l'Orignal, la Martre d'Amérique, le Grand-Pic, la Paruline couronnée et le Lièvre d'Amérique;

- formuler des objectifs pour chacune des ressources et pour le territoire. La méthodologie utilisée permet la prise en compte d'objectifs de niveaux différents et parfois conflictuels;

- simuler à l'aide d'outils géomatique, différents scénarios d'intervention faisant varier dans le temps l'état du territoire en fonctions de diverses actions;

contribuer à définir des critères d'évaluation et des scénarios d'intervention;

et finalement, évaluer des scénarios en utilisant différents outils d'aide à la décision pour établir une base de négociation entre les parties prenantes.

La démarche de développement

Les scénarios d'intervention dont il a été question précédemment ne pourraient pas être élaborés et testés sans le recours à l'informatique et à la géomatique.

Pour favoriser l'atteinte des objectifs de la gestion intégrée des ressources, une base commune d'informations doit être constituée. Elle comprend des données écologiques, forestières, fauniques et hydriques en plus des données géométriques décrivant le territoire.

Il nous a donc fallu, dans un contexte d'expérimentation, mettre en place une structure d'accueil technique permettant aux différents intervenants du projet GIR de concevoir les traitements tout en faisant appel à une méthode itérative pour mieux les préciser et les valider. Les principales étapes à retenir au plan du développement sont:

- la définition des besoins pour chacune des ressources;

- la définition de l'infrastructure technologique;

- les choix technologiques;

- la mise en place de la plate-forme (matériel et logiciels);

- l'acquisition des données géométriques de base;

- l'acquisition des données descriptives;

- la préparation d'un ensemble de données valide et cohérent;

- la représentation des connaissances actuelles du territoires;

- la modélisation des traitements géomatiques par ressource;

- la modélisation de méthodes de simulations, l'intégration des objectifs développés pour

chaque ressource et la modélisation d'outil d'aide à la décision;

la simulation des scénarios;

l'évaluation des scénarios.

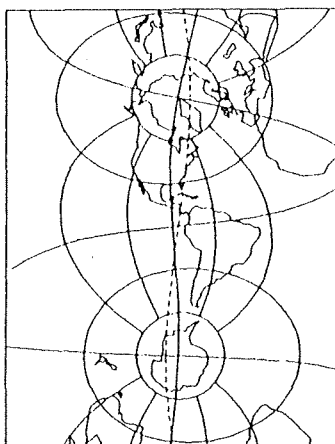
Conclusion

La gestion intégrée des ressources s'inscrit d'emblée dans la tendance actuelle visant à implanter de nouveaux modes de gestion des ressources naturelles renouvelables sur une base plus globale. La mise en oeuvre de ce type d'approche favorisera un décloisonnement des fonctions gouvernementales et permettra une plus grande intégration des diverses responsabilités touchant la gestion intégrée des ressources en milieu forestier.

Ce projet présente un mode novateur d'actions concertées impliquant divers ministères ainsi que de nombreux partenaires. À cet égard, il propose une base de travail devant conduire à statuer sur la faisabilité d'utiliser un nouveau type de gestion des ressources en milieu forestier.

La mise au point de l'ensemble des outils élaborés dans le cadre de ce projet représente l'amorce d'un processus de planification plus complet. Il devrait permettre la prise en compte des besoins des divers intervenants oeuvrant en milieu forestier en établissant plus clairement les enjeux économiques, sociaux et environnementaux en cause.

Bernard Lachance, ing.
Ministère de l'Environnement et de la Faune
150 Boul. René-Lévesque
Québec (Québec) G1R 4Y1
(418) 643-4436



Corporate News

CORPORATE MEMBERS

J. M. Ellis,	Metcalfe, ON
ESRI Canada	Don Mills, ON
Idrisi Project,	Worcester, MA
Intergraph Canada,	Calgary, AB
Intergraph Corp.,	Huntsville, AL
Map Art,	Etobicoke, ON
Ph.D. Associates Inc	North York, ON
Projections Mapping Group,	Calgary, AB
Stentor Resources,	Toronto, ON
Universal Systems Ltd.,	Fredericton, NB
John Wiley and Sons,	Toronto, ON

ArcDoc: On-line Documentation in ARC/INFO Rev. 7.0

In response to a common complaint that software documentation often is not easily available to users when users need it (i.e., when working with the software), ESRI has decided to make all software documentation available on-line. On-line documentation has many advantages over printed manuals. It's the printed documentation set, organized the same way, with hypertext links for easier access both to and within the system-full access to any point in the documentation set in four or fewer mouse clicks. It's a lot easier to update, it won't fall apart, and it won't walk off.

Information will be more accessible through the on-line document system than through the printed document set. Why? Because it's easier to get from the thought in your head to the information in the on-line document set. With any printed document set, you need to know what titles are available in the set, what topics are associated with each title, what subtopics are associated with each topic, and so on. Maybe you go to the table of contents of a book, or maybe you go to the index. If you don't find what you need, you look for another book and start over. In the ArcDoc on-line document system, your search is direct, and doable from many directions.

ArcView to Run on PowerMac as Native Application

Redlands, California, September 1-Environmental Systems Research Institute, Inc., has announced it is developing Version 2 of its popular ArcView software as a native application for Apple Computer Corporation's PowerMac platform concurrently

with the release being developed for 68000-based Macintoshes. "We wanted to exploit the improved processing capabilities of the PowerMac platform," said Rich Turner, ArcView product manager at ESRI. "To take full advantage of the PowerMac's capabilities, ArcView needs to be developed as a native PowerMac application." ArcView Version 2 is an affordable desktop geographic information system (GIS) package that lets employees in all levels of an organization display, browse, query, and analyze geographic data. GIS technology allows a wide variety of complex business and technical problems and statistical information to be analyzed in the form of a map. For that reason GIS technology, like spreadsheets, is broadly used by managers, planners, analysts, and scientists to better understand and address real-world problems. The PowerMac is a strategic desktop platform for this kind of enterprisewide computing. ArcView works directly with any SQL DBMS, ASCII, or dBASE file, as well as with ESRI's ARC/INFO and pc arc/info databases. The software is available for pc compatibles and a variety of unix workstations, as well as the Macintosh. Version 2 includes a new object-oriented programming language and development environment called Avenue. "The transition to the new development environment should not impose any significant delay for the Macintosh release. Development is going well and the results have met our expectations for the platform," ESRI's Turner says. ESRI expects to ship ArcView Version 2 for the PowerMac in October. The PowerMac runs using the PowerPerformanceChip (PPC) microprocessors, a series of RISC chips developed and manufactured by Motorola, IBM, and Apple as part of a cooperative effort. Apple has indicated that they will be scaling back the production of 68000-based Macintoshes and moving more aggressively to the PowerMac platform.

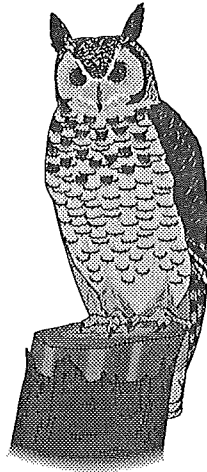
Thompson Associates, GIS Give Retailers a Competitive Advantage

San Francisco, CA August 15, 1994—Have you ever wondered how many retail real estate decisions are made each day? If you look only at the major chain stores in the United States, it is probably safe to say that several hundred real estate sites are evaluated each day. Behind these decisions are data and a few individuals devoted to data for the use of marketing decision makers. James Root is one of those individuals. Root, a vice president of Thompson Associates, a leading market research firm headquartered in Ann Arbor, Michigan, has for nearly two decades been collecting data that now has the potential to take on much of what most executives call "market

research," and cut it off at the knees. Thompson Associates recently purchased ARC/INFO software to assist their staff of over 60 analysts perform many of the complicated research methodologies they use to provide their clients with the information necessary to make sound decisions about site selection. Thompson Associates works with a variety of businesses ranging from nationally-known companies to small start-up businesses in the retail field. These businesses range from shopping center developments to supermarkets, fast food operators, pharmacies and specialty retailers. Root says he considered several systems prior to purchasing ARC/INFO. "Our study proved to us that ARC/INFO is the most powerful GIS available on the market, as well as the system most compatible to our needs." Thompson Associates uses ARC/INFO software on a Sun SPARCstation 2 platform. The company also uses ESRI's ArcView display and query software for creating presentation maps for staff members and clients. "All good market research begins with good data and the efficient use of that data," says Root. "It doesn't matter what type of analytical tools you use, without good data and the ability to use that data effectively, you won't get good reliable results." Fortunately, according to Root, as computers become more common and as retail stores continue to be more computer-oriented, more reliable data are becoming more readily accessible for market research. "With a full GIS now available to us," Root explained, "we can look at more data more thoroughly than before. We can manage more data and perform more specialized types of analysis on that data to achieve more reliable results for our clients." Thompson's staff of geographers, cartographers and consumer research experts test retail concepts, study the effects of competition, identify positive as well as negative geographic considerations, measure sales penetration, develop sales forecasts and assist retailers in creating long-range expansion plans. Through the use of census data with the GIS and statistical analysis, Thompson analysts attempt to predict the annual sales potential of a retailer's trade area, census tract by census tract. In some cases, Thompson and its clients use this information to target marketing efforts within a market. Root examined that there are many more influences on the success of a retail establishment's potential site than the location of competitors. "Where competitors are located is only one piece of the puzzle. There are many other influences in site selection decisions that must be considered. That's where ARC/INFO GIS is of great assistance."

In Nova Scotia, all five
Owls Heads have a story
to tell.

En Nouvelle-Écosse, les cinq
«Tête-de-chouette» ont chacune
leur histoire à raconter.



Canada's place names are more than just words on a map — they document exploration, history, culture, flora and fauna. Discover the story of the land and its people in complete lists of official names for every populated place, physical and cultural feature in *Manitoba* and *Nova Scotia* — the two most recent volumes of the *Gazetteer of Canada* series.

Les toponymes du Canada sont plus que de simples mots sur une carte puisqu'ils nous racontent le passage des explorateurs et nous brossent un portrait de notre histoire, de notre culture, de la faune et de la flore. Découvrez l'histoire du pays et de ses habitants en parcourant les deux volumes les plus récents de la série des *Répertoires géographiques du Canada*, qui donnent le nom officiel de chaque lieu habité, entité physique et phénomène culturel au *Manitoba* et en *Nouvelle-Écosse*.

**Gazetteer of Canada — Nova Scotia
(Third Edition 1993)**

Catalogue No.: M86-14-1993

Price: \$29.95*

Price Outside Canada: US\$38.95*

Microfiche (5): M86-14-1993-M

Price: \$4.95 Outside Canada: US\$6.45

**Répertoire géographique du Canada —
Nouvelle-Écosse (Troisième édition 1993)**

N° de catalogue : M86-14-1993

Prix : 29,95 \$*

Prix à l'étranger : 38,95 \$ US*

Microfiches (5) : M86-14-1993-M

Prix : 4,95 \$ Étranger : 6,45 \$ US

Gazetteer of Canada — Manitoba

Catalogue No.: M86-3-1994

Price: \$19.95*

Price Outside Canada: \$25.95*

Microfiche (2): M86-3-1994-M

Price: \$3.95 Outside Canada: US\$5.15

Répertoire géographique du Canada — Manitoba

N° de catalogue : M86-3-1994

Prix : 19,95 \$*

Prix à l'étranger : 25,95 \$ US*

Microfiches (2) : M86-3-1994-M

Prix : 3,95 \$ Étranger : 5,15 \$ US

Available from
Canada Communication Group — Publishing
Ottawa, Canada K1A 0S9
Tel.: (819) 956-4800 / Fax: (819) 994-1498

Disponible auprès du
Groupe Communication Canada — Édition
Ottawa (Canada) K1A 0S9
Tél. : (819) 956-4800 / Téléc. : (819) 994-1498

Also available through bookstores

Également disponible en librairie

* Shipping, handling and
GST extra

* Les frais d'envoi,
de manutention
et la TPS en sus



Canada	Groupe
Communication	Communication
Group	Canada
Publishing	Édition