

**STREAM CROSSING INVENTORY
(v. 1)
- DATABASE DESCRIPTION -**

Partners:

Western Newfoundland Model Forest (Lead Agency)
Centre for Forest & Environmental Studies (CFES)
Dept. of Forest Resources & Agrifoods (Forest Service)
Dept. of Fisheries & Oceans
Corner Brook Pulp & Paper Ltd.
Abitibi Consolidated Inc.

March 1998

A collaborative inventory project to characterize the stream crossings on forest resource access roads in Newfoundland. Financial assistance provided in part through the Graduate Employment Program of Human Resources Development Canada.

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DATA BASE DESCRIPTION
MARCH 1998.....PROJECT#8-305-004



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MEMO

To: **Partners (see distribution list)**

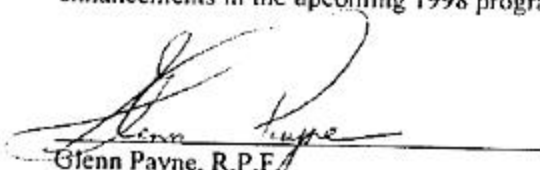
From: Glenn Payne

Date: April 29, 1998

Re: **Stream Crossing Inventory Database (v.1)**

At long last, I am pleased to enclose the Stream Crossing Inventory database for your adoption and use. Based on your needs, GIS software and core database used you will receive the appropriate version and formats to help integrate this database into your existing database and operations. Attached is also a database description which will assist you in understanding database structure and data exchange issues.

Please take the time to load and assess this database and pass along any concerns and comments at your earliest convenience. Your feedback will be most helpful in assisting the steering committee to make enhancements in the upcoming 1998 program.


Glenn Payne, R.P.F.
Technology Transfer/GIS Specialist

Rec'd
May 6/98

Distribution List:

Western Newfoundland Model Forest
Corner Brook Pulp & Paper Ltd.
Dept. of Fisheries & Oceans (C. Brook)

Newfoundland Forest Service
Abitibi Consolidated Inc.
Dept. of Fisheries & Oceans (St. John's)



STREAM CROSSING INVENTORY (v. 1)

- DATABASE DESCRIPTION -

BACKGROUND:

The stream crossing inventory was initiated in the spring/summer of 1997 by the partners to fill identified data gaps in the resource management sector generally and the forestry-fisheries interaction, specifically. The program received financial support under the Graduate Employment Program administered by Human Resources Development Canada. Six graduates of post-secondary technical programs were hired on a 6 month term to collect and compile inventory data on stream crossings. During the 1997 season 2104 crossings were inventoried.

The crossings were spatially referenced using differential GPS technology and descriptive information was captured onto field inventory sheets. This spatial data was downloaded and stored in computer files. The field inventory sheets were automated and captured into a computerized database (DBASE V for Windows). Both the spatial and descriptive databases were then brought into pc-Arc\Info and ArcView 3.0 to create the GIS Database described within.

VERSIONS:

The stream crossings inventory is available in number of versions. These versions were compiled to meet the needs of the various partners in the project. The versions are:

- 1) FCROSS - a combined complete coverage of the entire database which has been edited to harmonize the stream crossing positions with the provincial Forest Inventory (FORMAP). Projection is Transverse Mercator (TM). Compiled for forestry partners who use the forest inventory as their core database.
- 2) TCROSS - a combined complete coverage of the entire database which has been edited to harmonize the stream crossings positions with the 50,000 digital NTS topographic sheets. Projection is Transverse Mercator (TM). Compiled for forestry partners who use the forest inventory as their core database and integrate the digital NTS data as subordinate coverages.
- 3) UCROSS - a combined complete coverage of the entire database which has been edited to harmonize the stream crossings positions with the 50,000 digital NTS topographic sheets. Projection is Universal Transverse Mercator (UTM). Compiled for partner agencies who use the digital NTS database as their core database.

INTERCHANGE FORMATS:

The above version of the database are available in a number of interchange formats to make transfer to the partner agencies more efficient and seamless. In most cases each partner agency will receive more than one format. The following interchange formats have been selected based on partner needs and GIS in use.

pc-ARC/INFO

- Identifiable as a directory with the following files: (*Note: coverage name is the directory name*)

PAT.DBF	TIC.DBF
BND.DBF	LAB
LOG	PRF

where: PAT.DBF is the Point Attribute Table which contains the following items:

AREA	- not applicable
PERIMETER	- not applicable
VERSION_	- internal coverage record number
VERSION_ID	- coverage identifier
CROSS_ID	- actual number crossing identifier (<i>attribute table link item</i>)
X_COOR	- easting coordinate for the <i>edited</i> crossing location
Y_COOR	- northing coordinate for the <i>edited</i> crossing location
CODE	- alpha-numeric code assigned to each crossing by field crew
ELEVATION	- crossing elevation above the ellipsoid (HAE) as determined by GPS
STRUCTURE	- numeric code assigned to the following crossing types.

STRUCTURE	CODE	DESCRIPTION
CULVERT	1	Crossing achieved via a culvert
BRIDGE	2	Crossing achieved via a bridge
MPARCH	3	Multi-plate arch
CHUTE	4	Crossing achieved with old wood chute
WASHOUT	5	Crossing has been washed out
DAM	6	Crossing achieved via a dam structure
DECOMM	7	Crossing has been decommissioned
STREAM	8	No crossing present
REF	9	Crossing used as a reference position

ARCVIEW 3.0

The ArcView files contain all the information listed above in the pc-ARC/INFO coverage. The files can be found under the sub-directory "ARCVIEW". The files include:

version.dbf
version.shp
version.shx

where version would be substituted by the coverage name (ie. FCROSS.SHP, etc..)

ARC/INFO

The ARC/INFO format is located under the "ARC-INFO" sub-directory. This version contains a single file in ESRI export format which contains the entire database. The file is recognized by its name (ex. FCROSS) with the extension .E00.

To create the ARC/INFO version copy this file to your work space and use ARC to import the database.

```
[ARC:] IMPORT COVER FCROSS FCROSS
```

MAPINFO

This format has been created using the ARC-MIF translator within pc-ARC/INFO. The following files are located in the sub-directory "MAPINFO": UCROSS.MIF and UCROSS.MID.

This format is made available primarily for data exchange with Dept. of Fisheries & Oceans.

ATTRIBUTE DATABASE

The attribute database contains one record per crossing which characterizes each crossing according to the agreed inventory format. All information captured on the field inventory forms has been transferred into this database table. The information was manually key punched by the operators who collected the field data. All the data was loaded into DBASE V for Windows. Two tables contain all of the descriptive information for the crossings collected during the 1997 field season:

ATTRIB.DBF	- contains all of the information collected (except comments)
COMMENT.DBF	- contains the comments section on the inventory form

The common item in this database which allows relates (joins) to the spatial database is: "CROSS_ID"

ATTRIB.DBF

* contains all types of crossing types (culverts, bridges, multi-plates, etc.) in a single table. Hence, users will witness a significant number of vacant items in each record as only the culvert related items are completed for culverts and so on. Users are encouraged to sub-divide the database into like structures if necessary (ex. Culvert.dbf, brifge.dbf, etc.). This can be done in any database manager software package.

* users are encouraged to cross-reference the inventory form to determine which items describe the various characteristics. The inventory form is broken into 3 structure categories.

* the attribute database is also available in ARC/INFO ready format for importing by the user. The file is named ATTRIB.E00. To bring this database into ARC/INFO copy the file to the appropriate work space and at the ARC prompt type "IMPORT INFO ATTRIB ATTRIB"

COMMENT.DBF

* the comments have been entered into DBASE V for Windows and can be accessed and read by most any PC/WINDOWS - based database manager. However, no attempt has been made to import this information into the INFO database. This will be left to the users to make this conversion based on need.

* the comments are quite lengthily and do contain a considerable amount of information on the crossings themselves. Considering that many of the attributes collected are subjective this information is useful.

QUALITY CONTROL

Although every effort has been made to reduce the introduction of errors and omissions users should be aware that there has not been any thorough effort to quality check the data contained within. Considering that the database was compiled by 6 graduates who had no prior exposure to GPS and GIS and database management software there are bound to be some problems. We are suspicious of some edited crossing positions for a couple of NTS sheets from one (1) of the GIS operators. It is the intent of the partners to have these errors corrected during the 1998 season.

Plans for the 1998 field season do involve a comprehensive error check of the 1997 data along with correction (where/if necessary). Should this go ahead you will receive an updated version of the database in summer 1998.

Based on some preliminary checks of the database, all indicates are that there are no glaring or outstanding problems. Please provide feedback to the program coordinator so that corrective action can be taken prior to the 1998 season.

NOTICE TO USERS:

The database you have received contains the corrected horizontal positions for the stream crossings to provide harmonization with your core database. Please note that should you wish to reconstruct the database with the original GPS coordinates that they are recorded in the ATTRIBUTE database as items EASTING and NORTHING.. These are the original positions and are positionally accurate to 2-5 meters. Please do not alter these items as they will be most useful should your core base coverage be updated to better positional accuracy. The Model Forest also has all the original GPS files for each crossing should you have a need for this information.

~ END ~