

# Designing a System to Track and Report on National Afforestation Projects

Thomas WHITE

Natural Resources Canada and IEA  
Bioenergy Task 38 Workshop

Victoria, Canada

15 September 2004



Natural Resources  
Canada

Ressources naturelles  
Canada

Canada



# Need for an afforestation reporting system

- ▶ The Canadian parliament ratified the Kyoto Protocol in 2002.
- ▶ Reporting carbon stock changes from Afforestation, Reforestation and Deforestation is mandatory under the Kyoto Protocol.
- ▶ Currently there is no national system in place to record afforestation projects for climate change purposes (i.e., carbon accounting, offsets, etc).
- ▶ It is difficult to detect afforestation using remote sensing in a time frame consistent with reporting obligations.





# Challenges

- ▶ Afforestation delivery agents, such as regional forest product marketing associations, universities, municipalities, conservation organizations, forest contractors and other bodies, number in the hundreds.
- ▶ Record keeping generally includes information about the type (species, treatment), location and extent of afforestation, but is not always sufficient for C accounting or in a format that is accessible for national reporting.





# Internet-Based activity reporting



- ▶▶ The Canadian Forest Service (CFS) has taken a lead role in developing a prototype for an internet-based afforestation reporting system.
- ▶▶ The system provides a simple mechanism for organizations involved with afforestation to report their planting activities.
- ▶▶ The system facilitates the compilation and verification of information provided through activity reporting.





# System design

- ▶▶ Through a series of simple web based forms, users can provide information about
  - ▶▶ location
  - ▶▶ contacts
  - ▶▶ land use history
  - ▶▶ site preparation and planting treatments
  - ▶▶ additional supporting information
- ▶▶ All incoming data is reviewed to ensure its authenticity.
- ▶▶ Detailed data are available for reporting.
- ▶▶ Summary data are available for public viewing.





# Simple yet secure

- ▶ Accessible using a simple Internet connection and a web-browser. No proprietary software requirements.
- ▶ Available in both Canada's official languages.
- ▶ All transactions are encrypted using https.
- ▶ Access to detailed information is managed, to protect the authoritative data stored in the database.







# Integrated with NFIS

- ▶ The National Afforestation Inventory (NAI) is integrated with web applications and data stores through the National Forest Information System (NFIS), which provides tools to discover, integrate, and display current, authoritative and accurate information on Canada's forests.





# Component of NFCMARS

- ▶ The NAI is a component of Canada's National Forest Carbon Monitoring, Accounting and Reporting System (NFCMARS):
  - ▶ provide data on afforestation to the Carbon Budget Model of the Canadian Forest Sector (CBM-CFS); when processed through CBM, will fulfill UNFCCC and Kyoto reporting obligations.
  - ▶ exchange data on Land Use Change with other agencies (Agriculture Agri-Foods Canada and Environment Canada).







# Data Capture




National Afforestation Inventory :: Add an Afforestation Record > Step 1 - Location - Microsoft Internet Explorer provided by P

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print

Address <https://nai.nfis.org/nai-home/dataManagement/addSite.do?strutsMethod=add> Go

Links MetaFore.ca NRCan - e-clips Canada Institute for Scientific and Technical Information Shortcut to CAT shared Shortcut to FAACS shared Shortcut to LOCAL DISK (C)

 National Afforestation Inventory Canada

Thomas (public acct) White, Thomas White [Logout](#)

[Français](#) | [Change Reporting Entity](#) | [Home](#) | [Help](#) | [Contact Us](#)

[Home](#) > [Data Management](#) > Add an Afforestation Record > **Step 1 - Location**

### Add an Afforestation Record > Step 1 - Location [Lookup](#)

**Province:** British Columbia

**Closest Service Centre:** [none selected] [Change](#)

**Can SIS Ecozone:** -- Select -- [Map](#)

**Provincial Ecozone:** -- Select --

**Legal Description:**

**Site Latitude:**  [Lookup](#)

**Site Longitude:**

**Site Coordinate Accuracy:** -- Select --

**Site Location Description:**   
Use this field to describe the location of the site relative to the nearest point of access

**Site Identifier:**

**Program:** Forest 2020

- 1. Location
- 2. Land Owner
- 3. Preparation
- 4. Previous Land Use
- 5. Planting
- 6. Associate Documents
- 7. Preview
- 8. Confirmation

Done Internet





# Summary statistics




National Afforestation Inventory :: Search for Afforestation Sites - Microsoft Internet Explorer provided by Pacific Forestry C

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail

Address <https://nai.nfis.org/nai-home/reports.do>

Links MetaFore.ca NRCan - e-clips Canada Institute for Scientific and Technical Information Shortcut to CAT shared Shortcut to FAACS shared Shortcut to LOCAL DISK (C)

 National Afforestation Inventory Canada

Thomas (public acct) White, Thomas White [Logout](#)

[Français](#) | [Change Reporting Entity](#) | [Home](#) | [Help](#) | [Contact Us](#)

[Home](#) > [Reports](#)

### Reports

The Reports module of the National Afforestation Inventory allows users to produce summary reports on afforestation activity in Canada.

1	<b>Select Provinces and/or Territories OR Ecozones:</b>	<b>Provinces and/or Territories:</b> <input type="checkbox"/> All Provinces and Territories Alberta British Columbia Manitoba <small>(hold CTRL key for multiple selections)</small>	OR	<b>Ecozones:</b> <input type="checkbox"/> All Ecozones Arctic Cordillera Atlantic Maritime Boreal Cordillera <small>(hold CTRL key for multiple selections)</small>
	2	<b>Select Grouping:</b> <input type="text" value="genus"/>		
3	<b>Select Time Series:</b>	<input type="checkbox"/> All Years <input type="text" value="2004"/> <small>(hold CTRL key for multiple selections)</small>		
4	<b>Select Statistics:</b> <input type="text" value="area planted"/>			

[Clear Form](#) [Generate Report](#)

Last updated: 2004-07-23 | [Important Notices](#)

<https://nai.nfis.org/nai-home/reports.do> Internet





# Reporting




National Afforestation Inventory :: Search for Afforestation Sites > Search Results - Microsoft Internet Explorer provided by P

File Edit View Favorites Tools Help

Address <https://nai.nfis.org/nai-home/search/results.do>

Links [MetaFore.ca](#) [NRCan - e-clips](#) [Canada Institute for Scientific and Technical Information](#) [Shortcut to CAT shared](#) [Shortcut to FAACS shared](#) [Shortcut to LOCAL DISK \(C\)](#)

 National Afforestation Inventory Thomas (public acct) White, Thomas White [Logout](#)

[Français](#) | [Change Reporting Entity](#) | [Home](#) | [Help](#) | [Contact Us](#)

[Home](#) > [Search](#) > **Search Results**

### Search > Search Results

**Search Criteria**

- Provinces: AB, BC, MB, NB, NL, NT, NS, NU, ON, PE, QC, SK, YT
- Ecozones: any
- Year: any
- Area: any
- Species: any
- Previous Land Use: any

Viewing 1 - 5 of 5 matching sites for your search [Export Results](#)

ID	Province	Ecozone	Reporting Entity	Planting Completion Date	Area in Hectares	Has Document
<a href="#">15.17</a>	BC	Montane Cordillera	Mills	May 22, 2005	9	yes
<a href="#">18.20</a>	BC	Montane Cordillera	Mills	May 22, 2005	16	yes
<a href="#">19.21</a>	BC	Montane Cordillera	Mills	May 22, 2005	89	yes
<a href="#">22.24</a>	BC	Montane Cordillera	Mills	Apr 1, 2005	75	no
<a href="#">23.26</a>	BC	Montane Cordillera	Mills	Jun 1, 2005	20	yes

[Search Again](#)

Last updated: 2004-07-23 | [Important Notices](#)

Done Internet





# Map viewer



National Afforestation Inventory NAI - NFIS MapServer - Microsoft Internet Explorer provided by Pacific Forestry Centre

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Copy Paste

Address [https://demo.nfis.org/mapserver/nai.phtml?nai\\_plots=Y&prov\\_bound=Y&ecozones=Y&ViewRegion=Quick+View&minx=-3063150.000000&miny=222000.000000&maxx=-646850.000](https://demo.nfis.org/mapserver/nai.phtml?nai_plots=Y&prov_bound=Y&ecozones=Y&ViewRegion=Quick+View&minx=-3063150.000000&miny=222000.000000&maxx=-646850.000) Go

Links [MetaFore.ca](#) [NRCan - e-clips](#) [Canada Institute for Scientific and Technical Information](#) [Shortcut to CAT shared](#) [Shortcut to FAACS shared](#) [Shortcut to LOCAL DISK \(C\)](#)

### Legend

Layer
<input checked="" type="checkbox"/> CA NAI Plots <a href="#">Info</a>
<input checked="" type="checkbox"/> CA Province Boundary
<input checked="" type="checkbox"/> CA Ecozones <a href="#">Info</a>
<input type="checkbox"/> Redraw Map

Quick View

### National Afforestation Inventory NAI - NFIS

0 230 460 690 km

### Keymap

- Provincial Boundaries
- Afforestation Sites
- EcoZones
  - Arctic Cordillera
  - Northern Arctic
  - Southern Arctic
  - Taiga Cordillera
  - Taiga Plains
  - Taiga Shield
  - Boreal Cordillera
  - Boreal Plains
  - Boreal Shield
  - Pacific Maritime
  - Montane Cordillera
  - Prairies
  - Hudson Plains
  - Mixed Plains
  - Atlantic Maritime

400 x 300

Java Mode Enabled  
Click to Disable

Information

Applet started. Internet





# Current status

- ▶ The system is currently being used to track national afforestation projects funded by the Forest 2020 Plantation Demonstration and Assessment, a two-year project to demonstrate the potential of fast-growing tree plantations to help Canada reduce its greenhouse gas (GHG) emissions and effectively address climate change.
- ▶ Data on afforestation from 1990-2002 collected as part of another initiative will be rolled into the system by March, 2005







Thomas White  
Canadian Forest Service  
Natural Resources Canada

[thwhite@nrcan.gc.ca](mailto:thwhite@nrcan.gc.ca)

250.363.3742

<http://carbon.cfs.nrcan.gc.ca>

<http://nai.nfis.org>



Natural Resources  
Canada

Ressources naturelles  
Canada

Canada