Forest Inventory Data

Forest Resources Inventories
Provincial Planning Composite Collection

Starting back in 1992, the Forest Management Branch has been involved in compiling and reporting on the most current forest resources inventories available. This started with MNR based FRI and some involvement from forest management companies. Initially full GIS spatial capabilities for the entire AOU were well outside the computer horsepower (and drive space) available at the time, and tabular summaries were all that were compiled into the "*Forest Resources of Ontario*" (FRO) series of reports.

With the advent of faster computers and larger drives, the FMB inventory database has evolved into a fully spatial library that holds multiple versions of each management unit's inventory. Since the release of the first Forest Information Manual (FIM), the standards and quality of the inventories being submitted through the FI portal has steadily increased. Currently the library contains at least three full landbase snapshots, the original 1988-94 FRI in classic STANF format, a 2001-06 set used for FRO 2006 in FIM format, and a 2007-09 and 2010-13 FIM format that utilizes the latest FIM additions such as forecast depletions. Although only the most recent inventories are posted, others are available on request. The current set resides within the LIO warehouse. Eventually the new eFRI will begin to replace these files as they become available over the next few years.

Recent Updates

- Format change
    - some of the previous fields used in analysis (added post process) have been dropped such as DTM values and NOEGETS intersect values
- Pending updates
    - several of the final planning composites (PCM) will be integrated into the inventory set in April 2011 as they become available.
    - new 2009 fields such as SGR, SMZ and OMZ will be included in any future updates

FIM Inventory Description

This collection of forest inventory data represents the most current planning inventories as of April 2010. This is updated periodically to incorporate new data submissions. AR submitted coverages such as harvest depletions and fire have been incorporated into each inventory by the contributing SFLs. Composite inventories are submitted in several formats:

- FIM 2007 specification planning composite inventories (PCI) may or may not include forecast depletions;
- FIM 2009 planning composite inventory (PCI) which does not include forecast depletions to the end of the current plan, and does not require all silvicultural fields;
- Base model inventory (BMI) which includes forecast depletions (generally two years worth), as well as all silvicultural fields and
- Final planning composite inventories (PCM) submitted with final version of plan, no forecasts, full silvicultural data.

The management unit list describes which format was incorporated in the latest update and the import date. Accuracy and reliability is largely dictated by the FIM portal and all those responsible for getting it into shape for submission. Some sub-hectare polygons may be been dropped due to post processing and cleaning coverages. Inventories coming in for the past two years have been compared to AR spatial depletion and free-to-grow layers to ensure proper updating and silvicultural tracking.

All files are contained within a management unit directory, and follow a standard naming convention. Zipped files now come in one format:

- Full management unit inventory – all polygons are present, data within shape attributes – mu###.shp

Enhancements to Planning Inventories

Each shape has a unique Recno (record number) and ProvID (provincial identification key). The Recno is simply a unique number, and is only unique within the management unit. The ProvID is a text based key that includes MU# and Recno, which ends up being unique for the province (eg. recno #504 on MU #123 is Provid "123.504"). The original PolyID from the planning composite is maintained as is, regardless of the format.

Forest attributes are formatted into SFMMTool style table, with species composition as individual fields. Although the format maintains most common FIM fields, some are dropped due to inconsistency or lack of use, such as the extra access and management consideration fields (2 and 3). Area is maintained as square metres and hectares generated from the MNR Lambert projection. All shapes are projected to NAD 83 MNR Lambert Conformal Conic.

Many extra derived fields are added and populated, based on overlays and sql sorts to make querying easier. The tech spec page (attached) describes the extra attributes. These updates are:

- Depletion Type – where depletion year (DEPYR) has been updated, available depletion type has been tagged where available (see Deptype description below).

Manual sql updates occur and stands are tagged with the following derived fields:

- SFU – standard forest unit
- PFT – provincial forest unit
- Ecosite_Seral – provincial forest type seral stage

As well as overlay information, there are also several fields added for users to use during analysis or classification. Custom reclassification fields include:

- Ecosite_Calc – for tweaking existing ecosites
- FU - Analysis Forest Unit – open forest unit field

FIM Tech Spec

All field names, descriptions and codes are listed in detail in the *FIM Forest Resources Inventory Technical Specifications 2009* which is available on the MNR internal and external web sites. The few exceptions to this rule are:

Deptype - depletion type:

- AR harvest – verified from the spatial AR harvest depletion layer
- FRI harvest - current devstage denotes harvest (eg. DEPHARV)
- SEM harvest - AR FTG layer stated that stand was a harvest
- FRI natdst - current devstage denotes natural depletion (eg. LOWNAT)
- SEM natdst - AR FTG layer stated that stand was a natural disturbance
- blowdown - historic blowdown layer overlaid
- fire - historic fire layer overlaid
- forecast - declared harvested (projected) in inventory, but not harvested in AR harvest dep. layer
- - (unknown) - no source, but most likely a harvest block (no traceable disturbance)

Please note that the depletion type layer is an estimate and has been added for convenience based on best available information, it is not meant to be taken as completely accurate.

Any questions or comments about the planning inventory collection can be directed to:

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External clients looking for inventory data can access the LIO warehouse at:
http://www.mnr.gov.on.ca/en/Business/LIO/index.html

Forest Inventory Data

Planning Inventory Specification - Forest Landbase Format

Field	Example	Name	Description
RECNO	12000002	Record #	Unique ID
PROVID	012.2.FOR	Provincial ID	Unique ID
POLYID	2	Unique ID (validate)	A unique identifier / label for the polygon, which is often based on geographic location.
AREA	231,630.90	Area (sq. m)	The size of a geographic feature (polygon) measured in meters squared.
HA	23.16	Area (ha)	The size of a geographic feature (polygon) measured in hectares
POLYTYPE	FOR	Polygon Type	The polygon type attribute indicates the classification of the area within the polygon boundaries into one of several generalized water and land types.
SOURCE	FRICNVRT	Source of Data	The source of data update attribute identifies the methodology by which the information stored in the other tabular attributes that are associated with the same polygon was determined (i.e., how the polygon description was determined).
OWNER	5	Ownership	This attribute contains the “traditional FRI” ownership information.
AVAIL	U	Availability (A or U)	Identification of whether the timber in the managed Crown production forest area/polygon can be harvested or not. Unavailable = that portion of the managed Crown production forest that is not available for timber production as a result of existing? reserve prescriptions developed in a FMP. Available = the managed Crown production forest area minus the unavailable area.
FORMOD	PF	Prod. Forest Modifier	The productive forest modifier attribute represents a further classification (sub-division) of productive forest areas based on the presence or absence of physical or biological factors which may influence the ability to practice timber management.
ACCESS1	NON	Access	The accessibility indicator attribute specifies whether or not there are any restrictions to accessing a productive forest stand.
DEVSTAGE	FTGNAT	Development Stage	The stage of development attribute indicates the current state of growth and development for a productive forest stand.
MGMTCON1	U_PF	Management Consideration	The management consideration attribute indicates whether or not ecological/landscape features or site conditions are present in a productive forest stand which require special consideration during forest management planning.
AGESTR	E	Age Sturcture	The age structure indicator attribute designates whether the range of ages of the trees in a forest stand is narrow (even age) or wide spread (uneven age).
SILVSYS	CC	Silv. System (CC/SE/SH)	Methodology (set of harvest, renewal and tending treatments).
WG	Sb	Working Group	A categorization of forest stands based on the predominant species, that is used to aggregate stand(s), including potential forest areas assigned to this category, for forest management purposes.
HT	7.6	Height (m)	Estimated average tree height (in meters) of the species that has the most basal area: as inventoried in the Year of Update
STKG	0.7	Stocking	Stocking is a qualitative measure of the density of tree cover in a forest stand.
SC	4	Site Class	Site Class is a site quality estimate for a stand. The intent is to classify the productivity potential of a stand.
YRDEP		Year of Depletion	Indicates the most recent (or latest) FISCAL year that a productive forest area was depleted, completely or partially, by harvest or by natural causes.
DEPTYPE		Depletion Type	Known Depletion type (fire, harvest etc.)
YRUPD	1993	Year of Update	A four-digit number representing the most recent CALENDAR year of the source data used to determine the polygon description.
YRORG	1906	Year of Origin	The average year that the species within the stand having the greatest relative abundance in terms of basal area, came into existence.
AGE	98	Age	The average age of the dominant and co-dominant trees based on the working group species in a forest stand as of the start date of the new plan term
ECOSITE1	ES14	Ecosite (dominant)	Ecosite is an ecological landscape unit (ranging in resolution from thousands to hundreds of hectares) comprised of relatively uniform geology, parent material, soils, topography, and hydrology, occupied by a consistent complex of successionally related v

Planning Inventory Specification - Forest Landbase Format

Field	Example	Name	Description
ECOPCT1	1	Ecopct1	% of stand that is ECOSITE1
AGS		Acceptable Growing Stock	Basal area measurement for uneven aged stands
UGS		Unacceptable Growing Stock	Basal area measurement for uneven aged stands
AGS_CLASS		AGS m2 class	Basal area measurement for uneven aged stands
UGS_CLASS		UGS m2 class	Basal area measurement for uneven aged stands
USPCOMP		Understorey Composition	Identification of the tree species in the understorey of the forest canopy, along with the percentage of cover that each tree species occupies within the understorey
UYRORG		Understorey Year of Origin	The average year that the species having the greatest relative abundance (in terms of basal area) within the understorey, came into existence.
USTKG		Stocking	Understory stocking
USC		Site Class	Understory site class
SUBMU	unit1	Sub Management Unit ID	The unique short form label / ID given to a sub management unit. A sub management unit is a geographical separation or sub-division of the area within a forest management unit.
FU	Sb1	Forest Unit	
PLANFU	Sb1	Forest Unit Code (imported)	
DEFER	0	Deferral Key	
MGMTSTG	CCUT	Management Stage	This is the next silvicultural treatment (cut stage) scheduled to occur in a stand in accordance with the forest management plan.
SI	Prsnt	Silv. Intensity	Silvicultural intensity is a term used in forest modeling to depict a specific regime of treatments.
SISRC		Silv. Intensity Source	Source of SI
SFU	BOG	Standard Forest Unit	Standard Regional Forest Unit
PFT	MCU	Provincial Forest Type	Provincial Forest Type (8 types - see FRO '06)
ECOSITE_SERAL	-	Calculated Ecosite - Seral Stage	
SPCOMP	SB 0	Species Comp.	Identification of the tree species in the forest canopy, along with the percentage of cover that each tree species occupies within the canopy.
PW	0	Comp - Pw	
PR	0	Comp - Pr	
PJ	0	Comp - Pj	
SB	100	Comp - Sb	
SW	0	Comp - Sw	
BF	0	Comp - Bf	
CE	0	Comp - Ce	
LA	0	Comp - La	
HE	0	Comp - He	
PO	0	Comp - Po	
PL	0	Comp - Pl (largetooth aspen)	
PB	0	Comp - Pb (balsam poplar)	
BW	0	Comp - Bw	
YB	0	Comp - Yb	
MH	0	Comp - Mh	
MS	0	Comp - Ms	
AB	0	Comp - Ab	
AW	0	Comp - Aw	
BD	0	Comp - Bd	
BE	0	Comp - Be	
CH	0	Comp - Ch	
EW	0	Comp - Ew	
IW	0	Comp - Iw	
QR	0	Comp - Qr	
OB	0	Comp - Ob	
OW	0	Comp - Ow	
OH	0	Comp - OH (unknown OHl)	
OC	0	Comp - OC (Unknown OC)	

Planning Inventory Database
Updates Apr. 2010

MUNO	MU Name	Load	Format	Update Year	Import Date	Previous PI Year*	Region	Zone	Landscape Guide Region	GIS_Ha	FRI Ha	Forest Area	Nonfor Area	FRI Holes	GIS to FRI Difference	Crown Production Forest	# Forest Polys	# Nonfor Polys
35	Black Spruce Forest		BMI	2011	Dec. 2009	2005	NWR	16	3W	1,383,750	1,361,934	1,126,549	235,386	24,279	(2,463)	1,021,327	81,781	26,673
60	White River Forest		PCI	2008	Oct. 2007	2004	NER	16	3E	612,913	612,631	505,347	107,284		282	478,242	33,982	16,663
67	Big Pic Forest		PCI	2007	Oct. 2007	2002	NER	16	3W	653,549	653,549	588,447	65,102		1	572,511	29,031	12,809
110	Abitibi River		BMI	2010	Dec. 2009	2003	NER	17	3E	3,566,496	3,566,951	2,659,594	907,358		(455)	2,261,150	208,864	57,429
120	Trout Lake Forest		PCI	2009	Nov. 2008	2004	NWR	15	4S/3S	1,027,032	1,026,963	803,459	223,504		69	751,132	94,964	22,862
130	Wabigoon Forest		PCI	2008	Oct. 2007	2002	NWR	15	4S/3S	728,822	728,823	561,199	167,624		(1)	527,902	58,404	21,363
140	Mazinaw-Lanark Forest		PCI	2011	Nov. 2008	2006	SCR	17	5E	973,265	973,259	632,960	340,299		5	189,584	115,680	106,513
175	Caribou Forest		PCI	2007	Oct. 2007	1999	NWR	15	3W	714,394	714,430	544,822	169,608		(36)	481,752	39,185	14,283
177	Dog River-Matawin Forest		PCI	2009	Nov. 2008	2004	NWR	15	4W	1,059,257	939,609	738,465	201,144	119,571	78	711,660	66,164	23,205
210	Spanish Forest		BMI	2010	Nov. 2008	2004	NER	17	4E/SE	1,229,461	1,229,618	1,011,020	218,598		(157)	922,256	167,343	58,752
220	Bancroft-Minden Forest		PCI	2011	Nov. 2008	2006	SCR	17	5E	989,966	989,736	729,980	259,757		230	267,623	47,120	58,696
230	English River Forest		PCI	2009	Oct. 2007	2002	NWR	15	3W	1,186,507	1,134,422	849,950	284,472	52,209	(124)	787,973	76,335	26,193
280	Timiskaming Forest		PCI	2011	Nov. 2008	2006	NER	17	3E	1,531,297	1,531,218	1,176,124	355,094		79	955,020	63,859	32,545
350	Kenogami Forest		BMI	2011	May 2009	2003	NWR	16	3W	1,966,634	1,967,557	1,696,603	270,954		(922)	1,466,292	172,614	35,733
360	French-Severn Forest		PCI	2009	Oct. 2007	2006	SCR	17	5E	1,279,383	1,279,546	868,063	411,483		(163)	357,000	57,547	82,514
370	Black River Forest		BMI	2011	Nov. 2008	2004	NER	16	3W	255,195	255,215	218,621	36,594		(20)	212,812	31,127	9,455
390	Nagagami Forest		BMI	2011	Dec. 2009	2004	NER	16	3E	445,507	445,677	380,631	65,046		(170)	377,256	68,549	15,799
405	Crossroute Forest		PCM	2007	Nov. 2008	2000	NWR	15	4W	1,584,807	1,584,663	1,071,345	513,318		144	878,235	88,410	57,686
415	Ogoki Forest		PCI	2008	Oct. 2007	2004	NWR	16	3W	1,086,070	1,086,083	910,895	175,187		(13)	877,589	52,818	17,405
421	Pineland Forest		BMI	2011	Nov. 2009	2006	NER	17	3E	391,822	391,757	331,583	60,173		65	314,218	93,498	29,854
438	Gordon Cosens Forest		PCI	2010	Nov. 2008	2004	NER	17	3E	1,993,904	1,993,929	1,722,200	271,729		(25)	1,503,154	70,186	20,241
451	Algonquin Park Forest		PCI	2010	Apr. 2008	2005	SCR	17	5E	761,046	761,134	616,836	144,299		(88)	486,763	35,843	24,770
490	Whiskey Jack Forest		PCI	2009	Oct. 2007	2004	NWR	15	4S/3S	1,058,002	1,056,903	739,888	317,015		1,099	694,996	49,506	34,266
509	Martel Forest		PCI	2011	Dec. 2008	2004	NER	17	3E	1,184,396	1,184,442	1,002,669	181,773		(47)	859,163	50,863	26,421
535	Dryden Forest		BMI	2011	May 2009	1999	NWR	15	4S/3S	305,669	305,523	187,990	117,533		146	105,141	35,155	20,499
565	Magpie Forest		PCM	2009	Apr. 2008	2004	NER	16	3E	437,759	437,770	365,945	71,825		(11)	320,563	27,167	18,379
601	Hearst Forest		PCI	2007	Oct. 2007	1999	NER	17	3E	1,511,975	1,511,860	1,264,063	247,797		115	963,882	60,941	35,095
615	Algoma-Wawa Forest		BMI	2010	Dec. 2008	2004	NER	16	4E/SE	1,565,032	1,574,300	1,334,172	240,128		(9,268)	708,654	219,219	105,529
644	Kenora		PCI	2004	Jan. 2005	n/a	NWR	15	4S/3S	1,218,992	1,216,374	650,645	565,729		2,618	516,856	36,474	44,314
680	North Shore Forest		PCI	2010	Apr. 2008	2004	NER	17	4E/SE	1,254,569	1,254,607	981,302	273,305		(38)	750,858	161,801	86,141
702	Lac Seul Forest		BMI	2010	May 2009	2004	NWR	16	4S/3S	1,100,863	1,101,191	791,500	309,691		(328)	717,691	71,779	13,034
754	Nipissing Forest		PCM	2009	Mar. 2005	2004	NER	17	4E/SE	1,142,948	1,143,015	799,577	343,438		(66)	550,281	51,361	55,743
780	Ottawa Valley Forest		PCI	2011	Dec. 2008	2006	SCR	18	5E	804,065	804,062	494,257	309,805		3	216,894	45,678	46,053
796	Lakehead Forest		PCI	2007	Oct. 2007	2000	NWR	16	4W	762,170	762,162	603,005	159,157		8	313,025	52,520	38,431
840	Red Lake Forest		PCM	2007	Dec. 2008	2003	NWR	15	4S/3S	314,174	314,197	214,438	99,759		(22)	179,191	21,914	24,485
815	Lake Nipigon Forest		BMI	2010	Dec. 2009	2004	NWR	16	3W	1,593,647	1,593,621	1,355,029	238,592		26	1,187,026	123,044	34,882
851	Pic River Ojibway Forest		BMI	2011	Dec. 2008	2004	NWR	16	3W	238,193	237,986	210,914	27,072		207	192,356	21,373	6,336
853	Sapawe Forest		PCI	2010	Apr. 2008	2004	NWR	15	4W	299,839	299,825	214,876	84,949		13	197,533	17,213	13,823
889	Sudbury Forest		PCI	2010	Apr. 2008	2004	NER	17	4E/SE	1,094,098	1,079,520	759,041	320,479		14,578	474,392	40,428	61,463
898	Temagami Forest		PCI	2009	Dec. 2008	2004	NER	17	4E/SE	631,313	631,274	472,352	158,923		39	337,546	20,412	23,920
930	Romeo Malette Forest		BMI	2011	Nov. 2009	2008	NER	17	3E	626,679	626,588	543,419	83,169		91	503,909	62,145	15,690
Totals:	41			1.6		2.3				42,565,461	42,363,923	32,729,772	9,634,150	196,059	5,479	26,191,408	2,922,297	1,475,947

Format Code

PI - old planning inventory
PCI - planning composite (initial)
PCM - planning composite (final)
BMI - base model inventory