Documentation of the Spatial Data used during the Sustainable Timber Harvest Projects

Olson – December 24, 2019

Background

This document is the spatial data portolano[1] providing guidance on data sources, table attributes, and field values incorporated into the Sustainable Timber Harvest (STH) project spatial data. This data was used for the analytical, modeling and local manager adjustment phases of the STH project.

Minnesota DNR Forest Inventory data (FIM) provided the forest characteristics with DNR Land Records System data (LRS) providing the administrative control and acquisition components. These two data sets from an April 2017 FIM and LRS system export were combined to produce the baseline project data.

As the project progressed, updates to the project shapefile were made to keep current with ongoing forest management actions, integrate additional relevant spatial data, and reflect changes with forest management designations. Updated shapefile versions are differentiated by last letter (A through P) in the shapefile name with version details provided in this document.

The additional spatial data was analyzed and integrated based on stand centerpoint, overlap percentage, or an acre reduction factor. These additional spatial data include:

Riparian zones, Watersheds and Lake Characteristics
Peatland Watershed Protection Areas
Endangered, Threatened and Special Concern species & Bald Eagle nests
Old Forest Management Complexes, Designated Old Growth, & Lowland Conifer Old Growth
Native Plant Communities
High Conservation Value Forests & Representative Sample Areas
Primary wood fiber user locations
Spatial Distribution Hexagons
Special Management Zones & Management Opportunity Areas
Deer, Moose and Ruffed Grouse Management Areas

The project shapefile is named STH_FIM_1P and is posted on the DNR's STH project FTP site at ftp://ftp.dnr.state.mn.us/pub/SFRMPDATA/MBG_STHA/, an internal DNR network drive and available on the Minnesota Geospatial Commons. A subset shapefile containing only the stands on the fiscal year 2021 through 2030 stand examination list (named STH_FIM_1P_2021_2030) is also available.

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[1]*Portolano is a descriptive nautical chart from the Middle Ages giving locations, rhumb lines and sailing directions for various Mediterranean ports and coastal features.*

Quick Use Key for STH_FIM_1P

The 10 year (fiscal 2021 through 2030) stand examination list consists of 35,800 stands covering 750,648 acres. Use the T_ACRES, SE_YEAR and PRESCRIP fields to identify these stands.

T_ACRES is the stand acres for the subset of stands on the 10-year stand examination list and equals 750,648 acres consisting of 35,800 stand polygons.

SE_YEAR is the fiscal year of the anticipated field examination.

PRESCRIP is the preliminary management strategy.

STAND_ACRES is the polygon acres for each stand in the database. Summarizing gives the gross total DNR administered land base of 5,444,471 acres consisting of 200,598 stands.

MAN_ACRES is the polygon acres for a subset of DNR administered stands "available for management actions" and equals 4,807,256 acres consisting of 180,857 stands.

ADMIN is the DNR's administrator for state lands; Forestry, Wildlife, Fisheries, Parks, etc.

STATUS displays the means of land acquisition; Trust, Acquired, ConCon, LUP, etc.

MN_CTYPE is the main forest cover type. An original FIM data attribute.

MOD_TYPE, MOD_TYP2, & **FOR_TYPE** are summary categories based on forest cover type groups and site productivity. MOD_TYPE and MOD_TYP2 are the modeling groups and differ only in field syntax.

NEW_AGE_19 is the stand age modeled forward to calendar year 2019.

KG_YLD_SPC is "Yes" only for forest cover types having defined yield tables (potentially commercial stands). The gross total with defined yields equals 138,836 stands totaling 3,013,782 STAND_ACRES. The subset of these stands both potentially commercial and available for management equals 129,107 stands totaling 2,749,403 MAN_ACRES.

CUT_PERIOD identifies model selected stands by the model's 5 year harvest periods. Value of 1 for years 2019 through 2023, 2 for 2024 through 2028, and 3 for 2029 through 2033. On the final 10 year list, 33,558 stands with 696,915 acres (92.8%) were model selected. See addendum #9 for details.

ECOSEC_NAM & **ECOSEC_ABR** are SFRMP Ecological Section unit names and abbreviations.

For more statics on forest types & classifications, see addendums at the end of this document. These addendum statistics are based on data versions at date and due to updates and changes in the data, these numbers will vary slightly from the final data version 1P.

Release notes for version STH_FIM_1P - (December 24, 2019)

Two new fields were added and populated with the exam year and prescription for stands on existing stand exam lists (2017 through 2024) as used during the modeling process. Adding these fields **maintains the original model inputs for planned stands already on existing stand examination lists and eliminates the blending of existing stand lists as model inputs and project outcomes in the SE_YEAR and PRESCRIP fields.** Since stands are sometimes visited multiple times over 10 to 15 years, the STHI process overwrote some of the original model input stand exam years with an updated planned stand exam year. Adding these two fields allows us to maintain the existing stand exam year values as used in the model and differentiates these model inputs from the STHI project's outcomes.

New fields are:

INPUT_YEAR = Stand exam years of 2017 through 2024 from the SEL application's existing stand examination lists. This field equals the SE_YEAR field in version MBG_FIM_1L as used in the spatial modeling process.

INPUT_RX = Stand prescription from the 2017 through 2024 SEL application's existing stand examination lists. This field equals the PRESCRIP field in version MBG_FIM_1L as used in the spatial modeling process.

ECO_SEC_NAM & ECO_SEC_ABR were added to align with SFRMP Ecological Sections planning unit names and abbreviations.

Clarification of SE_YEAR and PRESCRIP fields:

The SE_YEAR and PRESCRIP fields now represent only the anticipated stand examination year and preliminary management strategy as outcomes of the STHI and field manager adjustment process for fiscal years of 2021 through 2030.

Skipped naming a version ending with O

There is no version named STHA_FIM_1O. Skipped ending a version with "O" so as to not be confused with ending of a zero "0".

Duplicate polygons identified

34 sets of duplicate polygons are in the data. These duplicate stand polygons were identified too late in the process to correct and overestimate forest lands by 425 acres. Duplicate polygons are noted with a warning in the COMMENT field.

Management Unit proposals

Possible changes to management unit designations due to ongoing projects are noted in the COMMENT field

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Release notes for version STHA_FIM_1N - (September 6, 2019)

Reflects the second & final round of the local field manager adjustments

This release captures the second and final round of local manager adjustments to model selections as released in 1M. Changes were made to the Tower, Bemidji, Deer River, Little Falls, and the Red Lake WMA/LUP selection tiles.

Required attribute fields populated during the local manager adjustment process.
SE_YEAR = Fiscal year of stand examination for fiscal years 2021 through 2030. ~~Earlier years are remnants of previous plans and do NOT reflect the entire list of stands examined for those years, since some stands have now been overwritten with values for 2021 and beyond.~~ Earlier years now split into new fields with version 1P.
T_ACRES = anticipated stand examination acres
PRESCRIP = preliminary anticipated management strategy; 1111 for even aged, 1300 uneven aged, or 1810 thinning

Optional attribute fields populated during the local manager adjustment process
FOR_COM = Comments from Forestry staff
WLD_COM = Comments from Wildlife staff
EWR_COM = Comments from Ecological and Water Resources (EWR) staff
FSH_COM = Comments from Fisheries staff
COMMENT = General comments
JT_VISIT = Joint site visit requested

Added SEL application compliant fields required for final SEL import

The SEL application data format differs for some of the STH project data. SEL compliant fields were added to enable importing final STH data into the SEL application.

OFMC = “OFMC” for completely within and “Partial_OFMC” for the OFMC_50 stands
OG_SMZ = “OG_SMZ” for completely within and “Partial_SMZ” for the OG_SMZ_30
PATCH = “PATCH” for completely within and “Part_PATCH” for the PATCHES_30
SMA = Coded to capture the Proposed MOAs and SMAs. Values are:
- E_DMA, P_DMA = Existing or Proposed Deer Management Areas
- E_MMA, P_MMA= Existing or Proposed Moose Management Areas
- P_INT = Proposed Interior Forest MOA
- P_OWMA = Proposed Northern Owl Management MOA
- P_UPL = Proposed Upland/Lowland Habitat MOA
- P_WPMA = Proposed White Pine Management Areas MOA

TRST_LANDS = “Trust” or “U Trust”
ECS_SUBS = ECS Subsection of stand centerpoint
ECS_LTA = ECS Land Type Association code of stand centerpoint
LTA_TEXT = ECS Land Type Association name of stand centerpoint

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Release notes for version MBG_FIM_1M - (July 8, 2019)

Match and Populate attributes from the local field manager adjustments

This data was split into 17 tiles for local managers to review model selected stands and adjust selections as needed for practical and/or corrective reasons. This release captures the first round of local manager adjustments to model selections.

Required attribute fields added that will be populated during the adjustment process
SE_YEAR = Fiscal year of anticipated stand examination; values are 2021 through 2030
T_ACRES = anticipated stand examination acres
PRESCRIP = preliminary anticipated management strategy; 1111 for even aged, 1300 uneven aged, or 1810 thinning.

Remove these values in these three fields for the 452 stands that went into the adjustment process with exam years of 2021 through 2024 but were not selected again.

Optional attribute fields populated during the stand selection process
FOR_COM = Comments from Forestry staff
WLD_COM = Comments from Wildlife staff
EWR_COM = Comments from EWR staff
FSH_COM = Comments from Fisheries staff
COMMENT = General comments
JT_VISIT = Joint site visit requested

Updated Old Growth & RSA stands

Update Old Growth designations. I was notified during the adjustment process of 3 selected stands that were dropped as Old Growth. Entered “dropped” into the OLD_GROW field. Didn’t edit the MAN_ACRES field.

Update RSA designations to reflect changes in implementation. I was notified during selections that 2 stands were selected since only partially in an RSA. Entered “partial” into the RSA field. Didn’t edit the MAN_ACRES field.

Drop Udev age class fields

The two fields NEW_AGE_UD and NAGE_UDEV were developed as a way to project stand ages for stands recently sold or designated for management actions. Since only a subset of stands have their ages projected into the future, it is inappropriate to use this field to represent the projected age structure of the entire forest. Decision was made to drop this method of age class projections and delete these fields

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Release notes for version MBG_FIM_1L - (April 1, 2019)

Data version used for - and also with - the spatial model outcomes.
Used this version to build tiles to begin the field manager adjustment process

Added fields with model outputs and local manager adjustment input fields

This version that went into the spatial model selection process and adds additional fields required for the local field manager adjustment process.

CUT_PERIOD = 1, 2, or 3 to correspond with stands selected by the model in the first three of the 5 year cut periods. Code of 1 is for the years FY2019 through FY2023, 2 is for the years FY2024 through FY2028, and 3 is for the years FY2029 – FY2033.

Controlling fields for the local field manager adjustment process
SE_YEAR = Fiscal year of stand examination, plan for 2021 through 2030
T_ACRES = preliminary examination acres
PRESCRIP = preliminary anticipated management strategy; 1111 for even aged, 1300 uneven aged, or 1810 thinning of 1111, 1300, or 1810

SELECTTILE = text field of the 17 adjustment units consisting of the 15 Forestry Areas and the Mille Lacs & Red Lake WMAs.

SELECTNOTE field contains my remarks with stands that need some further detailed look during the stand selection process. Stands where I couldn't cypher SEL changes

Updated Old Growth stands

Update Old Growth designations to reflect changes in the data. 32 stands now have Old Grow coded as "Old Growth" and MAN_ACRES = 0

Changes to SFRMP_NAME

"SFRMP_NAME" = 'Anoka Sand Plain' OR "SFRMP_NAME" = 'Hardwood Hills' now set to "MN IA Moraines

SEL PRESCRIP codes cleanup

Add Missing PRESCRIP values for 656 stands imported from the SEL application.

Delete extraneous fields.

Reduced the number of fields for easier import into Excel. Fields can be reestablished from earlier data versions by using the ArcMap Table join and STAND_KEY field.

Fields deleted are: Shrub (12 fields), Grnd_cov (9 fields), Spp5 thru Spp10 (36 fields), Rsp4 through Rsp10 (35 fields). Also, additional process fields not used in the final model nor needed in stand selection.

Release notes for version MBG_FIM_1K3 - (March 7, 2019)

Version used for the final MBG volume analysis model

Update to SMA_Rank field values

This release recalculated the SMA_Rank field after management decisions regarding dropping some SMAs and one change in the SMA hierarchy. Also, reduced number of input polygons in the DMA SMA. See addendum #7 for more details

Updates to actual and planned forest management actions

Used a 1/14/2019 SEL export of planned field examination stands to bring any changes and updates in stands planned for field examinations for fiscal 2018 through fiscal 2024. Similar to what was last done in the August 2018 version 1G.

➔ **MBG_FIM_1K3 - (March 4, 2019)** Changed SE_YEAR value for 923 stands. Corrects my coding error in version MBG_FIM_1K released on January 18, 2019.

➔ **MBG_FIM_1K3 - (March 7, 2019)** Changes PRESCRIP code values of 9100 to specific codes for 405 stands. **Data version used in the final MBG model.**

Development Status coding update from current (Jan 16, 2019) FIM data

Updated the "Under Development" value in the DEV_STAT field from a January 16, 2019, FIM data export. This was the second attempt (first was July 2018 version 1G) to keep current with stands recently sold or with pending management actions.

From the January 16, 2019 FIM data export, identical polygons or polygons with a 50% polygon area overlap with FIM "Under Development" polygons are now coded as DEV_STAT = "Under Development". Adjusted NEW_AGE_UD and NAGE_UDEV.

Age class fields adjusted to reflect 2019

These fields were updated to reflect 2019. Adjusted one outlier stand with no survey year field value.

NEW_AGE_19 – new field added to bring stand age to calendar 2019
NAGE_CLASS & NAGE_CL_10 – 10 year age class groups adjusted for 2019
NAGE_CLAS2 & NAGE_CL_5 – 5 year age class groups adjusted for 2019
~~NEW_AGE_UD – adjusted for 2019 Dropped in Version M, not representative~~
~~NAGE_UDEV – adjusted for 2019 Dropped in Version M, not representative~~

Release notes for version MBG_FIM_1J - (September 25, 2018)

Update to SMA_Rank field values only

Recalculated the High Conservation Value Forests - high harvest & G1G2 - high harvest SMA_Rank from 24 to 14. Recalculated SMA_Rank values for 20 through 23. Higher SMA_Rank number no longer the most restrictive prescription. See addendum #6 for more details.

Release notes for version MBG_FIM_1I - (September 21, 2018)

SMA_Rank Field added

SMA_Rank = Restrictive ranking for the SMAs. Used to determine the most restrictive and model controlling SMA prescriptions. The higher the number the more restrictive the SMA prescriptions. See addendum #6 for more details.

Release notes for version MBG_FIM_1H - (August 31, 2018)

Fields added

~~WMA_Unit = Wildlife Management Area name. Values entered for just (3) WMAs. Mille Lacs WMA, Red Lake WMA, and Sandstone WMA. All other WMA unit names are left blank.~~ Dropped in 1P since this was incomplete.

Dropped “Norris Camp Forest Interior” entries from MOA_INT_ID and MOA_INT_30 fields.

Added (5) stands to the Little Falls FY 2021 listings.

Release notes for version MBG_FIM_1G - (August 15, 2018)

This release incorporates updates from on-going management actions, planned management actions, and additional information on Management Opportunity Areas (MOAs).

Updates to actual and planned forest management actions

Coding current and planned stand examinations from the SEL application data.

SE_YEAR field = Fiscal Year of stand scheduled for field examination.
Has entries of 2017 through 2024.

PRESCRIP field = generalized management strategy with values of
"1111" = even aged harvest
"1300" = uneven aged harvest
"1810" = thinning
"9100" = On-site visit, perhaps harvest, defer 9100 for closed
"9999" = deferred, no action with perhaps data alteration

Fiscal 2017 stands – Used 6/18/18 SEL export to record the disposition of FY17 stands. Stands with dispositions other than defer or null were also coded with DEV_STAT = "Under Development".

Fiscal 2018 stands - Used 8/8/18 SEL export to record the disposition of FY18 stands. Baudette & Sandstone Areas moved 26 deferred stands to FY19. Stands with dispositions other than defer or null were also coded with DEV_STAT = "Under Development".

Fiscal 2019 stands – Used the 7/2/18 SEL export of planned stands, after adjustments were completed to incorporate increased statewide FY2019 goals.

Fiscal 2020 through Fiscal 2024 stands - Used the 8/6/18 SEL export of planned stands after adjustments were completed to incorporate increased statewide FY20 goals. Incorporates all completed SFRMP related planned stand examination lists. Used an 8/9/18 SEL export for Lewiston Area.

Development status coding update from current (July 2, 2018) FIM data

Updated the "Under Development" value in the DEV_STAT field from a July 2, 2018 FIM data export. This was an attempt to keep current with stands recently sold or with pending management actions. Identical polygons or polygons with a 50% polygon area overlap with FIM "Under Development" polygons are now coded as DEV_STAT = "Under Development".

Incorporation of additional Management Opportunity Areas (MOA)

Most of these are draft, pilot or proposed MOAs and not policy. Adding these MOAs fields to the model process allows for examination of potential impacts if MOAs are implemented.

Lowland Conifer Old Growth - LCOG

LCOG = "LCOG" for Lowland Conifer Old Growth from May 16, 2018 LCOG shapefile
LCOG_ID = the LABEL field for stands in Lowland Conifer Old growth polygons.

EWR submitted MOAs added fields - through Jared Cruz

Forest Interior Habitat MOA/Red Shoulder Hawk areas

MOA_INT_30 = "Y" for these MOA stands, set when overlap w/ FIM polygons > 30%.
MOA_INT_ID = Name of each of these 4 MOAs

G1 and G2 - global status of critically imperiled or imperiled NPCs

GRANK_30 = "Y" for the G1G2 stands, set when overlap w/ FIM polygons > 30%.

GRANK_NPC = NPC classification that intersects the FIM stand. If there is more than one, both are listed. (Listed regardless of the value in grank_30.)

GRANK_HIGH = 'highest risk' grank for the NPC classification that intersects the FIM stand. If there is more than one, both are listed. (Listed regardless of the value in grank_30.)

GRANK_REGI = Management regime selected for that NPC classification which intersects the FIM stand. The most conservative regime was selected if there is more than one, e.g. low over medium, medium over high. (Listed regardless of the value in grank_30.)

GRANK_ACRE = Amount of overlap between the NPC and the FIM stand in acres. (Listed regardless of the value in grank_30.)

GRANK_PERC = Percent of overlap between the NPC and the FIM stand. (Listed regardless of the value in grank_30.)

High Conservation Value Forest (HCVF)

HCVF_30 = "Y" for the HCVF stands, set when overlap w/ FIM polygons > 30%.
HCVF_SITE = HCVF site number of the HCVF_30 stands.
HCVF_NAME = HCVF name of the HCVF_30 stands
HCVF_CAT = Management regime (harvest category) of the HCVF_30 stands. Values are low, medium and high harvest.

Patches: Old Large Patches

PATCHES_30 = "Y" for Old Large Patches, set when overlap w/ FIM polygons > 30%.

Watershed Protection Areas (WPA) for Peatland SNAs

WPA_30 = "Y" for the SNA WPA stands, set when overlap w/ FIM polygons > 30%.
WPA_NAME = Name of the SNA that is adjacent/within the WPA. The 'Lost River Peatland SNA' has been divided into 4 parts.

2nd Riparian Management Zones (RMZs) - Special Aquatic Resources

The second set of fields relating to riparian management zones and applies to additional riparian zones related to sensitive shorelines and lakes of biological significance. These fields below represent the totals that include the first riparian polygon zones plus these second additional riparian zones. These second values will always be greater than or equal to the values in the first RMZ fields. Modelers should use either the 1st set or the 2nd set of riparian reduction factors

RMZ_ALL_AC = total acres in a FIM stand within 1st and/or 2nd Riparian buffer zones.

RMZ_ALL_FC = Combined Riparian Zone management factor. Multiply Man_Acres by this factor to get the **remaining** non-riparian buffer acres or volumes. Factor equal to 1-(rmz_all_ac/stand_acres).

Old Forest Management Complexes (OFMC)

OFMC_50 = "Y" for the OFMC stands, set when overlap w/ FIM polygons > 50%.
OFMC_ID = unique id for each of the identified complexes.

Old Growth Special Management Zones (SMZ)

SMZ_30 = "Y" for the SMZ stands, set when overlap w/ FIM polygons > 30%.

Upland/Lowland Habitat MOA

MOA_UPL_30 = "Y" for these MOA stands, set when overlap w/ FIM polygons > 30%.
MOA_UPL_ID = Name for each of these 4 MOAs.

Fish and Wildlife submitted MOAs added fields – Scharenbroich & Shartell

Deer Management Areas

DMA = "DMA" for the Deer Management Areas stands
DMASource = "Existing" or "Proposed"

Moose Management Areas

MMA = "MMA" for the Moose Management Areas stands
MMASource = "Existing" or "Proposed"

Open Landscape Management Areas

OLMA = “OLMA” for the Open Landscape Management Areas stands
OLMASource = “Existing” or “Proposed”

Northern Owl Management Areas

OWMA = “OWMA” for the Northern Owl Management Areas stands
OWMASource = “Existing” or “Proposed”

Ruffed Grouse Management Areas

RGMA = “RGMA” for the Ruffed Grouse Management Areas stands
RGMASource = “Existing” or “Proposed”

White Pine Management Areas

WPMA = “WPMA” for the White Pine Management Areas stands
WPMASource = “Proposed”

Error correction to stands with conflicting stand size and age metrics

Logic check and query search for stands with stem size information that contradicts stand age information. Used the remarks fields with harvest comments to refine search. Corrects an issue that incomplete or incorrect data editing.

3,156 acres with found and reset STAND_AGE reset to 1.
Adjusted NEW_AGE_17 and ~~NEW_AGE_UD.Dropped in Version M, not representative~~

Also, corrected 2 stands with errors in the MOD_TYP2 field

Fields added

NEW_AGE_18 = STAND_AGE adjusted for calendar 2018
NAGE_CLAS2 = Text field of the 5 year age class of stand age adjusted to 2018
FOR_TYPE = A text field of Forest types. Used for Summaries and cross tabs
KG_YLD_SPC = “Yes” for forest cover types having defined yield tables (potentially commercial stands).

Age class fields adjusted to reflect 2018

An attempt to keep data in sync with the calendar year and the updates to “Under Development” coding. These fields with updated to reflect NEW_AGE_18
NAGE_CLASS
NAGE_CLAS2
~~NEW_AGE_UD - Dropped in Version M, not representative~~
~~NAGE_UDEV - Dropped in Version M, not representative~~

Change notes for version MBG_FIM_1F - (October 25, 2017)

This adds the Native Plant Community (NPC) data from David Wilson through Emily Peters.

NPC1 = NPC values as text

Change notes for version MBG_FIM_1E - (October 3, 2017)

The only change was to values in the MILL_75 field. Reflects Doug Tillma's refined definition of the priority cover types as used in version 1D.

Change notes for version MBG_FIM_1D - (September 15, 2017)

Version 1D incorporates additional fields added by DNR staff.

Watershed / Water Quality Fields

CATCH_ID = ID field for DNR Level 08 catchment containing the FIM stand centerpoint.

MINOR5 = ID field for DNR Level 07 minor watershed containing the FIM stand centerpoint.

MAJOR = ID field for the Major basin containing the FIM stand centerpoint.

LAKEBIOSIG = Ranking of a Lake of Biological Significance intersected by the Level08 catchment. Attributes are "OUTSTANDING", "HIGH", or MODERATE"

TROUTDES = Set to "WITHIN" if associated Level08 catchment intersects a "Designated Trout Stream" or a "Protected Tributary to a Designated Trout Stream".

PHOSSENS = Set to "WITHIN" if associated Level08 catchment intersects a lake with the "Highest" priority class of Phosphorus Sensitivity Significance.

SOILEROS = Reports the soil erodibility score associated with the catchment (G_I_SEP value)

CATCH_F1 = Ratio of the individual FIM stand acres to total acres of the catchment. Can be used to evaluate the impacts on the whole catchment.

CATCH_F2 = Ratio of the individual FIM stand acres to total DNR acres in the catchment. Can be used to evaluate the impacts on the DNR lands within a catchment.

Old Forest / Young Forest Hexagons

US_HEX_ID = ID field from MN_HEX_FB shapefile containing the FIM stand centerpoint.

US_HEX_F1 = Ratio of the individual FIM stand acres to total acres of the hexagon. Can be used to evaluate the impacts on the whole hexagon.

US_HEX_F2 = Ratio of the individual FIM stand acres to total DNR acres in the hexagon. Can be used to evaluate the impacts on the DNR lands within a hexagon.

Endangered, Threatened & Special Concern Species

ET_STATE = the presence of a state endangered or threatened species (ET). Attributes are:

"NM" indicates ET species that requires no management.
"UE" indicates ET species that requires an uneven-aged management regime.
"PH" indicates ET species that requires a partial harvest management regime.
"SA" indicates ET species that requires a seasonal avoidance management regime.
"CC" indicates ET species that requires a clear-cut management regime.
"NA" indicates ET species that do not apply to the STHA (e.g., grassland species).
"PRESENT IN UNMANAGED AREA" indicates ET species that was not included in the species list reviewed by EWR staff. In stand with MAN_ACRES = 0.
"NOT PRESENT" indicates no issues with ET species.

If multiple ET species are present, the most conservative management regime is reported (NM>UE>PH>SA>CC>NA).

SPC_STATE - indicates the presence of a state species of special concern (SPC). Attributes are:

"PRESENT" indicates the presence of SPC species in a stand.
"PRESENT NOT APPLICABLE" indicates the presence of SPC species in stands that do not apply to the STHA (e.g., grassland species).
"PRESENT IN UNMANAGED AREA" indicates the presence of SPC species that was not included in the species list reviewed by EWR. In a stand with MAN_ACRES = 0.
"NOT PRESENT" indicates no issues with SPC species.

EAGLENEST = the presence of a bald eagle nest. Attributes are "PRESENT" requires a partial harvest management regime or "NOT PRESENT".

E_NEST_AC = actual acres in a FIM polygon of an Eagle Nest buffer.

E_NEST_FCT = Eagle Nest management factor. Multiply Man_Acres by this factor to get the **remaining** non-affected acres or volumes. Calculated by (1 - ([E_NEST_AC] / [STAND_ACRE])).

If eagle nest buffer was < 0.5 acres, disregarded in E_NEST_AC and E_NEST_FCT.

Riparian Zones

RMZ_ACRES = actual acres in a FIM polygon within a Riparian buffer zone.

RMZ_FCT = Riparian Zone management factor. Multiply Man_Acres by this factor to get the **remaining** non-riparian buffer acres or volumes.
Calculated by (1 - ([RMZ_ACRES]/ [STAND_ACRE])).
If RMZ buffer was < 0.5 acres, disregarded in RMZ_ACRES and RMZ_FCT calculations.

Mill Distance

MILL_75 = "PRIORITY COVER TYPE" for any centerpoint of a FIM stands with a cover type of priority species within 75 line of sight miles for the seven largest wood fiber users in Minnesota. Individualized for cover type priorities for each user.

Change notes for version MBG_FIM_1C - (August 14, 2017)

The 1C version refines the polygons and ADMIN field to better differentiate between Forestry and Wildlife as land administrators. ADMIN Field now reflects the secondary or "Public Use Administrator", largest impact was on ConCon lands moving from Forestry to Wildlife.

Added a field GROUP to define "management groups" that might have differing timber management regimes based on administration and/or status. These groups are created from a query with the ADMIN and STATUS fields. This field is added to simplify the process of assigning modeling metrics. *The unit group management strategy is evolving and the query to define groups may evolve as well.*

GROUP = F for Forestry & all Trust lands regimes. Group F

GROUP = W for Wildlife & LUP lands regimes. Group W

Corrections to ADMIN, STATUS, and SFRMP_NAME fields from 1B release.

Edited invalid entries in age fields (10 stands) and site index fields (31 stands).

Created a unique table item (STAND_KEY) for each polygon.

Deleted polygons with Unknown Administrator and small polygons under .25 acres

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Change notes for version MBG_FIM_1B - (April 27, 2017)

STATUS field now fully populated. No other changes to table items, attributes, or polygons.

Additional fields initially added to FIM data for STHA project

All FIM fields, including volume, DBH, height, damage & disease fields reflect the stand conditions at the time of inventory. The year of inventory can be found in the SURVEY_YR field. Unless noted below, no modeling or projections have been made to any original FIM data fields.

STAND_ACRE = stand acres for each polygon; all stands both managed and non-managed stands.

MAN_ACRES = acres of the "available for management" stands.

ADMIN = DNR Public Use land administrator.

STATUS = means of land acquisition. Trust lands identified here.

SFRMP_NAME = SFRMP planning unit project name

NEW_AGE_17 = the stand age brought forward to 2017

NEW_AGE_18 = the stand age brought forward to 2018. Added beginning with version 1G.

NEW_AGE_19 = the stand age brought forward to 2019. **Added beginning with version 1K.**

~~NEW_AGE_UD = stand age in 2017 2018 (version 1G) 2019 (version 1K) with adjustment for pending management activities as set by the DEV_STAT field. Dropped in Version M, not representative~~

NAGE_CLASS = Text field of the 10 year age class of stand age adjusted to **2019 (version 1K)**

~~NAGE_UDEV = Text field of the 10 year age class based on NEW_AGE_UD field.~~

NAGE_CLAS2 = Text field of the 5 year age class of stand age adjusted to **2019 (version 1K)**

MOD_TYPE = text field of cover type and/or productivity groupings.

MOD_TYP2 = same groups as MOD_TYPE. Field syntax change prints better with Cross-Tab report.

INOPERABLE = "Inoperable" for stands inoperable due to steepness of terrain

OLD_GROW = "Old Growth" for old growth stands

RSA = "RSA" for stands located in Representative Sample Areas

GROUP = Management Regime Groups. "F" for Forestry or "W" for Wildlife.

STAND_KEY = Unique record identifier in table. STAND_KEY = FID + 1

Details on additional fields added to FIM data for MB&G project

MAN_ACRES field represents the acres of "available for management".

These are stands with positive MAN_ACRES field values.

Stands with these characteristics have MAN_ACRES = 0 and are NOT in the available pool.

Selected DNR Administrators – see full list with next item below
TMBR_STAT = 3
TMBR_STAT = 5, 7 or 8
INOPERABLE = "Inoperable"
OLD_GROW = "Old Growth"
RSA = "RSA"
SFRMP_NAME = "Prairie Parkland"

ADMIN = DNR land administration.

Through geo-processing and editing, the original FIM data with multiple administrators is reduced to a single Administrator. Dependent on DNR's spatial land records (LRS) to determine the Administrator. Version 1C incorporates "Public Use Administrator" for ConCon Lands.

Land "available for management" comes from these DNR land administrators.

Forestry = Forestry
Wildlife = Wildlife
Fish-Lake Co = Fisheries lands in Lake County
DNR MPL = lands acquired along the St. Louis River from Minnesota Power
WLD LUP = Federal Land Utilization Project (LUP) lands with Wildlife Administration

"ADMIN" = 'Forestry' OR "ADMIN" = 'Wildlife' OR "ADMIN" = 'Fish-Lake Co' OR "ADMIN" = 'DNR MPL' OR "ADMIN" = 'WLD LUP'

Lands "not available for management" are coded from these DNR land administrators.

BWCA
Parks
SNA
Fisheries – except for Lake County
Trails and Waterways
Camp Ripley
DNR
Land and Minerals
Mean Water – for meandered waters, used inconsistently but improved in version 1C
Metro Greenways
Waters

"ADMIN" = 'BWCA' OR "ADMIN" = 'Camp Ripley' OR "ADMIN" = 'DNR' OR "ADMIN" = 'EWR' OR "ADMIN" = 'Fisheries' OR "ADMIN" = 'Lands and Minerals' OR "ADMIN" = 'Mean Water' OR "ADMIN" = 'Metro Greenways' OR "ADMIN" = 'Parks' OR "ADMIN" = 'SNA' OR "ADMIN" = 'Trails and Waterways' OR "ADMIN" = 'Unknown' OR "ADMIN" = 'Waters'

STATUS = means of acquisition for DNR lands.

This field was not fully populated in version 1A. Many improvements through polygon editing in versions 1B and 1C. Types of acquisition are:
Trust = all five categories of School/Swamp Trust
U Trust = University Trust
Volstead = purchased under the Volstead Act
Acquired = Acquired lands
ConCon = Consolidated Conservation lands
LUP = leased from Federal Gov't under the Land Utilization Project (LUP)
Camp Ripley = Camp Ripley lands
Mean Water = meandered waters, used inconsistently but improved in version 1C

SFRMP_NAME = SFRMP planning unit project name.

Determined from Working ECS Section of the stand by center point and within. Updated in 1C based on final set of new MDLP Section planning unit.

NMOP
NSU
MDLP
WSU
Aspen Parklands
Hardwood Hills
Anoka Sand Plain
Blufflands Roch Plateau
MN IA Moraines
Prairie Parkland

NEW_AGE_17 = Stand ages adjusted to 2017.

NEW_AGE_17 = "((2017 - [Survey_yr])+ [Stand_age]) "

The STAND_AGE field reflects the age at the time of inventory. The year of inventory can be found in the SURVEY_YR field. The NEW_AGE_17 field reflects the stand age brought forward to 2017. Updated again with NEW_AGE_18 in 2018 and NEW_AGE_19 in 2019.

~~NEW_AGE_UD = stand age in 2017 2018 2019 (1K) adjusted for pending management activities.~~

~~These stands are identified with an "Under Development" entry in the DEV_STAT field. Reference standard FIM field of DEV_STAT = "Under Development" for stands sold or currently in sale process.~~
~~Modifies the stand age to 1 year old for stands with pending management actions and are even-aged cover types; Aspen, Birch, Bam, upland Black Spruce, lowland Black Spruce, Tamarack, lowland White Cedar, Balsam Fir and Jack Pine over 39 years old.~~
Since only a subset of stands have their ages projected into the future, it is inappropriate to use this field to represent the current age structure of the forest. Specialty use only and dropped in Version M.

NAGE_CLASS = Text the 10 year age class of stand age adjusted to ~~2017~~ ~~2018~~ 2019 (Version 1K)

~~NAGE_UDEV = Text field of the 10 year age class based on NEW_AGE_UD field~~. Dropped 1M

NAGE_CLAS2 = Text field of the 5 year age class of stand age adjusted to ~~2018~~ 2019 (Version 1K).

MOD_TYPE = cover type groups by main cover and site index as used in DNR models.
Splits the Aspen & Bam group into two productivity groups, the lowland Black Spruce into three groups, Tamarack into two groups, and Groups Non-Forest types together.

MOD_TYP2 = same groups as MOD_TYPE above, syntax changed for better reporting format

INOPERABLE = “Inoperable” for Inoperable stands. Have MAN_ACRES = 0
Stands determined from query of original FIM MGMT & REMARKS fields
"MGMT1" = 'Inoperable due to steepness of terrain' OR "MGMT2" = 'Inoperable due to steepness of terrain' OR "MGMT3" = 'Inoperable due to steepness of terrain' OR "MGMT4" = 'Inoperable due to steepness of terrain' OR "REMARK1" LIKE '%Inoperable%' OR "REMARK1" LIKE '%INOPERABLE%' OR "REMARK2" LIKE '%Inoperable%' OR "REMARK2" LIKE '%INOPERABLE%'

OLD_GROW = “Old Growth” for Old Growth stands. Have MAN_ACRES = 0
Stands determined from query of original FIM fields TMBR_STAT & OGx_STAT
"TMBR_STAT" = 5 OR "TMBR_STAT" = 7 OR "TMBR_STAT" = 8 OR "OG1_STAT" = 'Designated' OR "OG1_STAT" = 'Candidate' OR "OG1_STAT" = 'Candidate/Pending' OR "OG2_STAT" = 'Designated' OR "OG2_STAT" = 'Candidate' OR "OG2_STAT" = 'Candidate/Pending'

RSA = “RSA” for Representative Sample Areas. Have MAN_ACRES = 0
Stands determined from GDRS RSA shapefile. Populated by contains centroid followed by a visual check. No edits to original FIM stand boundaries.

MAN_ACRES = 0. These are stands NOT in the typical management pool. This is the complete query.
"ADMIN" = 'BWCA' OR "ADMIN" = 'Camp Ripley' OR "ADMIN" = 'DNR' OR "ADMIN" = 'EWR' OR "ADMIN" = 'Fisheries' OR "ADMIN" = 'Lands and Minerals' OR "ADMIN" = 'Mean Water' OR "ADMIN" = 'Metro Greenways' OR "ADMIN" = 'Parks' OR "ADMIN" = 'SNA' OR "ADMIN" = 'Trails and Waterways' OR "ADMIN" = 'Unknown' OR "ADMIN" = 'Waters' OR"OLD_GROW" = 'Old Growth' OR "INOPERABLE" = 'Inoperable' OR "TMBR_STAT" = 3 OR "SFRMP_NAME" = 'Prairie Parkland' OR "RSA" = 'RSA'

GROUP = F for Forestry & Trust lands strategy, W for wildlife strategy, or <null> for none.
Group F = "ADMIN" = 'Forestry' OR "ADMIN" = 'DNR MPL' OR ("ADMIN" = 'Wildlife' AND "STATUS" = 'Trust')
Group W = ("ADMIN" = 'Wildlife' OR "ADMIN" = 'WLD LUP' OR "ADMIN" = 'Fish-Lake Co') AND ("STATUS" <> 'Trust')
Group <null> = No timber management

Fields Deleted from original FIM

These fields were deleted from the original FIM data structure; ADMIN1, ADMIN1_AC, ADMIN2, ADMIN2_AC, ADMIN3, ADMIN3_AC, and TOTAL_ACRES.

Addendum #1 - Data quality review prior to original FIM data export

Prior to the original April 2017 export of the FIM data, Foresters were given notice on January 31, 2017, by Forestry's Deputy Director Craig Schmid of the data export schedule and instructed to review and conduct updates with their FIM data. This is a similar process used before beginning a SFRMP project, so Foresters are familiar with this process. Shapefiles were provided to each Forestry Areas with some of the currently identified errors or suspicious entries. These shapefiles with stands to update or verify consisted of:

MN_CTYPE = 0 (null entry), 82 (cutover areas) or 90 (unknowns)

Inoperable stands identified in the REMARKS or MANAGEMENT CONSIDERATION fields.

TMBR_STATUS = 3 (No harvest stands)

DEV_STAT = "Under Development" (identifies stands that have recently sold or currently in the sale process but have not yet been harvested)

Pine stands with origin codes. With the recent changes in management for Red Pine plantations versus natural pine, correct coding of stand origins for Red Pine has major implications.

Split Administration stands that overlap DNR Administrations with conflicting harvest policy.

Addendum #2 – FIM Data Narrative provided to MB&G

Minnesota DNR Forest Data

The forest data and other supplementary spatial data used in this project were provided by the Minnesota DNR. The forest inventory data originates from the MNDNR's "Forest Inventory Module" system, is also referred to as FIM data and follows internal MNDNR classification schema. The FIM forest data is field collected by MNDNR foresters or forest inventory contractors, summarized by individual forest stands and updated on a continuous basis. Of the 5.6 million acres of land administered by the Minnesota DNR, 5.4 million acres have FIM data. Notable areas of MNDNR administrated lands without FIM data coverage include holdings within the Boundary Waters Canoe Area Wilderness, Myrtle Lake Peatland Scientific and Natural Area (SNA) and various smaller SNAs.

The FIM data is a non-statistical forest inventory used for management purposes and consists of summarized stand data only. The original individual plot data is not available, only the summary data of individual forest stands are maintained. The FIM data used in this project originated from an April 7, 2017 download.

The FIM data was integrated with the MNDNR spatial Land Records System data to align each forest stand with one unique DNR land administrator and one unique means of acquisition. Additional MNDNR data including forest planning units, riparian zones, mill distances, watersheds, spatial hexagons, and endangered, threatened, and special concern species were spatially integrated through geoprocessing with the FIM data.

The final data product was provided to MB&G in shapefile format consisting of 200,598 polygons. This data with documentation is readily available from the DNR's FTP site at ftp://ftp.dnr.state.mn.us/pub/SFRMPDATA/MBG_STHA/. Contact Paul Olson at 218-328-8937 or paul.c.olson@state.mn.us for more details or with questions on the spatial data.

Addendum #3 - Defined Yield Lands Summary (STH_FIM_1P)

Acre Summary for MN DNR Administered Lands

Total DNR Administration = 5.6 million acres
Source: DNR webpage / 2017 from the numbers

Total DNR Administration with FIM data = 5.44 million acres
~~*Source: MBG_FIM_1F project shapefile built from DNR FIM April 2017*~~
Updated from STH_FIM_1P project shapefile in December 2019

Total assigned MAN_ACRES = 4.81 million acres
Removes State Parks, Camp Ripley, BWCA, Fisheries (except Lake County), Lands & Minerals, Misc DNR, Waters
Removes Scientific and Natural Areas (SNA), Meandered Waters, Trails and Waterways & Metro Greenways
Removes Prairie Parkland Planning Unit
Removes Old Growth, Inoperable, TMBR_STAT = 3, & Representative Sample Areas (RSA)

Total Non-Forest Cover types assigned MAN_ACRES = 1.40 million acres
Lowland Brush, Marsh, Lowland grass, Muskeg, Upland grass, Water, Flooded, others
"MN_CTYPE" = 0 OR "MN_CTYPE" > 81

Total Stagnant Forest types assigned MAN_ACRES = 0.66 million acres
Stagnant Spruce, Stagnant Tamarack, Stagnant Cedar, Offsite Aspen, Offsite Oak
"MN_CTYPE" >= 75 AND "MN_CTYPE" <= 79

Total Forested Cover types assigned MAN_ACRES = 2.75 million acres
"MN_CTYPE" <> 0 AND "MN_CTYPE" < 75 OR "MN_CTYPE" = 81

Defined Yield lands subset with MAN_ACRES = 2,749,403 acres
Reduced to Cover types with defined yield tables, removes cover types of Walnut, Willow, Cottonwood, Red Cedar, Scotch Pine, Norway Spruce, Hybrid Poplar & European Larch

Addendum #4 - Management Regime Group details (MBG_FIM_1F)

Matrix of Administration and Acquistion Status to form STHA "Management Regime Groups"						
5,444,471	Statewide Total gross FIM acres (STAND_ACRES field)					
4,807,921	Statewide Total FIM Management Pool Acres (MAN_ACRES field)					
2,750,066	Statewide Total FIM Productive Forest acres from Yield Table Cover types (queried MAN_ACRES field)					
	Acquired	**ConCon**	**LUP**	**Trust**	**U Trust**	**Volstead**
Forestry	**F**	**F**		**F**	**F**	**F**
Gross Acres (STAND_ACRES)	**471,728**	**915,553**		**2,299,133**	**22,600**	**26,928**
Management Pool Acres (MAN_ACRES)	**462,333**	**911,345**		**2,264,843**	**22,250**	**26,928**
Productive Forest - Yield Table Acres	**356,998**	**498,017**		**1,437,494**	**15,972**	**12,074**
Wildlife	**W**	**W**	**W**	**F**		**W**
Gross Acres (STAND_ACRES)	**549,838**	**517,598**	**84,662**	**80,022**		**2,645**
Management Pool Acres (MAN_ACRES)	**412,738**	**512,412**	**84,202**	**78,623**		**2,645**
Productive Forest - Yield Table Acres	**131,666**	**193,363**	**53,604**	**24,610**		**180**
Fisheries - Lake County	**W**					
Gross Acres (STAND_ACRES)	**7,874**					
Management Pool Acres (MAN_ACRES)	**7,668**					
Productive Forest - Yield Table Acres	**6,540**					
DNR - MPL	**F**					
Gross Acres (STAND_ACRES)	**22,709**					
Management Pool Acres (MAN_ACRES)	**21,935**					
Productive Forest - Yield Table Acres	**19,548**					
Fisheries (non Lake County)						
Gross Acres (STAND_ACRES)	**14,444**					
Management Pool Acres (MAN_ACRES)	**0**					
State Parks & Waysides						
Gross Acres (STAND_ACRES)	**178,966**	**23,439**	**636**	**1,643**	**547**	**167**
Management Pool Acres (MAN_ACRES)	**0**	**0**	**0**	**0**	**0**	**0**

Continued on next page

	Acquired	ConCon	LUP	Trust	U Trust	Volstead	
Camp Ripley							
Gross Acres (STAND_ACRES)	**52,819**						
Management Pool Acres (MAN_ACRES)	**0**						
BWCA							
Gross Acres (STAND_ACRES)	**17,702**			**2,759**	**385**		
Management Pool Acres (MAN_ACRES)	**0**			**0**	**0**		
Scientifc & Natural Areas							
Gross Acres (STAND_ACRES)	**8,844**	**95,194**	**637**	**28,817**		**1,097**	
Management Pool Acres (MAN_ACRES)	**0**	**0**	**0**	**0**		**0**	
Trails & Waterways							
Gross Acres (STAND_ACRES)	**4,678**						
Management Pool Acres (MAN_ACRES)	**0**						
Lands & Minerals							
Gross Acres (STAND_ACRES)	**1,881**						
Management Pool Acres (MAN_ACRES)	**0**						
Misc DNR, Metro Greenways, Waters							
Gross Acres (STAND_ACRES)	**1,806**						
Management Pool Acres (MAN_ACRES)	**0**						
Mean Water							
Gross Acres (STAND_ACRES)	**6,721**						
Management Pool Acres (MAN_ACRES)	**0**						

Olson - November 2017

Addendum #5 - Productive Forest Lands summary (MBG_FIM_1F)

PRODUCTIVE FOREST (2,750,066 acres) by Administration , Acquisition Status & Management Regime						
Productive Forest defined as "Yield Table Cover Types" for STHA modeling by MB&G						
	Acquired	ConCon	LUP	Trust	U Trust	Volstead
Forestry	F	F		F	F	F
Productive Forest - Yield Table Acres	356,998	498,017		1,437,494	15,972	12,074
Percent of Total Yield Table acres	13.0%	18.1%		52.3%	0.6%	0.4%
Wildlife	W	W	W	F		W
Productive Forest - Yield Table Acres	131,666	193,363	53,604	24,610		180
Percent of Total Yield Table acres	4.8%	7.0%	1.9%	0.9%		0.0%
Fisheries - Lake County	W					
Productive Forest - Yield Table Acres	6,540					
Percent of Total Yield Table acres	0.2%					
DNR - MPL	F					
Productive Forest - Yield Table Acres	19,548					
Percent of Total Yield Table acres	0.7%					

Olson - November 2017

Addendum #6 – SMA ranking Worksheet (Ver J - replaced by #7)

Special Management Areas (SMA) Hierarchy Ranking of Restrictions							***Olson - September 25, 2018***	
Special Management Area Type	**Designation status** (statute, DNR policy, SFRMP, other)	**SMA_Rank -** Higher number is more restrictive	**Full Total # of stands**	**Full Total sum of Man_Acres**	**After Hierarchy # of stands**	**After Hierarchy sum of Man_Acres**	**Percent remaining after Hierarchy**	**Query used with MBG_FIM_1J data to set SMA_Rank field**
Candidate lowland conifer old growth (LCOG)	*DNR policy - draft*	***43 - not coded***						Addressed thru other means. Needs to be in a format for a toggle on/off independent of the other SMAs.
Riparian management zones (RMZs)	*DNR policy*	***42- not coded***						Since controlled by an acre factor reduction this needs to be addressed thru other means.
165' RMZ adjacent to outstanding and high lakes of biological significance and within sensitive lakeshores	*new*	***41- not coded***						Since controlled by an acre factor reduction this needs to be addressed thru other means.
Endangered and threatened species occurrence (ET)	statute	**38**	794	38,928	794	38,928	100.0%	ET_State = 'NM' OR "ET_State" = 'present in unmanaged area'
Old growth special management zones (SMZ)	DNR policy	**37**	2,865	34,076	2,813	33,197	97.4%	smz_30 = 'Y'
Old forest management complexes (OFMC) / HCVF- low harvest / G1G2-low harvest	DNR policy	**36**	10,104	276,853	8,223	244,141	88.2%	"ofmc_50" = 'Y' OR "hcvf_cat" = 'low' OR "grank_regi" = 'low'
forest interior habitat MOA / red shoulder hawk areas	SFRMP Pilot	**35**	3,271	75,189	3,085	63,155	84.0%	moa_int_30 = 'Y'
Deer Yard (DMA)	SFRMP	**34**	15,904	326,494	14,906	305,853	93.7%	DMA = 'DMA'
Land Utilization Project lands (LUP)	federal policy	**33**	5,096	84,202	4,832	78,854	93.6%	ADMIN = 'WLD LUP'
Large Wildlife Management Areas (WMA)	Red Lake, Mille Lacs, Sandstone	**32**	7,693	358,877	4,964	294,220	82.0%	WMA_Unit = 'Mille Lacs WMA' OR "WMA_Unit" = 'Red Lake WMA' OR "WMA_Unit" = 'Sandstone WMA'
Aquatic Management Areas (AMA) (Lake Co)	statute	**31**	433	7,668	391	6,804	88.7%	ADMIN = 'Fish-Lake Co'
Bald eagle nests	federal policy	**29**	3,679	126,720	2,945	96,623	76.2%	EagleNest = 'present'
High Conservation Value Forests (HCVF) - medium harvest / G1G2-medium harvest	DNR policy	**28**	1,541	34,239	1,307	26,961	78.7%	hcvf_cat = 'medium' OR "grank_regi" = 'medium'
Special concern species occurrence (SPC)	statute	**27**	8,975	243,079	6,233	146,486	60.3%	SPC_State = 'present' OR "SPC_State" = 'present in unmanaged area'
Moose Management Area / Large Block Habitat MOA (MMA)	SFRMP	**26**	3,967	72,512	3,021	51,569	71.1%	MMA = 'MMA'
older large forest patches	SFRMP	**25**	4,298	137,948	2,038	62,195	45.1%	patches_30 = 'Y'
upland/lowland habitat MOA	SFRMP Pilot	**23**	2,006	39,514	1,391	22,339	56.5%	moa_upl_30 = 'Y'
Ruffed Grouse Management Areas (RGMA) / Small Block Habitat MOA	SFRMP	**22**	4,493	98,605	3,390	71,101	72.1%	RGMA = 'RGMA'
Northern Forest Owl MOA	SFRMP	**21**	2,275	83,013	1,826	68,390	82.4%	OWMA = 'OWMA'
Wildlife Administered other (by Section)	statute	**20**	35,673	1,019,665	19,514	431,026	42.3%	GROUP = 'W'
HCVF - high harvest & G1G2 - High harvest	SFRMP	**14**	2,497	85,553	924	23,209	27.1%	hcvf_cat = 'high' OR "grank_regi" = 'high'
Peatland SNA Watershed Protection Areas (WPA)	statute	**13**	4,186	297,113	2,273	137,396	46.2%	wpa_30 = 'Y'
Open landscape management areas (OLMA) / Open lands MOA / Sharp-tail management	SFRMP	**12**	5,285	180,969	3,197	100,662	55.6%	OLMA = 'OLMA'
White Pine Emphasis Area MOA	New, related to SFRMP/MNFRC landscape goals	**11**	657	12,435	269	6,273	50.4%	WPMA = 'WPMA'

Addendum #7 – second SMA ranking Worksheet – applied in 1K

Special Management Areas (SMA) Hierarchy Ranking of Restrictions							*Olson - January 18, 2019*	
Special Management Area Type	**Designation status** (statute, DNR policy, SFRMP, other)	SMA_Rank - number meaningless. Overlap hierarchy based on bottom to top order	Full Total # of stands	Full Total sum of Man_Acres	After Hierarchy # of stands	After Hierarchy sum of Man_Acres	Percent remaining after Hierarchy	Query used with MBG_FIM_1J data to set SMA_Rank field
Candidate lowland conifer old growth (LCOG)	*DNR policy - draft*	***not coded***						Addressed thru other means. Needs to be in a format for a toggle on/off independent of the other SMAs.
Riparian management zones (RMZs)	*DNR policy*	***not coded***						Since controlled by an acre factor reduction will be addressed thru other means.
165' RMZ adjacent to outstanding and high lakes of biological significance and within sensitive lakeshores	*new*	***not coded***						Since controlled by an acre factor reduction will be addressed thru other means.
Endangered and threatened species occurrence (ET)	statute	**38**	794	38,928	794	38,928	100.0%	ET_State = 'NM' OR "ET_State" = 'present in unmanaged area'
Old forest management complexes (OFMC) / HCVF- low harvest / G1G2-low harvest	DNR policy	**36**	10,104	276,853	9,915	270,303	97.6%	"ofmc_50" = 'Y' OR "hcvf_cat" = 'low' OR "grank_regi" = 'low'
Old growth special management zones (SMZ)	DNR policy	**37**	2,865	34,076	1,121	7,036	20.6%	smz_30 = 'Y'
forest interior habitat MOA / red shoulder hawk areas	SFRMP Pilot	**35**	3,271	75,189	3,085	63,155	84.0%	moa_int_30 = 'Y'
Deer Yard (DMA) - **reduced number of input polygons**	SFRMP	**34**	6,828	129,358	6,493	123,683	95.6%	DMA = 'DMA'
Bald eagle nests	federal policy	**29**	3,679	126,720	3,037	100,613	79.4%	EagleNest = 'present'
High Conservation Value Forests (HCVF) - medium harvest / G1G2-medium harvest	DNR policy	**28**	1,541	34,239	1,322	28,878	84.3%	hcvf_cat = 'medium' OR "grank_regi" = 'medium'
Special concern species occurrence (SPC)	statute	**27**	8,975	243,079	6,574	162,485	66.8%	SPC_State = 'present' OR "SPC_State" = 'present in unmanaged area'
Moose Management Area / Large Block Habitat MOA (MMA)	SFRMP	**26**	3,967	72,512	3,428	57,879	79.8%	MMA = 'MMA'
older large forest patches	SFRMP	**25**	4,298	137,948	2,377	76,865	55.7%	patches_30 = 'Y'
upland/lowland habitat MOA	SFRMP Pilot	**23**	2,006	39,514	1,391	22,339	56.5%	moa_upl_30 = 'Y'
Ruffed Grouse Management Areas (RGMA) / Small Block Habitat MOA	SFRMP	**22**	4,493	98,605	3,893	84,236	85.4%	RGMA = 'RGMA'
Northern Forest Owl MOA	SFRMP	**21**	2,275	83,013	1,967	71,172	85.7%	OWMA = 'OWMA'
Open landscape management areas (OLMA) / Open lands MOA / Sharp-tail management	SFRMP	**12**	5,285	180,969	4,335	134,654	74.4%	OLMA = 'OLMA'

Addendum #8 – Stand Exam acres after Manager Adjustments (Ver 1N)

These numbers are still valid in final Version 1P - No changes in these values after 8/21/2020.

Statewide Stand Exam Acres (Ver 1N - Aug 21, 2019)				10 year	Selected	Selected as
Mod Type	FY 21-23	FY 24-28	FY 29-30	Goal	Acres	Percent of
Ash / LH	4,204	7,734	5,526	62,336	60,095	96%
AspBam - High site	16,877	17,921	19,530	179,292	173,860	**97.0%**
AspBam - Low site & AX	14,577	9,498	9,463	110,146	112,013	**101.7%**
Balsam Fir	1,727	3,439	954	24,288	20,849	86%
Birch	1,492	584	1,770	10,936	11,149	102%
BSL - high site	1,392	1,005	1,799	12,797	14,149	111%
BSL - low site & SX	2,987	3,415	773	27,579	24,958	90%
BSL - med site	4,573	4,387	3,252	42,154	45,316	108%
Central Hdwds	46	116	32	784	818	104%
Jack Pine	1,802	2,083	1,725	19,271	18,578	96%
Northern Hdwds	4,176	2,762	3,015	32,368	31,354	97%
Oak	4,748	5,743	2,933	48,822	45,171	93%
Red Pine - natural	2,254	964	80	11,744	12,497	106%
Red Pine - plantation	8,291	6,620	1,555	61,084	62,888	103%
Stagnant Oak	298	38	-	1,083	965	89%
Tamarack - high site	3,454	1,762	3,619	26,410	28,622	108%
Tamarack - low site	2,695	6,319	4,412	48,503	47,941	99%
Upland Black Spruce	509	287	67	3,098	3,000	97%
White Cedar & CX	66	-	-	197	625	317%
White Pine	863	1,646	153	11,124	9,634	87%
White Spruce	2,662	3,014	1,345	25,747	25,005	97%
Misc, Non-Forest, Unknown				0	1,159	
Grand Total	**79,692**	**79,337**	**62,002**	759,763	750,646	**98.8%**

Individual selected stands actually sum to 750,648 acres - grouping and rounding gives total of 750,646 acres

Addendum #9 – Stand Exam Acres Adjusted after Model selections (Ver 1P)

After the implementation model selected stands, local managers reviewed these selections and made adjustments as needed for practical and/or corrective reasons. An attempt was made to keep the manager's adjustments acres and cover type neutral. Replacements were to be balanced by swapping similar cover types and ages having similar acres. This table quantifies the adjustments by the local managers.

The table below totals the final stand exam acres (T_ACRES field) by exam year that correspond with the model's five year cut periods. The first block is a summary of the total acres selected in each of these subset periods. The second block breaks out these totals by not model selected and model selected acres without regard to original cut period assignment. The third block differentiates the model selected stands into the individual five year cut periods as assigned by the model.

Of the final 750,648 acres selected for stand examinations, 696,915 acres (92.8%) were originally selected by the model and 53,733 acres (7.2%) were replacements added by local managers.

Composition of Final Stand Exam acres after Manager's Adjustment of Model Assigned Cut Periods

Stand Exam Year After Modeling and Manger's Adjustment Process	Final Acres Assigned	Model Output by Cut Period			Model Output by Specific Cut Periods				
		not selected	1, 2, or 3 2019 - 2033	Totals	not selected	1 2019 - 2023	2 2024 - 2028	3 2029 - 2033	Totals
2021 - 2023 (3 years)	**236,011**	**12,832**	**223,178**	236,011	**12,832**	**176,512**	**33,285**	**13,381**	236,011
		5.4%	**94.6%**	100%	**5.4%**	**74.8%**	**14.1%**	**5.7%**	100%
2024 - 2028 (5 years)	**383,049**	**28,988**	**354,061**	383,049	**28,988**	**41,584**	**252,300**	**60,177**	383,049
		7.6%	**92.4%**	100%	**7.6%**	**10.9%**	**65.9%**	**15.7%**	100%
2029 - 2030 (2 years)	**131,588**	**11,913**	**119,676**	131,588	**11,913**	**10,422**	**27,715**	**81,539**	131,588
		9.1%	**90.9%**	100%	**9.1%**	**7.9%**	**21.1%**	**62.0%**	100%
2021 - 2030 (10 years)	**750,648**	**53,733**	**696,915**	750,648	**53,733**	**228,518**	**313,300**	**155,097**	750,648
		7.2%	**92.8%**	100%	**7.2%**	**30.4%**	**41.7%**	**20.7%**	100%