

NATIONAL FOREST TYPE CLASSIFICATION

The forest type classification is derived from a primary classification adopted for the SI National Forest Resources Inventory carried out from 1991-1994.

PRIMARY CLASSIFICATION OF FOREST TYPES

A “forest type” is defined as any group of tree dominated stands which possess a general similarity in composition and character. A forest type may encompass either a broad area of forested land of mixed but distinctive species composition and character (e.g. freshwater swamp forest of mixed composition) or more discrete area of forest dominated by *Terminalia brassii*.

LEVEL 1 ECOLOGICAL CLASSES
LEVEL 2 CANOPY DENSITY CLASSES
LEVEL 3 CROWN SIZE CLASSES

ECCOLOGICAL FOREST CLASSES

Level 1 one Stratification involves a dissection of land cover into ecological classes. These are distinctive areas displaying characteristic air photo pattern and essentially comprise of a suite of species adapted to prevailing site conditions. Each of these levels are laterally open-ended so that new types can be added at any time.

CROWN SIZE CLASSES

Level three stratification is a dissection or classification of each of the above canopy density classes into crown size classes. As for the above stratification levels reference is made to the primary canopy only.

CROWN SIZE CLASSES

CLASS	CROWN SIZE
S	Small
M	Medium-Large
V	Various

MAP CODING OF PRIMARY CLASSIFICATION OF FOREST TYPES

Final typing from API will result in forest types which are composites of stratification levels one, two and three as shown in the following examples:

ECOLOGICAL CLASS	e.g lowland rainforest on hills of mixed spp composition.	HM
<i>This is stratified into</i>		
CANOPY DENSITY CLASS	e.g mid-dense to dense forest	3
<i>This is further stratified into</i>		
CROWN SIZE CLASS	e.g small to medium crowns	S

Coding for photo annotation using the primary classification involves four characters:

- First two characters designating**Ecological Class**
- Third character designating**Canopy density Class**
- Fourth character designating**Crown Size Class**

Photo coding for the above example is shown thus:.....**HM3S**

This indicates a fine-crowned, mid-dense to dense hill forest.

SALINE SWAMP FOREST	
CLASS	COMPOSITION
SM	Saline swamp forest, mixed spp (mangroves)
SN	Degraded forest (anthropogenic, gardens etc
FRESHWATER SWAMP FOREST	
CLASS	COMPOSITION
FM	Fresh swamp forest, mixed spp composition
FC	Casuarina swamp forest
FP	Pandan swamp forest
FS	Sago swamp forest
FT	Terminalia swamp forest
FL	Logged forest
FN	Degraded forest (anthropogenic, gardens etc
LOWLAND RAINFOREST ON NEAR LEVEL LANDS	
CLASS	COMPOSITION
LM	Lowland rainforest, mixed spp composition

LC	Casuarina dominated lowland rainforest
LL	Logged forest
LN	Degraded forest (anthropogenic, gardens etc)
HILL FOREST	
CLASS	COMPOSITION
HM	Rainforest on hills, mixed spp composition
HC	Casuarina dominated hill forest
HN	Degraded rainforest on hills
HL	Logged forest
UPLAND FOREST HILLS (Montane elements present)	
CLASS	COMPOSITION
UM	Upland forest on hills, mixed spp composition
OTHER AREAS	
CLASS	COMPOSITION
NH	Herbaceous swamps, mixed spp composition
NR	River courses; braided streams
NW	Open Water(inland)
NP	Plantation areas for timber production
NC	Cloud obscured areas

CANOPY DENSITY CLASSES

Considering the frequency of cyclonic events and their impact on the forest as well as anthropogenic disturbance (gardens, logging etc), a second and third level of stratification is included to provide an indication of forest condition.

The second level of stratification is a dissection of the primary canopy for each of the above ecological classes into density classes as follows:

CLASS	DENSITY	DESCRIPTION
1	10-20%	Degraded forest areas Cleared to sparse remnant forest Primary canopy; very open to isolated trees
2	10-50%	Severe to moderately disturbed forest areas Sparse to mid-dense forest Primary canopy; clearly separated
3	40-100%	Moderate to relatively undisturbed forest areas Mid dense to dense forest Primary canopy; separated to overlapping

COMMERCIAL & SEMI-COMMERCIAL FOREST CLASSIFICATION

The forest types were further classified into two categories indicating their potential for purposes that are important for forest development options such as logging or sawmilling operations. Those forest types that are not suitable for the above purpose were categorized as Non-commercial forest types.

FOREST TYPES	STATUS	CATEGORY
HM3V	C	COMMERCIAL
HM3M	C	COMMERCIAL
LM3V	C	COMMERCIAL
LM3M	C	COMMERCIAL
FT3V	C	COMMERCIAL
FT3M	C	COMMERCIAL
FM3V	C	COMMERCIAL
FM3M	C	COMMERCIAL
HM2V	S	SEMI-COMMERCIAL
LM2V	S	SEMI-COMMERCIAL
FT2V	S	SEMI-COMMERCIAL
HL2V	S	SEMI-COMMERCIAL
FM2V	S	SEMI-COMMERCIAL

MERCHANTABLE FOREST CLASSIFICATION

There are four categories under this classification that are intersected with the slope classes a GIS layer created for each region indicating areas that are suitable for logging excluding forest areas that are above 400m a.s.l, >30 degree slopes, mangroves, non-commercial forest categories, stream buffers of 50m for major water courses of Class 1 & 2 streams, village resources zones etc. The above forest types meets the specification and are merge to form the merchantable forest types.

CATEGORY
Commercial forest 0-15 degree slopes
Commercial forest 15-30 degree slopes
Semi-commercial forest 0-15 degree slopes
Semi-commercial forest 15-30 deg slopes

The merchantable forest areas are those forest types that are committed for production under the logging and milling industry.

OVERVIEW OF THE FOREST TYPES

In deriving these types, the photographs were marked to show their “effecting area” the central area of a photograph that has minimal displacement, this procedure systematically ensured that all the land

area was typed and facilitates mapping procedures. A minimum mappable area of 10 hectares was adopted. If less than 10 hectares, such areas are included in the most appropriate adjacent type.

SALINE SWAMP FOREST	Occurs on land subject to tidal and supra tidal influences such as estuaries and foreshores. Essentially they comprise of mangroves. On aerial photographs they typically display dense, relatively fine dark crowns.
FRESH WATER SWAMP FOREST	Is common where there is minor topographic relief and drainage is impeded. On aerial photographs they are recognizable by their topographic position and variation in crown size and density. The presence of TERB, sago palm and pandans, being distinctive on air photos, is useful indicators. Where such species dominate they are delineated as a separate class of freshwater forest.
LOWLAND RAINFOREST (On level or nearly level land)	A variation of the better drained lowland rainforest occurs on hills, this forest has a complex structure and composition. Although characterized by the absence of TERB(except along rivers and creeks) and sago palm it commonly contains localized elements of freshwater swamp forests.
HILL FOREST	Is distinguished by its well-drained topographic position. It forms the bulk of forest with commercial potential in the regions. It is complex in composition and structure and its appearance on aerial photographs varies considerably in crown size, color and tone and canopy density. The patterns that can be discerned on photographs suggest that this may largely be attributable to cyclonic disturbances and land slips. A variant of this class of forest is that dominated by <i>Casuarina papuana</i> which can usually be identified on aerial photographs by its light tone and fine diffuse texture.
UPLAND HILL RAINFOREST	It is a Montane forest which occurs on higher altitude ridge tops and mountain summit, generally above 600 meters. Occasionally it is present at lower elevations in relatively harsher conditions. Often tall-statured 25 to 35 m lowland rain forest changes abruptly to a lower-statured 15 to 20 m tall montane rain forest on wet, cloudy, windy sites and on ridges.
OTHER AREAS	Essentially comprises non-rainforest vegetation communities such as herbaceous swamp communities and braided river courses. Plantations established for timber production are also included, these are delineated as one unit and no attempt is made to further stratify such plantation areas into species groups.

FOREST CONDITION

From air photos an indication of forest condition may be ascertained from the severity of canopy disturbance, resulting from impact by natural events such as cyclones or anthropogenic activities involving clearing, cultivation and commercial timber extraction. An attempt is made to provide an index by including canopy density classes (stratification level two). Canopy class one typically indicates forest that has been degraded by wind damage, landslips, high impact logging operations, cultivation or land clearing for other purposes.

Canopy density class two typically indicates severe to moderate disturbance, usually by cyclonic events, landslips or high impact logging operations.

Canopy density class three indicates moderate disturbance to relatively undisturbed forest. Relatively low impact past logging operations may fall into this class.

DATA UPDATE RESPOND TO DEPLETION OF MERCHANTABLE FOREST AREAS UNDER CURRENT HARVESTING TREND

Under the current trend of log extraction thru logging in unlogged merchantable forest areas and within logged over areas it will not be easy to get appropriate figures when resources that will provide immediate data capture such as recent quality satellite images were not available to digitize logged over areas. However, thru past efforts, there are reference figures that are available in the 2006 National Update report that should guide us in how we monitor the current situation.

There is a GIS program created to counter check the existing valid logging concession areas and the new applications for logging licenses. Using this tool, we should be able to determine the following data:

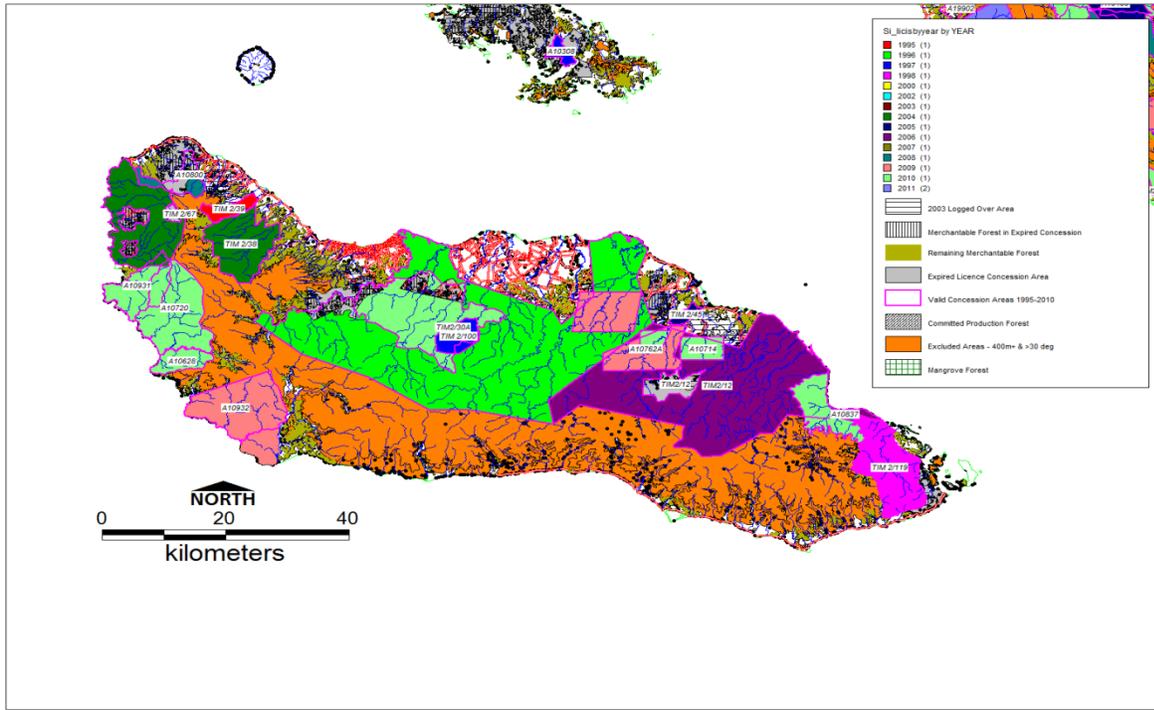
- There is an existing 2003 logged over GIS layer
- There is a GIS layer on the expired logging concessions
- There is a GIS layer on the valid logging concession areas
- There is a GIS layer on the remaining merchantable forest area

At this point we should be able to determine the following with consultation with the License Section and the Operations section along with export figures from the Marketing Section.

- Committed Production forest under valid license in unlogged merchantable forest areas
- Committed Production forest under valid license in logged over areas
- Committed Production forest under expired license concession areas (to be confirmed from operations for logged over status)
- Export figures from the Marketing Section

Out from the above without a recent satellite image we should have a GIS layer with appropriate estimate to determine the **Remaining unlogged Merchantable Forest Areas**. A summary Report should

be prepared at the end of each year to guide us on strategic actions on what important decision should be made for the upcoming year on the many forest issues and challenges that we will face as the Ministry responsible for the Management and utilization of the forest resources.



E.g. Map01: Current update for Guadalcanal Province

The final classification on the Natural Forest Timber resources base is the “REMAINING MERCHANTABLE FOREST AREA”.

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With reference to SINFIIP (1992) API technical sheet.

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