

**添付資料2 森林資源DB作成・利用・管理のためのマニュアル  
及び作業フロー**

## **Forest Resource Database Creation, Use & Maintenance Manual**

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## 1. Creation of the Forest Resource Database

### 1.1. Operation procedure for updateing Concession areas on the new FIMS

Method A : Import from Mapinfo TAB file

Method B : Digitize concession area by the new FIMS

#### Method A : Import from Mapinfo TAB file

Steps

1. Convert the data from TAB to SHP by MapInfo
2. Confirm and Edit attribute fields
3. Convert geometry type of shape-file from “Polygon ZM” to “Polygon”.
4. Edit attribute values
5. Import the shape-file into new FIMS.
6. Run re-calculation.

#### 1. Convert the data from TAB to SHP by MapInfo

1-1.Start MapInfo.

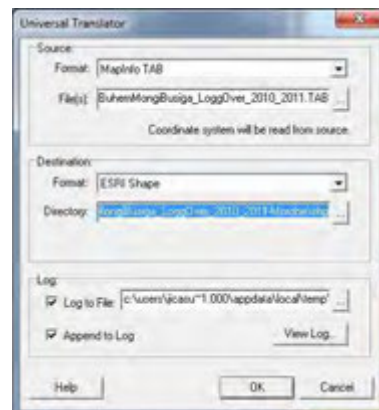
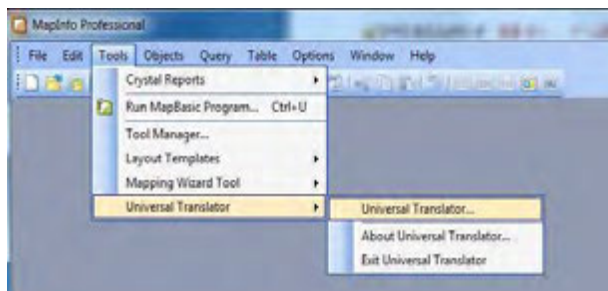
1-2.Choose [Tools]>[Universal Translator].

1-3.In Universal Translator window, select the Format and set the File to be converted and destination directory.

Source Format>Mapinfo TAB

Destination Format>ESRI Shape

1-4.Click OK to run converting.



## 2. Confirm and Edit attribute fields by ArcGIS

To import the data into new FIMS, you need to confirm attribute fields by ArcGIS.

If there is any differences, you need to edit the attribute fields by ArcGIS.

New FIMS can import a following shapefile having attribute fields.

Name	Type	Remarks	mandatory
PROVINCE	Double	Province to which the Concession Area belongs	<input type="radio"/>
PLAN_ID	Double	Plan_id	<input type="radio"/>
STATUS	Test	Input the status of either of the following “Concession” or “Proposed”	<input type="radio"/>
AREA	Double	Extent of Concession Area (units: ha)	
purchase	Date		
Exp	Date		
CONSTYPE	Text		
SCALE	Text		
NAME	Text	Concession Area name	

If the shape file does not have “PROVINCE” attribute field, you need to add the field.

2-1. Start ArcMap or ArcCatalog.

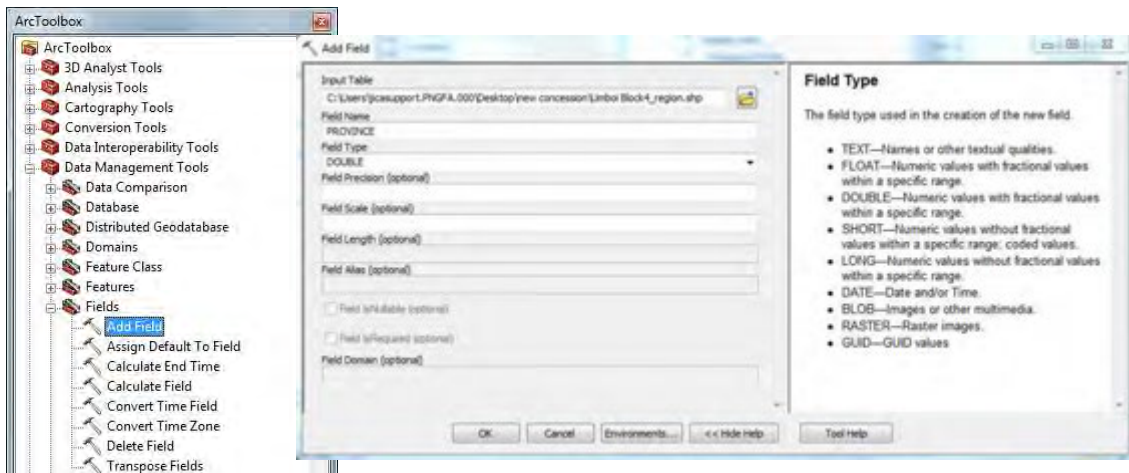
2-2. Choose [ArcToolbox]>[Data Management Tools]>[Fields]>[Add Field]

2-3. Select the target shape-file in Input Table.

2-4. Add “PROVINCE” in Field Name.

2-5. Select “DOUBLE” in Field Type.

2-5. Click OK.



FID	Shape	PLAN_ID	NAME	AREA	PURCHASE	EXP	CONSTYPE	STATUS	SCALE
0	Polygon ZM	0		0					



FID	Shape	PLAN_ID	NAME	AREA	PURCHASE	EXP	CONSTYPE	STATUS	SCALE	PROVINCE
0	Polygon ZM	0		0						0

### 3.Convert geometry type of shape-file from “Polygon ZM” to “Polygon”

After converting from Tab-file, the geometry type of shape-file become “Polygon ZM”.

You have to change the geometry type because new FIMS can import only the geometry type “Polygon”.

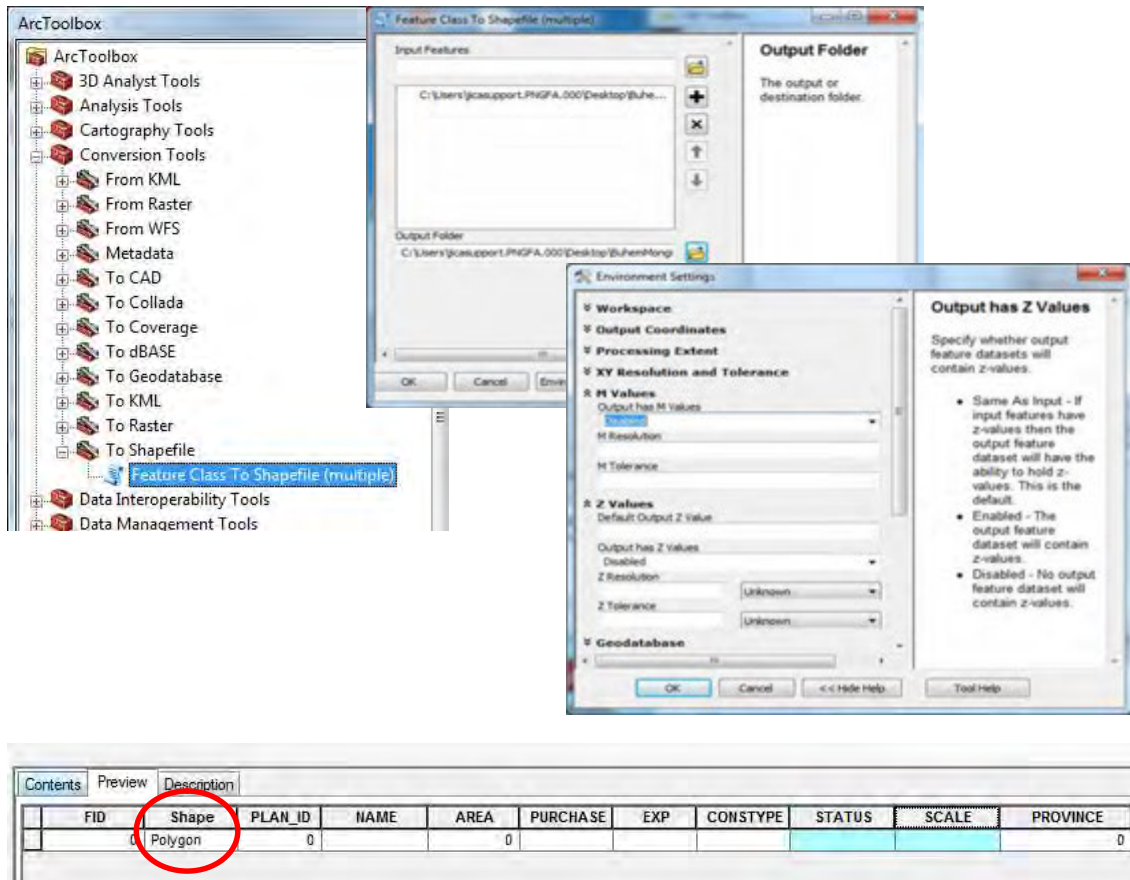
3-1. Start ArcMap or ArcCatalog.

3-2. Choose [ArcToolbox]>[Conversion Tools]>[To Shapefile]>[Feature Class to Shapefile(multiple)]

3-3. In Feature Class To Shapefile(multiple) window, set the File to be converted and destination directory.

3-4. Click on the Environments, then set output area of M Values and Z Values to Disabled.

3-5. Click OK to run converting. The new shape-file is generated.



#### 4. Editing attribute values by ArcMap

4-1. Open the shape-file converted to polygon type.

4-2. Open attribute table.

4-3. Choose [Editor]>[Strat Editing]

4-4. Editing the values.

- “PROVINCE” , “PLAN\_ID” and “AREA” field can have only a numeric value. Delete character string if the value is having that.
- “purchase” and “Exp” field can have mm/yyyy value. Change the value as necessary.
- If attribute value is null, you do not need to edit the field.

## 5. Import the shape-file into new FIMS

5-1. Start new FIMS.

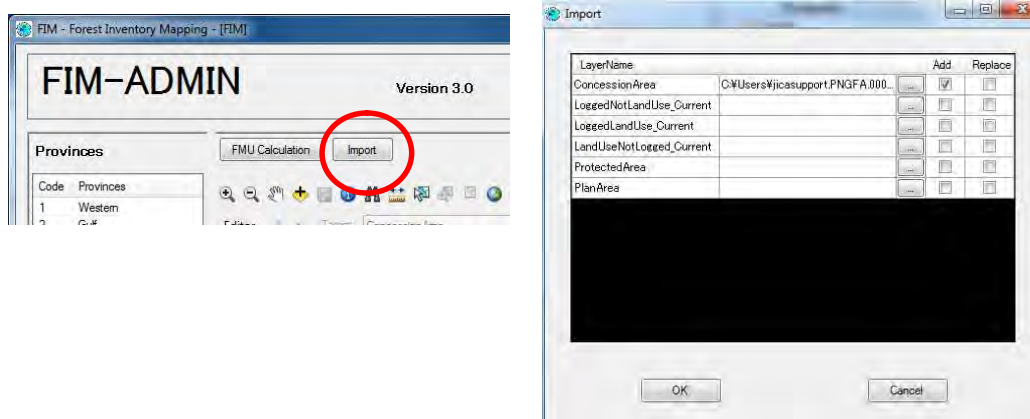
5-2. Select the Province.

5-3. Click on the Large Map button to open Map Window . Move to the location of new concession area on the map.

5-4. Click on the Import button.

5-5. Select the ConcessionArea and set the Shape-file to be imported, and check the Add Box.

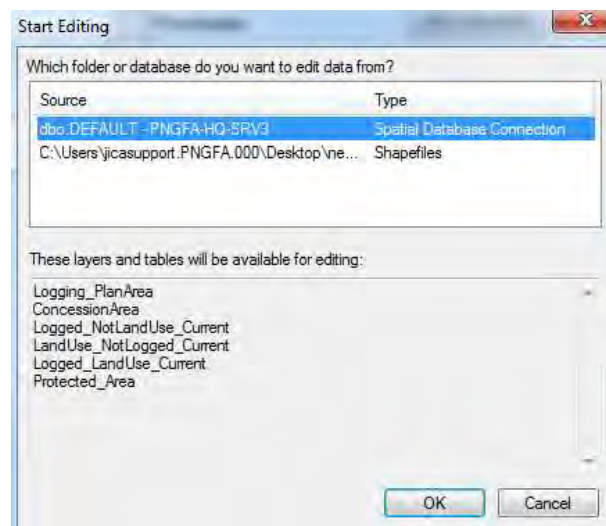
5-6. Click OK to import. SQLServer database of FIMS will be updated.



5-7. Edit attribute of the concession

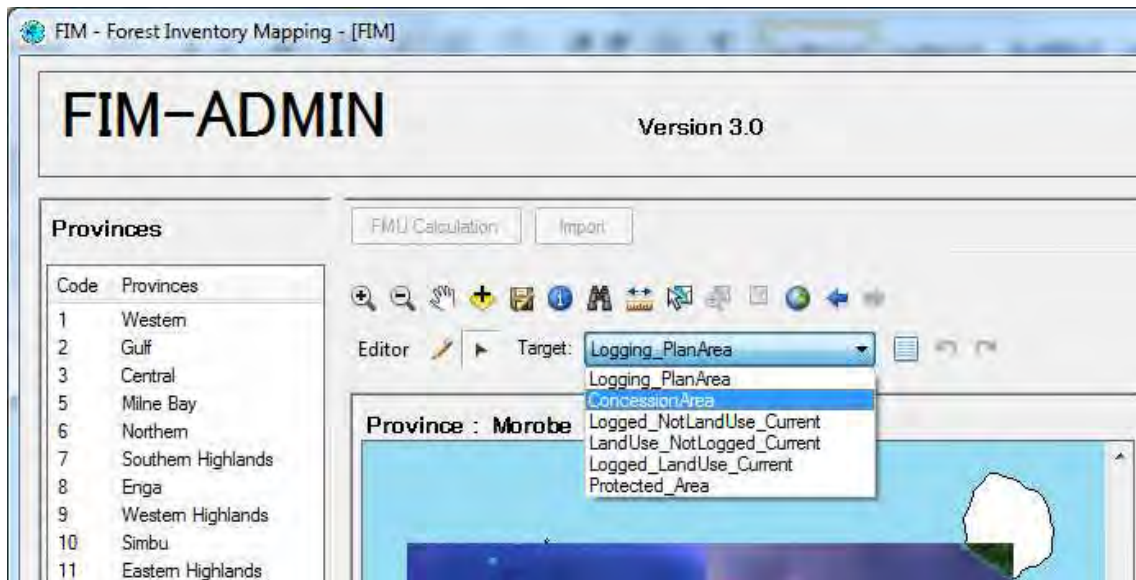
Editor > Start editing

If Start Editing window open, select “dbo.DEFAULT – PNGFA-HQ-SRV3”

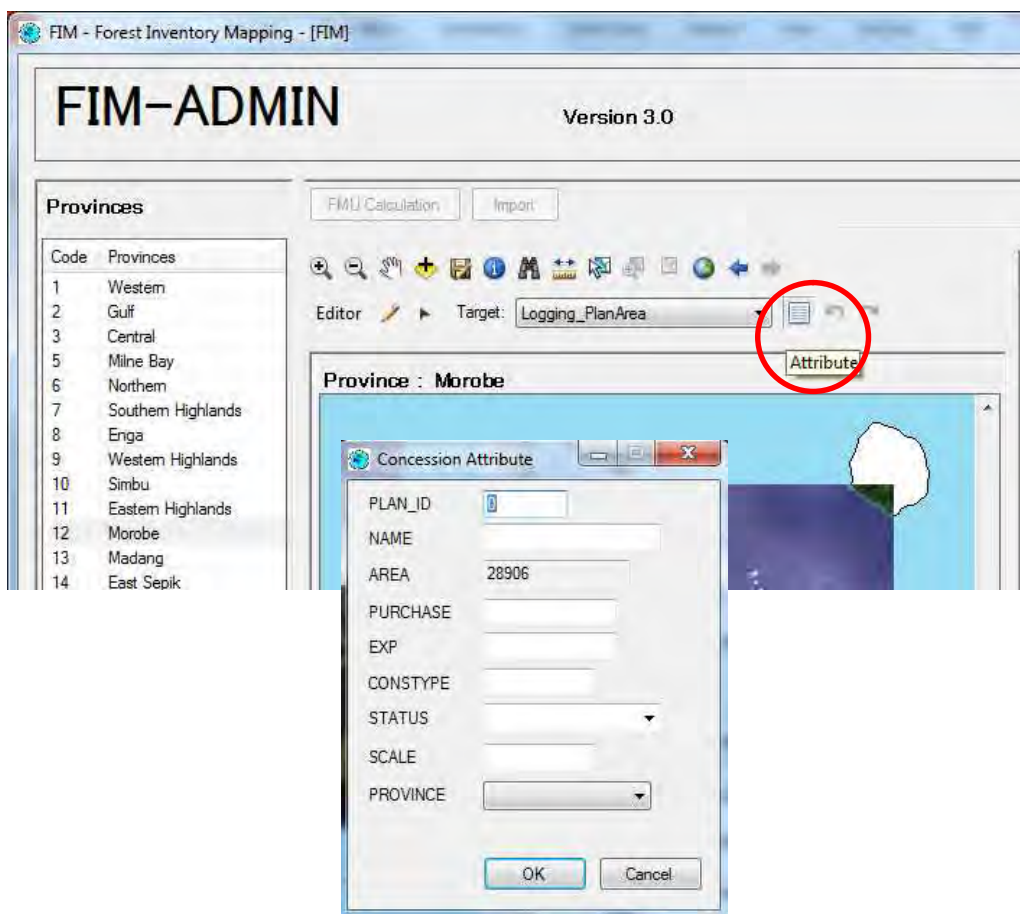


Then Select target layer you want to edit.

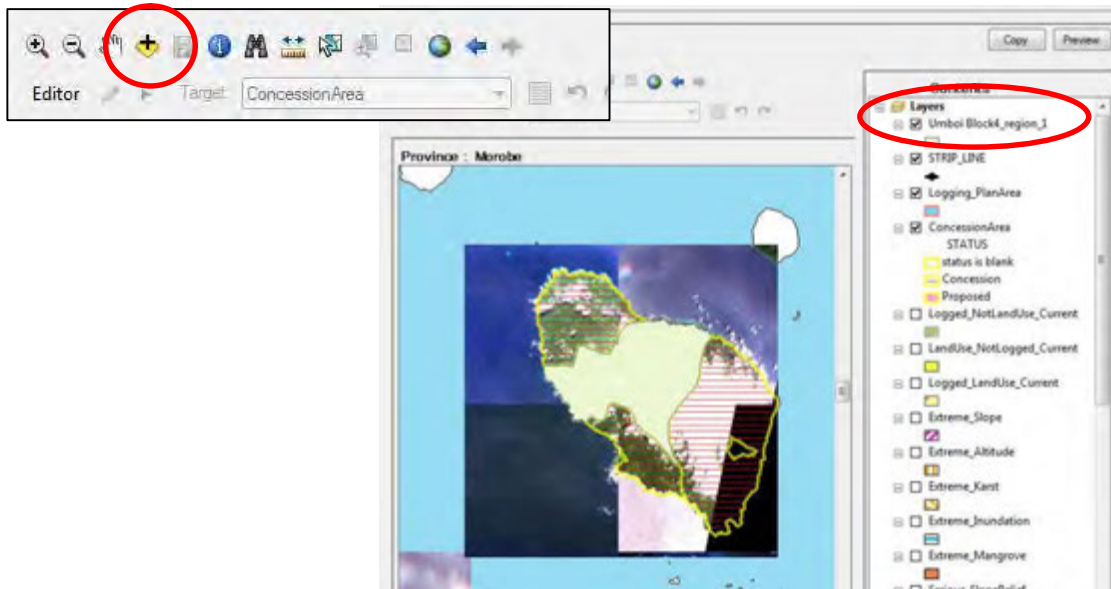




Click on the “Attribute”, then Concession Attribute window will open and you can edit attribute values.



5-8. You Can also overlay the shape-file to be imported. Click Add layer button and select the shape-file. This function can see shape-files temporary, the SQL Server database is not updated.



## 6. Run re-calculation

- 6-1. Click on the FMU Calculation button.
- 6-2. Choose FMU Tab and select Provinces to be re-calculated. The FMU layer is updated.
- 6-3. Choose Concession Tab and select Provinces to be re-calculated. The Concession table is updated.
- 6-4. You can see the result in the main window or by printing reports.

## Method B : Digitize concession area by the new FIMS

Steps

1. Scan the map
2. Georeference the scanned Image
3. Overlay the georectified map on the new FIMS
4. Digitize a shape and enter attribute values on the new FIMS
5. Run re-calculation

Exercise : Digitize Annual logging map to enter "Logged\_NotLandUse" polygon.

**NOTE**

Method A and Method B are applicable to other layers(Logged Over area, Protected area, Logging Plan area).

When you import from shape-file, confirm attribute fields of each layer.

**Logged Over area**

Name	Type	Remarks	mandatory
PROVINCE	Double	Province that the Logged Over Area belongs to	○
AREA	Double	Extent of Logged Over Area (manual input, units: ha)	
AREA2	Double	Extent of Logged Over Area (automatic input, units: ha)	
TYPE	Text	Logged Over Area type	
ACHARVOL	Double	Actual harvest Volume	
PLAN_ID	Double	Plan id of the Concession to which the Logged Over Area belongs	
YEAR	Text	The date of the Logged Over Area is input in the following format Format: mm/yyyy	
NAME	Text	Logged Over Area name	

**Protected area**

Name	Type	Remarks	mandatory
PROVINCE	Double	Province to which the Protected Area belongs	○
PROTECT_ID	Double	Protected Area ID	
NAME	text	Protected Area name	
TYPE	text	Protected Area type	
GAZ_DATE	Text	Designated date by protected area	
LOCATION	Text	protected area's location (Character string )	
TENURE	Text	protected area's holder	
AREA	Double	Extent of Protected Area (units: ha)	
ALTITUDE	Text	altitude description	

Name	Type	Remarks	mandatory
LOGITUDE	Text	protected area's location (longitude )	
LATITUDE	Text	protected area's location (latitude)	

### Logging Plan area

Name	Type	Remarks	mandatory
PROVINCE	Double	Province to which the Plan Area belongs	○
AREA	Double	Extent of Plan Area (units: ha)	
AREA2	Double	Extent of Plan Area (automatic input, units: ha)	
TYPE	Text	Plan Area type	
PRJHARVOL	Double	Project harvest Volume	
PLAN_ID	Double	Plan id of the Concession to which the Plan Area belongs	
YEAR	Text	The date of the Plan Area is input in the following format Format: mm/yyyy	
NAME	Text	Plan Area name	

## 1.2. Operation procedure for importing logged and land use areas into new FIMS

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### Steps

1. Converting the data from TAB to SHP by MapInfo
2. Editing attribute fields
3. Convert geometry type of shape-file from “Polygon ZM” to “Polygon”.
4. Editing attribute values
5. Importing the shape-file into new FIMS.
6. Running re-calculation.

### 1. Converting the data from TAB to SHP by MapInfo

1-1. Start MapInfo.

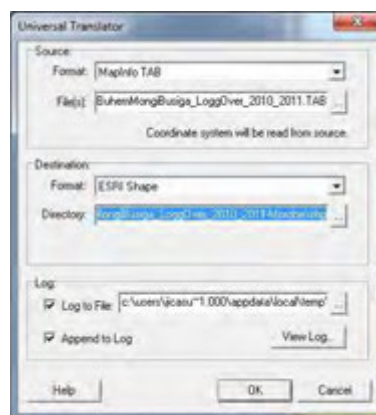
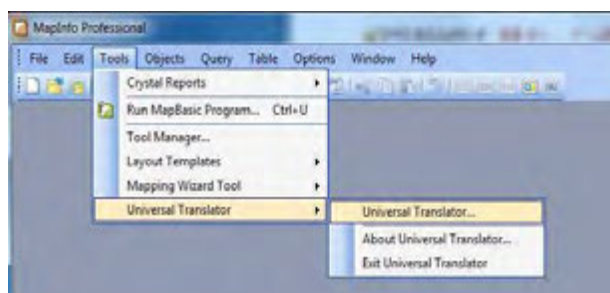
1-2. Choose [Tools]>[Universal Translator].

1-3. In Universal Translator window, select the Format and set the File to be converted and destination directory.

Source Format>Mapinfo TAB

Destination Format>ESRI Shape

1-4. Click OK to run converting.



### 2. Editing attribute fields by ArcMap

To import the data into new FIMS, you need to edit attribute fields by ArcGIS, because there are differences in attribute fields.

- New FIMS need the attribute “province” in logged and land use layer.
- But the shape-file converted from Tab-file does not have this field.

2-1. Start ArcMap or ArcCatalog.

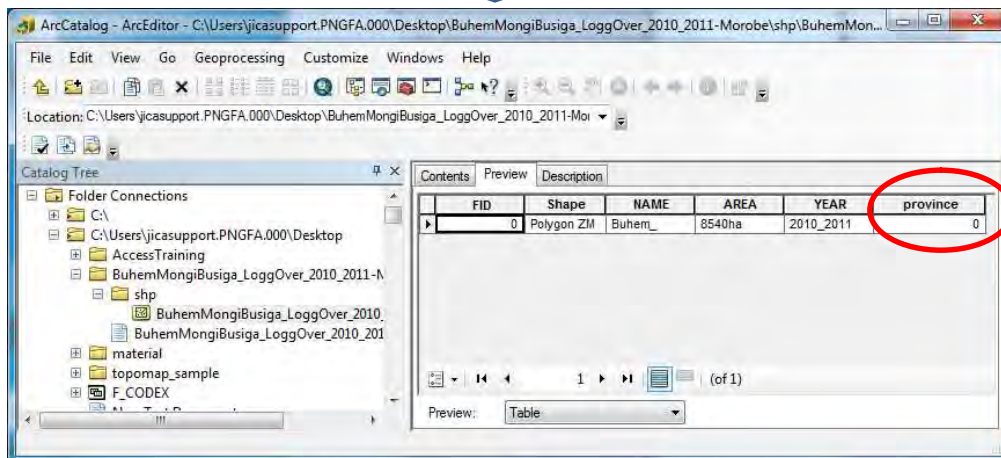
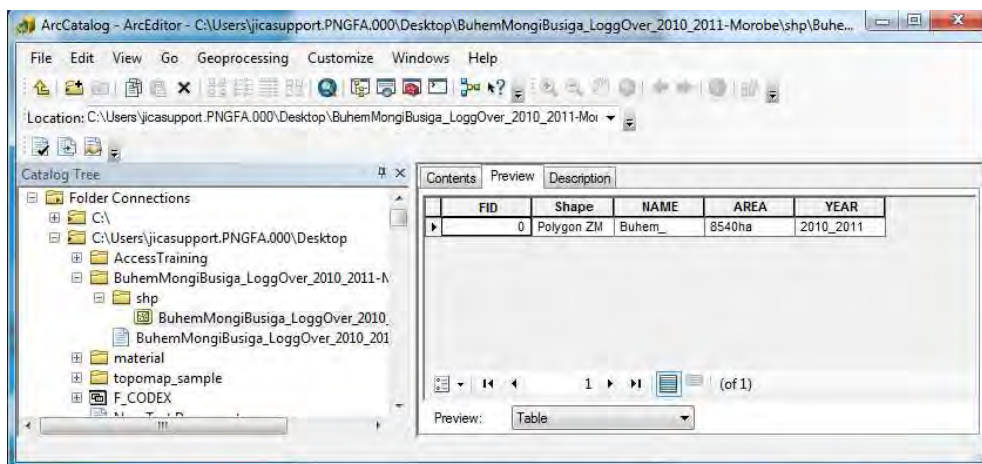
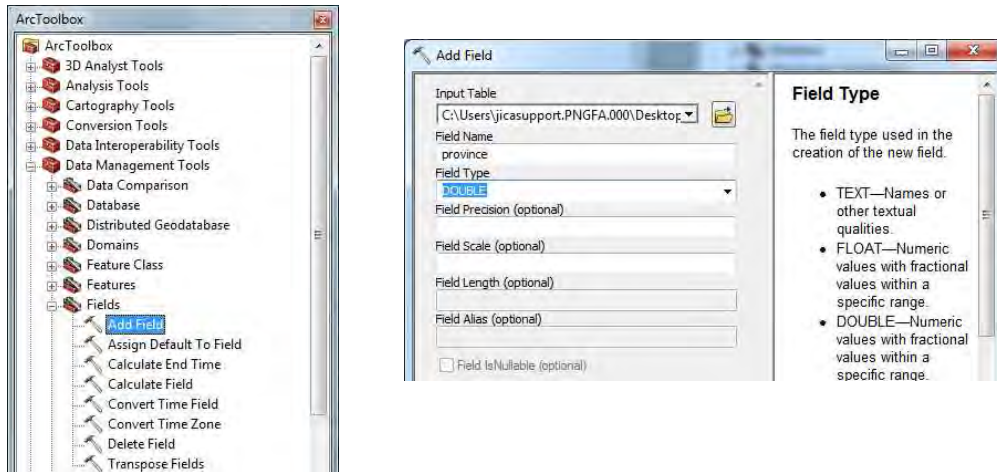
2-2. Choose [ArcToolbox]>[Data Management Tools]>[Fields]>[Add Field]

2-3. Select the target shape-file in Input Table.

2-4. Add “province” in Field Name.

2-5. Select “DOUBLE” in Field Type.

2-5. Click OK.



### **3.Convert geometry type of shape-file from “Polygon ZM” to “Polygon”**

After converting from Tab-file, the geometry type of shape-file become “Polygon ZM”.

You have to change the geometry type because new FIMS can accept only the geometry type “Polygon”.

3-1. Start ArcMap or ArcCatalog.

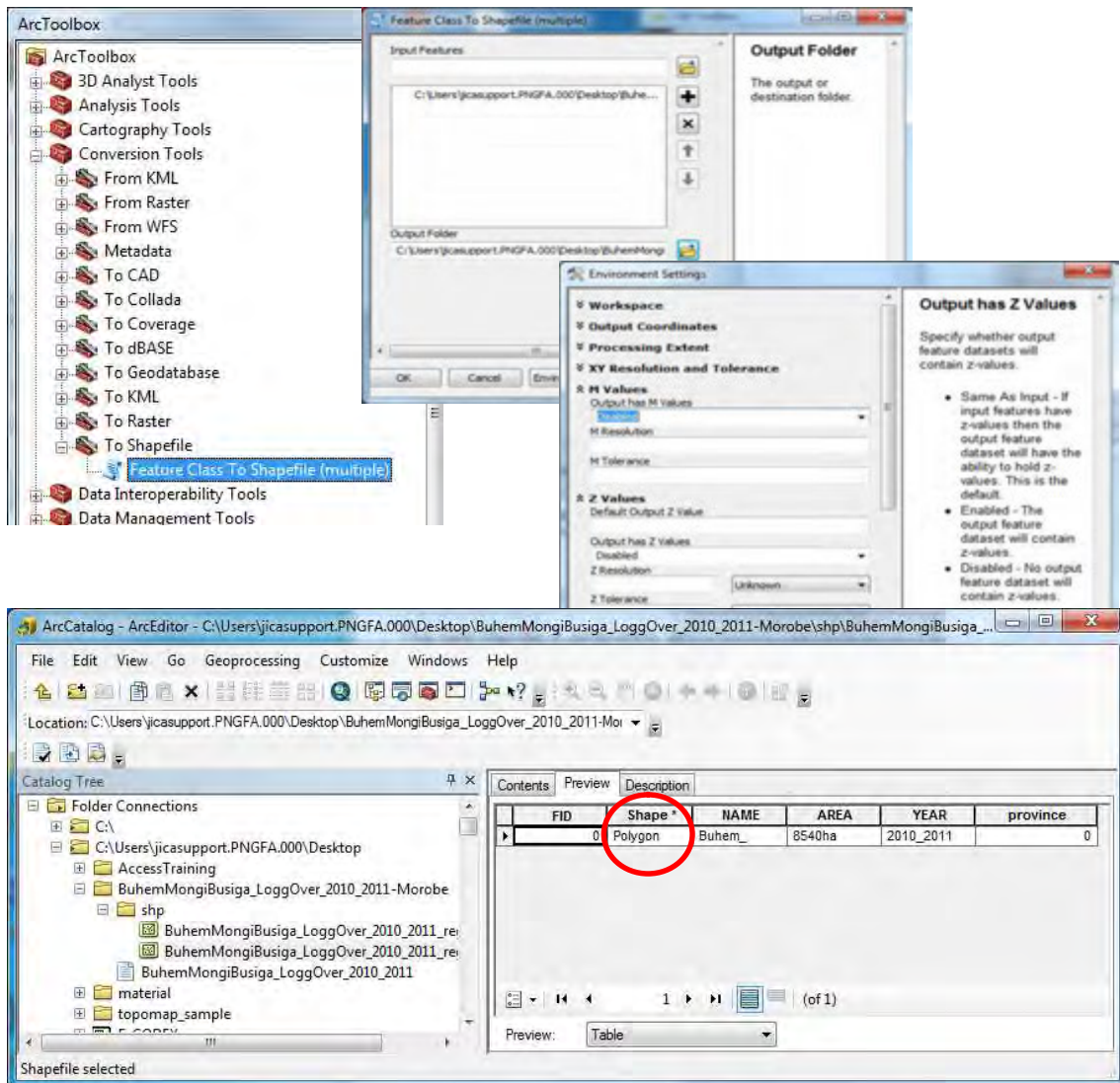
3-2. Choose [ArcToolbox]>[Conversion Tools]>[To Shapefile]>[Feature Class to Shapefile(multiple)]

3-3. In Feature Class To Shapefile(multiple) window, set the File to be converted and destination directory.

3-4. Click on the Environments, then set output area of M Values and Z Values to Disabled.

3-5. Click OK to run converting. The new shape-file is generated.





#### 4. Editing attribute values by ArcMap

4-1. Open the shape-file converted to polygon type.

4-2. Open attribute table.

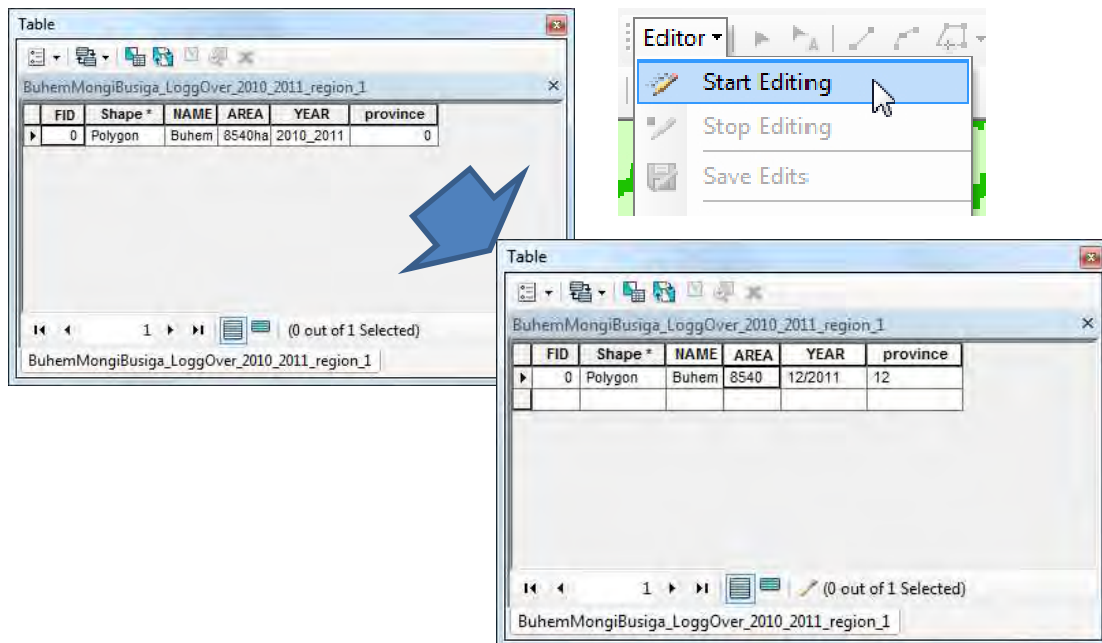
4-3. Choose [Editor]>[Strat Editing]

4-4. Editing the values.

- AREA field of new FIMS can have only a numeric value. Delete character string.
- YEAR field of new FIMS can have mm/yyyy value. Change the value.
- Enter province code.(you can also enter province code on new FIMS)

4-5. Choose [Editor]>[Save Edits] to save and [Editor]>[Stop Editing] when you finish editing.





## 5. Importing the shape-file into new FIMS

5-1. Strat new FIMS.

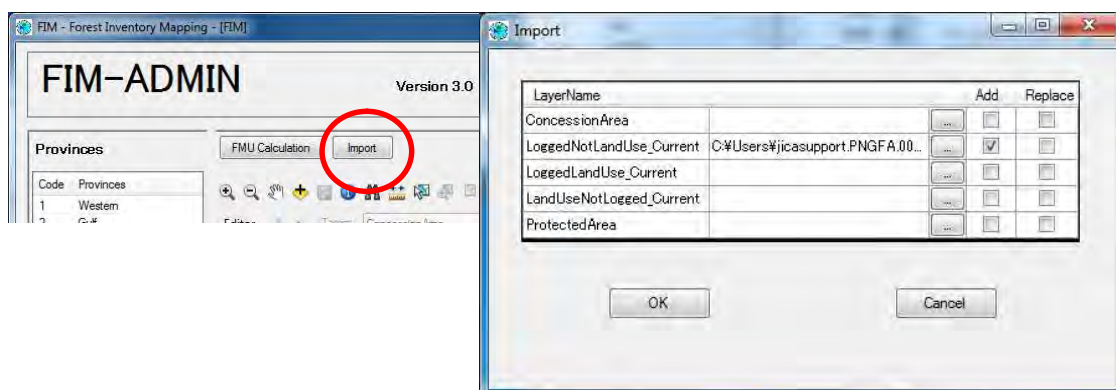
5-2. Select the Province and click on the Concession button to select the concession area.

5-3. Click on the Large Map button to open Map Window .

5-4. Click on the Import button.

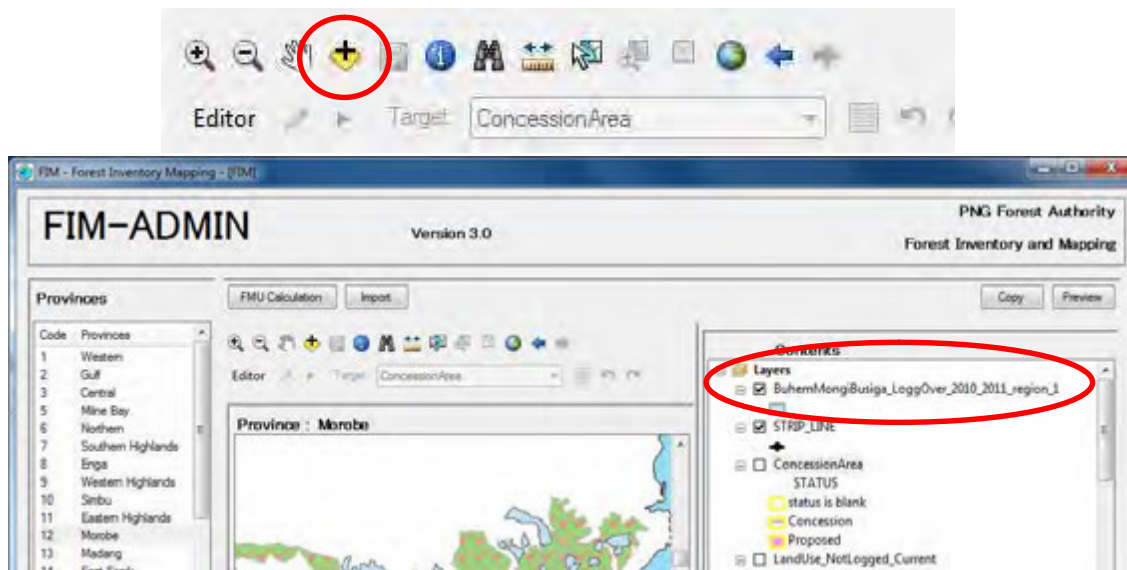
5-5. Select the destination layer of (among LoggedNotLandUse\_Current, LoggedLandUse\_Current, LandUseNotLogged\_Current) and set the Shape-file to be imported, and check the Add Box.

5-6. Click OK to import. SQLServer database of FIMS will be updated.



5-7. You Can also overlay the shape-file to be imported. Click Add layer button and select the shape-file. This function can see shape-files temporary, the SQL Server

database is not updated.



## 6. Running re-calculation

6-1. Click on the FMU Calculation button.

6-2. Choose FMU Tab and select Provinces to be re-calculated. The FMU layer is updated.

6-3. Choose Concession Tab and select Provinces to be re-calculated. The Concession table is updated.

6-4. You can see the result in the main window or by printing reports.

### 1.3. Operation procedure for importing survey results into new FIPS

New FIPS provides two options to enter the survey results (field book data).

Method 1) Enter data to FIPS directly (existing function)

Method 2) Import from Excel spreadsheet (new function)

→This manual is showing Method 2.

Steps

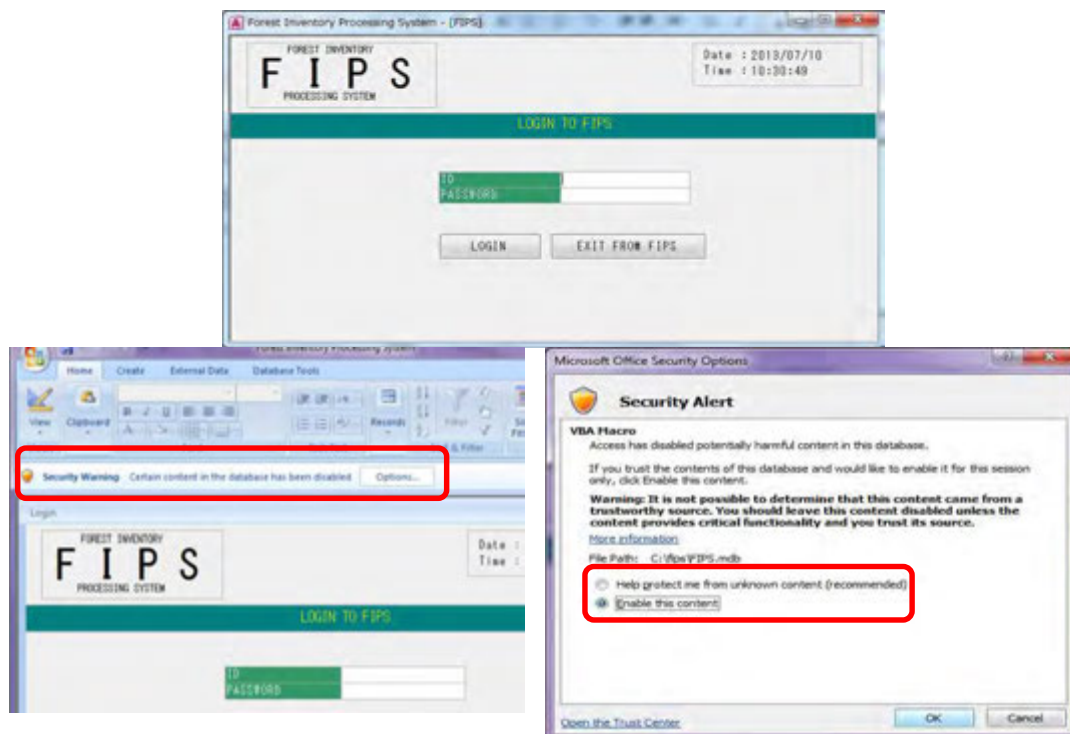
1. Enter information for a new survey
2. Input the field book data into an excel spreadsheet
3. Import the field book data from the excel spreadsheet into new FIPS
4. Run calculation, print reports and output to excel file

#### 1. Enter information for a new survey

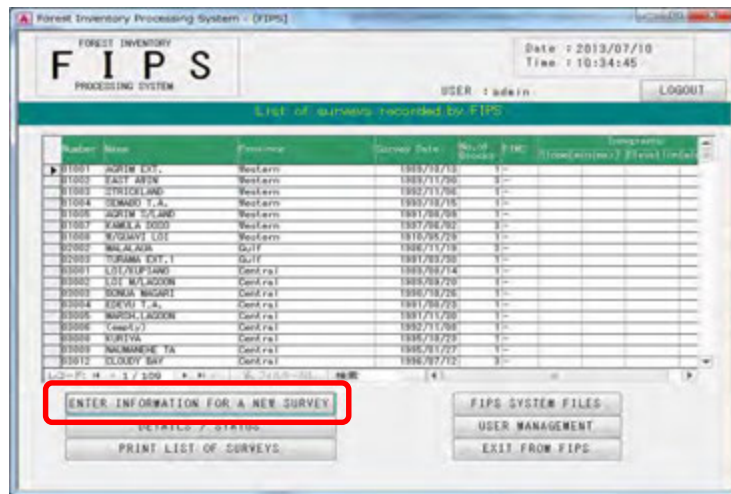
##### 1-1. Start FIPS.

Click FIPS-Startup on the desktop, input ID and PASSWORD, then main window will open.

In case Security warning appears, Click on “Options” and select “Enable this content”.



1-2. Click on the “ENTER INFORMATION FOR A NEW SURVEY” button.



1-3. Enter the details of the survey.

(1) Survey Number (Mandatory Item)

Check the last number which has been used already in the main window.

The survey number is a five digit numeric code with the first two digits the province number and the last three a number from 001 to 999.

(2) Name of survey (Mandatory Item)

Can be entered up to 20 characters.

(3) Date of survey

Completion date. The format of date is DD/MM/YYYY. ( Eg. 01/06/2012)

(4) Gross area in hectares (Optional)

Enter the gross area of resource area in hectares. The area must be an integer

number (whole number). If you recorded the area as a decimal number, you need to round it off to the nearest whole number.

(5) File / Ref .Number

(You can skip over entering this information.)

(6) Number of blocks

Enter the number blocks.

(7) Area of Block

Enter the area of each block in hectares. The area must be an integer number. If you recorded an area as a decimal number, you need to round it off to the integer number.

The entry number of Area of Block is the same with the value of “Number of Blocks”. If the value of “Number of Blocks” is “2”, then “Area of Block 01” and “Area of Block 02” should be filled.

(8) Plan ID (Optional)

Plan ID is for Plan ID of the concession area in FIMS.

You need to confirm the PlanID by FIMS.

If you enter the PlanID, you can link the survey result to the related FIMS concession area, and see in FIMS the estimated forest volume which is calculated by FIPS.

(9) Virgin, LOI or Unlogged Forest Survey

Choose virgin or LOI.

(10) Vegetaion (Optional)

Select the representative vegetation type in the survey area

(11) Topography (Slope and Elevation) (Optional)

Enter minimum and maximum value for slope and elevation.

(12) Adjusted Net Forest Area (in hectares) (Optional)

Enter the adjusted net forest area as an integer number.

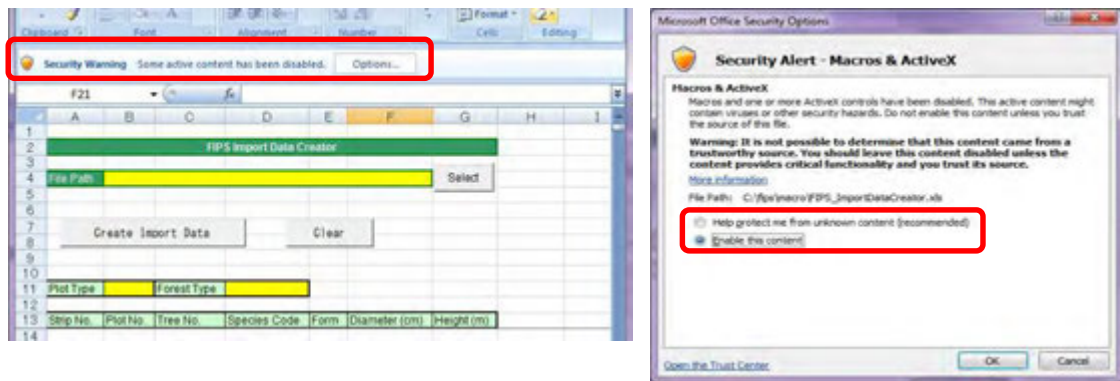
1-4. Click OK, then Survey information will be saved.

## 2. Input the field book data into an excel spreadsheet

To import the field book data into new FIPS, you need to use the excel spreadsheet “FIPS Import Data Creator” which new FIPS provides.

The Excel spreadsheet is “FIPS\_ImportDataCreator.xls” in C:\Fips\macro.

If Security warning appears, Click on “Options” and select “Enable this content”.



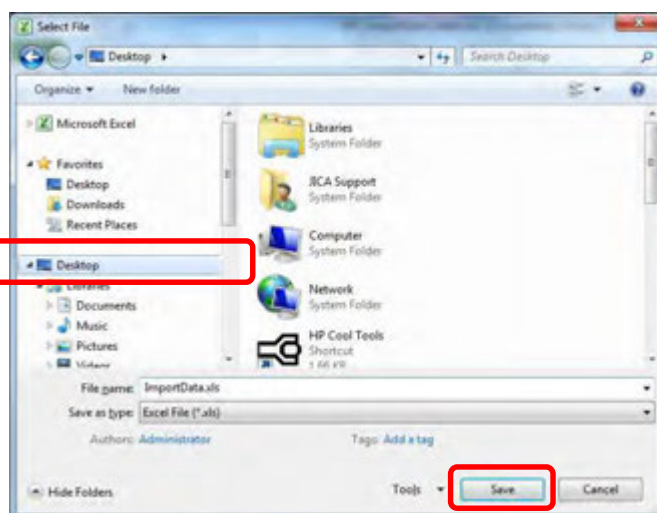
FIPS Import Data Creator						
File Path	C:\FIPS\ImportData.xls (1)					Select
Create Import Data (4)		Clear (5)				
Plot Type	1	Forest Type	12 (2)			
Strip No.	Plot No.	Tree No.	Species Code	Form	Diameter (cm)	Height (m)
1	1	1	408	2	28	10
	optional	2	463	3	49	6
		3	634	2	25	10
		4	451	2	30	6
	optional	5	509	3	30	8
		6	451	3	35	6
		7	451	2	20	10
	3	8	639	3	25	8
		9	451	3	37	6

### 2-1. Specify output path of the result Excel file (1)

Click on the select button, and select a directory where you want to place the excel file “ImportData.xls” as the import data.

If you want to place “ImportData.xls” on desktop, select Desktop as below, then click on the save button.





## 2-2. Select Plot Type and Forest Type (2)

Plot Type and Forest Type are mandatory. Refer to [Reference] sheet for the code.

## 2-3. Input of Tree information (3)

You can copy from existing excel spreadsheets which you have kept.

“Strip No.”, “Plot No.”, “Tree No.”, “Species Code”, ” Form”, “Diameter” and “Height” need to be entered into the spreadsheet “FIPS Import Data Creator”. There is no need to enter “Volume”.

If you want to clear all entered data, click on the clear button. (5)

### 2-3-1. Copy from existing excel spread datasheet

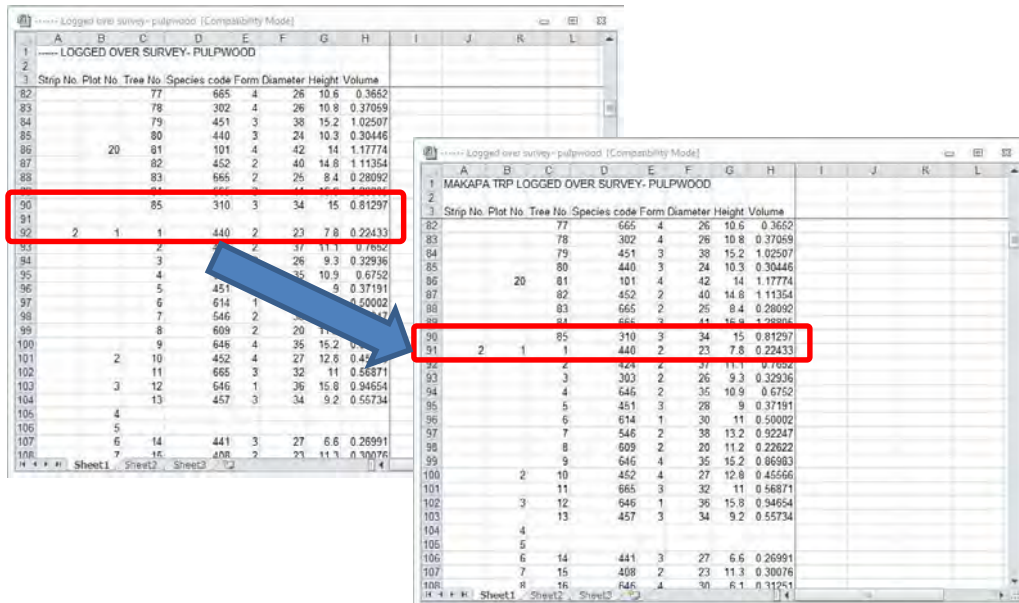
Strip No.	Plot No.	Tree No.	Species Code	Form	Diameter (cm)	Height (m)	Volume (m3)	
1	1	1	650	3	33	9	0.51600953	
6		2	451	3	35	9.1	0.5853961	
7		3	456	3	28	7.1	0.3076513	
8		4	408	3	28	6.5	0.28663092	
9		5	431	2	44	14	1.29243106	
10		6	614	1	21	7.7	0.18534108	
11		7	424	2	35	5.6	0.39672265	
12		7	431	2	45	12	1.20187478	
13		8	451	3	24	8.6	0.26391566	
14		10	533	3	30	8.4	0.40385518	
15		11	665	3	34	7.7	0.48339244	
16		12	451	3	23	5.2	0.16235396	
17		9	13	646	1	25	5.9	0.21177045
18		13	14	539	3	34	6.5	0.42191883
19		14	15	526	3	28	5.9	0.26526122
20		17	16	451	3	45	6.8	0.76521394
21		18	17	520	2	32	7.7	0.42836757
22		19	18	440	3	28	6.7	0.29367652
23		21	19	421	2	26	4.4	0.18154535
24		20	20	421	2	28	4.4	0.21930871
25		22	21	537	3	45	10	1.04194834
26		22	21	537	3	39	8.5	0.68796089
27		23	23	537	3	25	6.4	0.22598628
28		24	24	505	3	25	6.1	0.21747999
29		23	25	505	3	22	5.4	0.15317674
30		24	26	431	2	39	9	0.72010932
31		27	27	431	2	35	7	0.47442074
32		28	28	603	3	23	5.9	0.17947454

Copy “Strip No.”, “Plot No.”, “Tree No.”, “Species Code”, “Form”, “Diameter”, and “Height”.

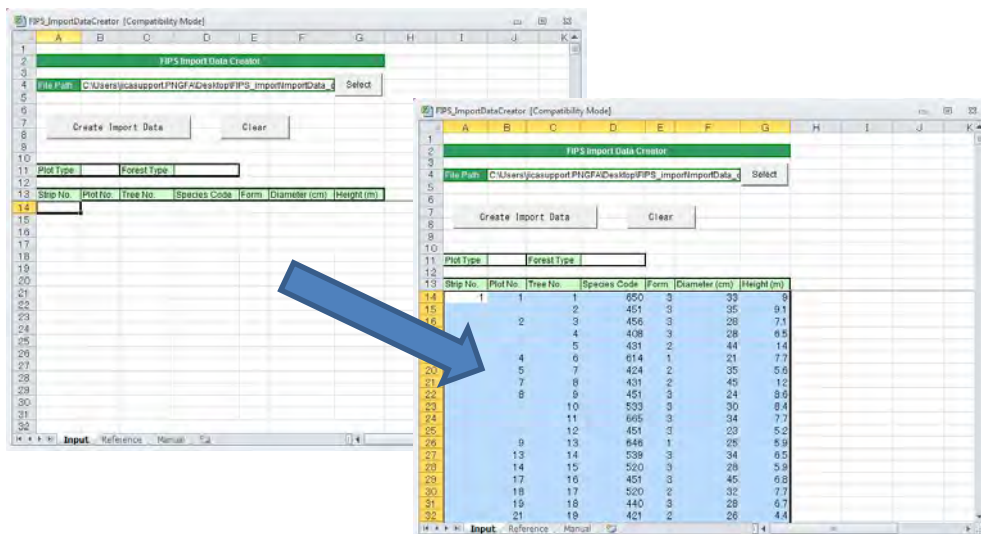
Attention

Delete blank line before copy. Don't remain the blank line.

Otherwise, the data below the blank line are not imported.



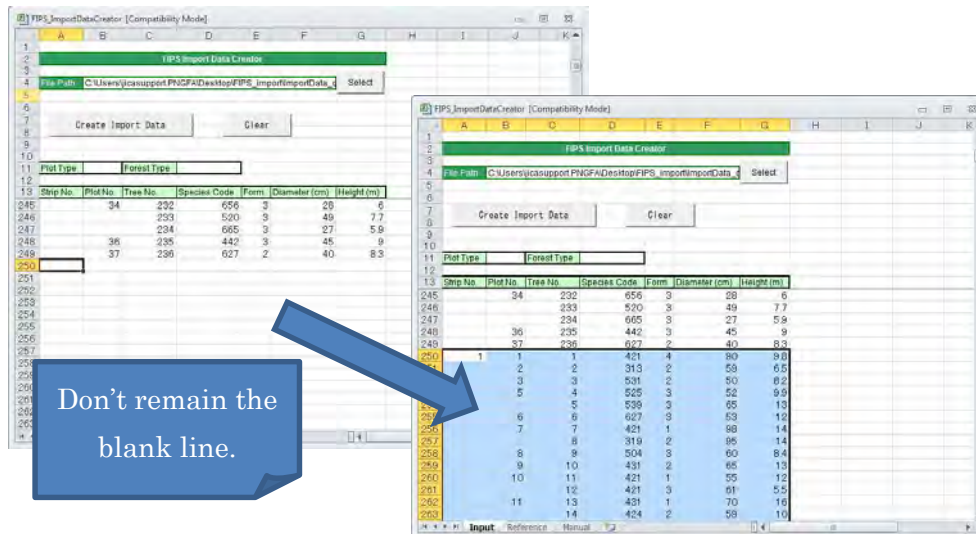
### 2-3-2. Paste into the FIPS\_ImportDataCreator



### 2-3-3. The case for the separate field data files

When you have separate field data sheet (e.g. pulp log and sawlog), copy and paste other field type data again.

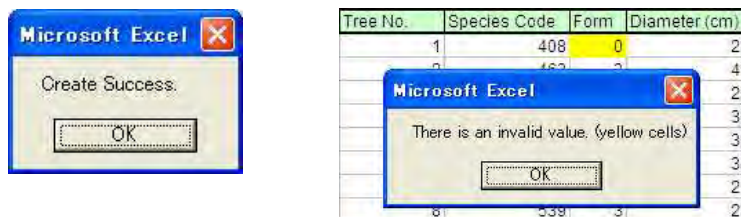




#### 2-4. Execution of process (4)

Execute the process by clicking the “Create Import Data” button.

A confirmation dialog is displayed, after finishing the process.



Cells will be filled in, in yellow if there are errors.

Species Code has to be selected from species list in [Reference] sheet. You need to change it to the species code which [Reference] sheet shows.

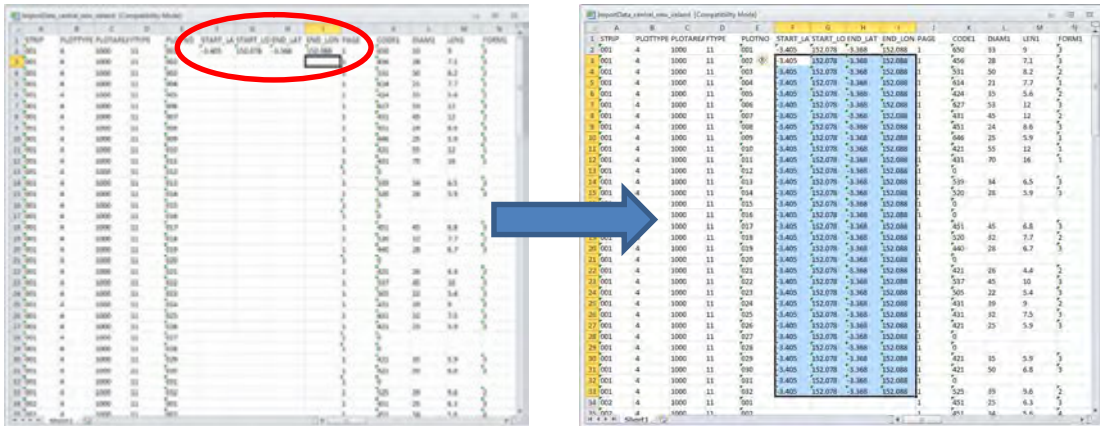
#### 2-5. Save “FIPS Import Data Creator” with a different name. It is better to add the survey name to the original excel file name.

Eg. FIPS\_ImportDataCreator\_vanimo\_LOI.xls

#### 2-6. Open the excel file saved in 2-5 and add the GPS information for start point an end point of strip (The case for adding GPS information).

The excel file is listed by the plot, but GPS information is measured for each strip. You have to copy the GPS information into all plots for each strip.

After adding GPS information, save the data.



Note: You can add the GPS information by FIPS directly (See step3-6).

### 3. Import the field book data from the excel spreadsheet into new FIPS

After exporting the excel file "ImportData.xls" from "FIPS Import Data Creator", you can import the excel file "ImportData.xls" to new FIPS.

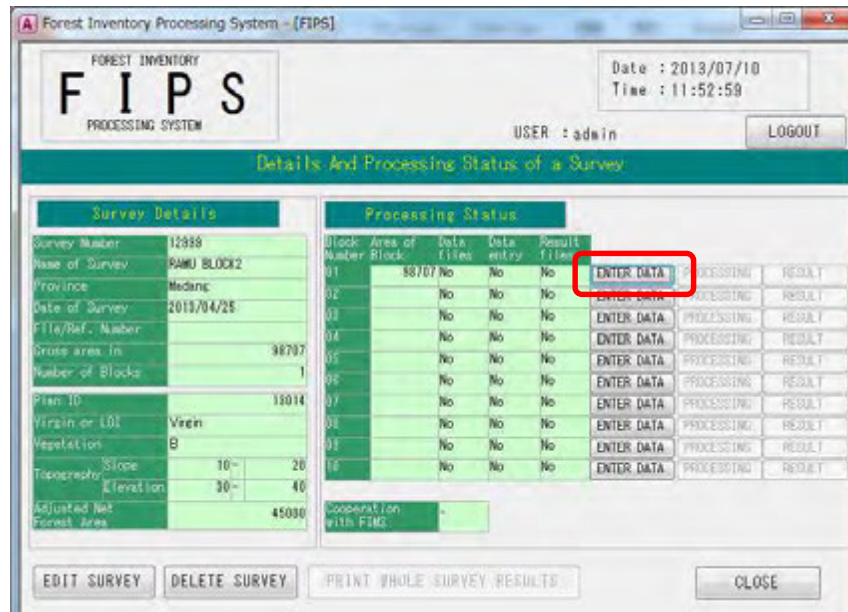
3-1. Select the survey name from the FIPS main window.

3-2. Click on the DETAILS/STATUS button.

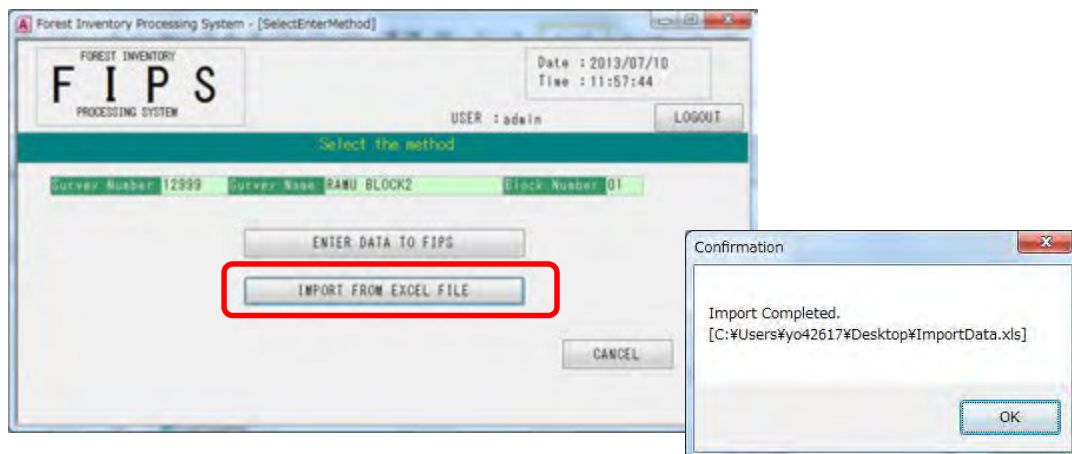
If you already have the "Details And Processing Status of a Survey" Screen of the survey open, you can go to the next step 3-3.



3-3. Detail And Processing Status of a Survey screen is open, then click on the ENTER DATA button. You need to enter the field book data in every block.



3-4. Click on IMPORT FROM EXCEL FILE button, then select the excel file “ImportData.xls” exported at step2-4 (You should select an excel file which is built with “FIPS Import Data Creator”).

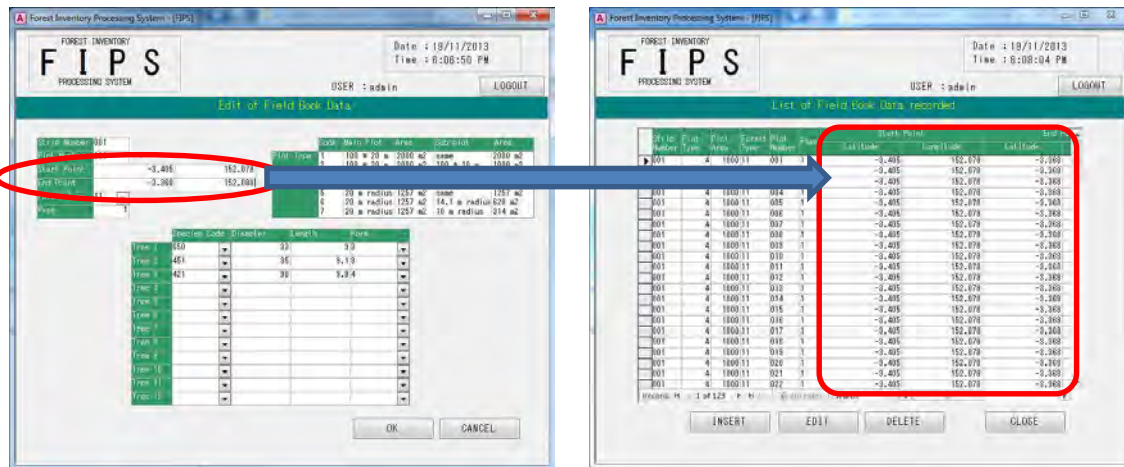


3-5. Click on the OK button, then click on the Cancel button.

3-6. Add the GPS information by FIPS, if the GPS information has not included in the excel file “ImportData.xls” exported at step2-4.

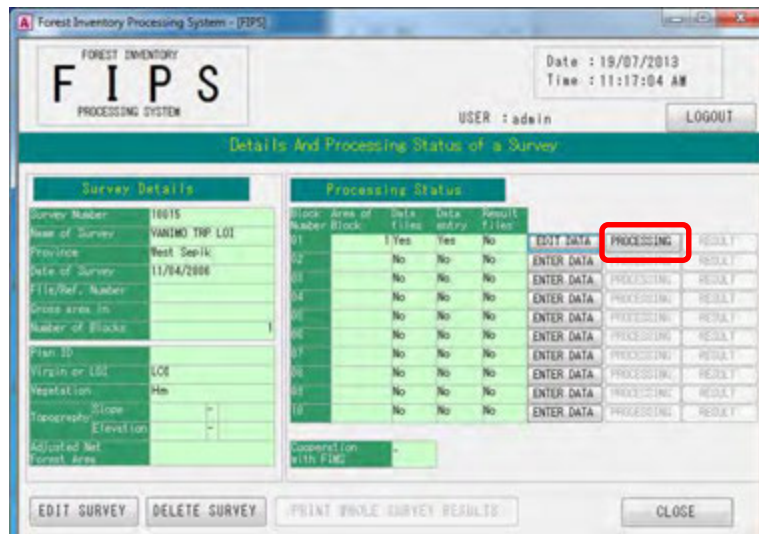
Open the “Edit of Field Book Data” window for each strip number and enter the GPS information, then the GPS information is reflected for all of plot data that has

surveyed in the same strip.



#### 4. Run calculation(PROCESSING) , print reports and output to excel file

4-1.After importing the Excel file, the PROCESSING button will become active.

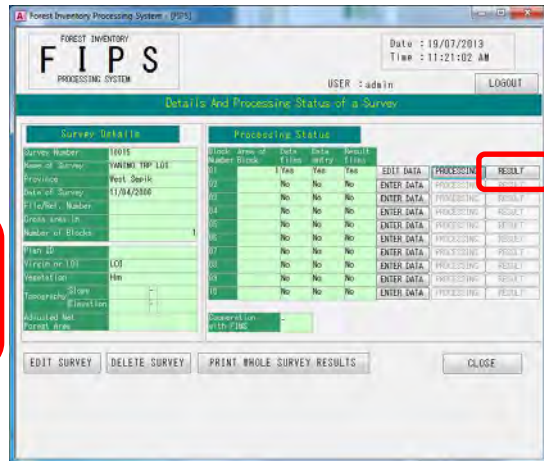
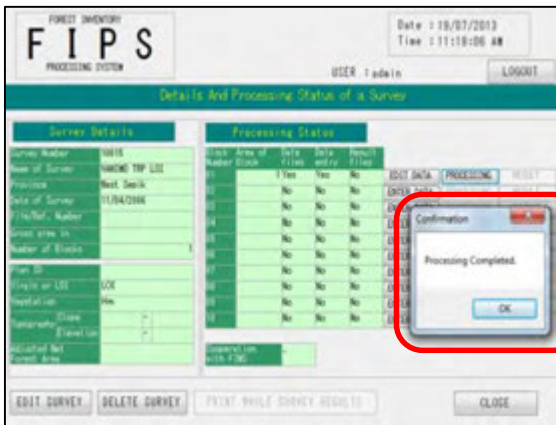


4-2. Click on the PROCESSING button, then the result will be calculated.

If processing is successful, a confirmation window appears and shows "Processing Completed".

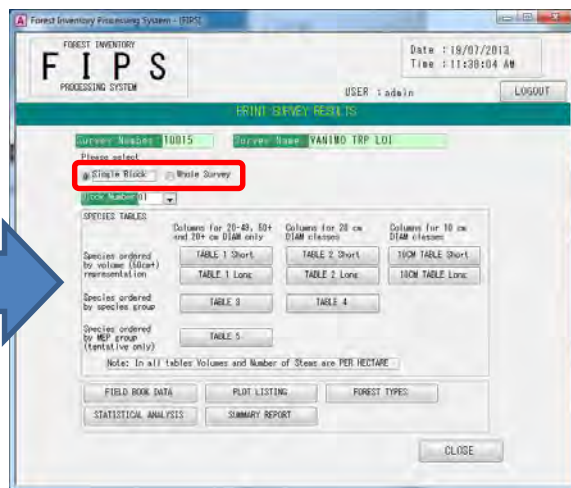
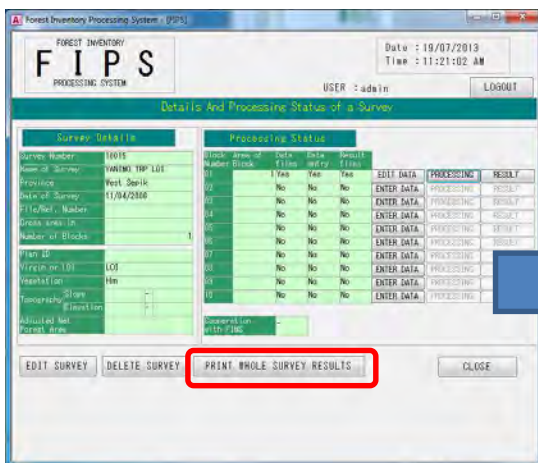
After Clicking on the Ok button, the RESULT button will become active. This means that the Processing is finished. Therefore you can confirm several reports of the survey.



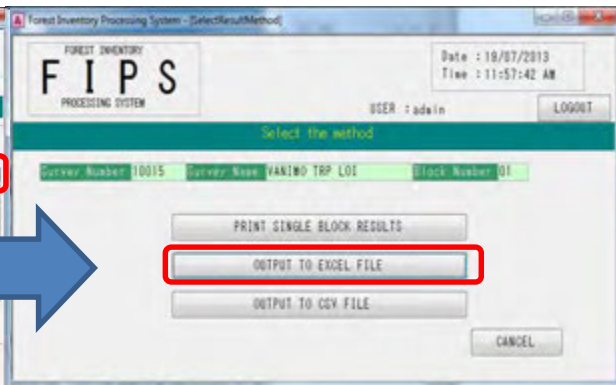


4-3.If you click on the PRINT WHOLE SURVEY RESULTS, you can see all reports.

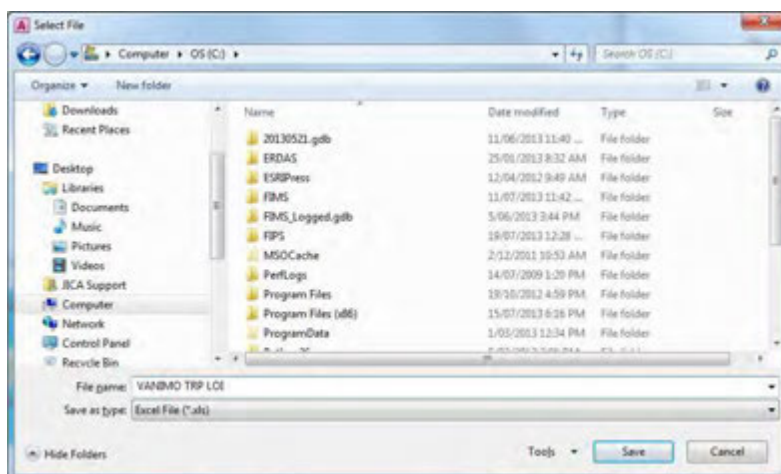
You can switch between printing Single Block or Whole Survey reports by pressing the “Please select” radio button.



4-4.Click on the Result button, then you can output the result of the processing to an excel file. You can edit it for any purpose.



Specify where to save the file and its name.



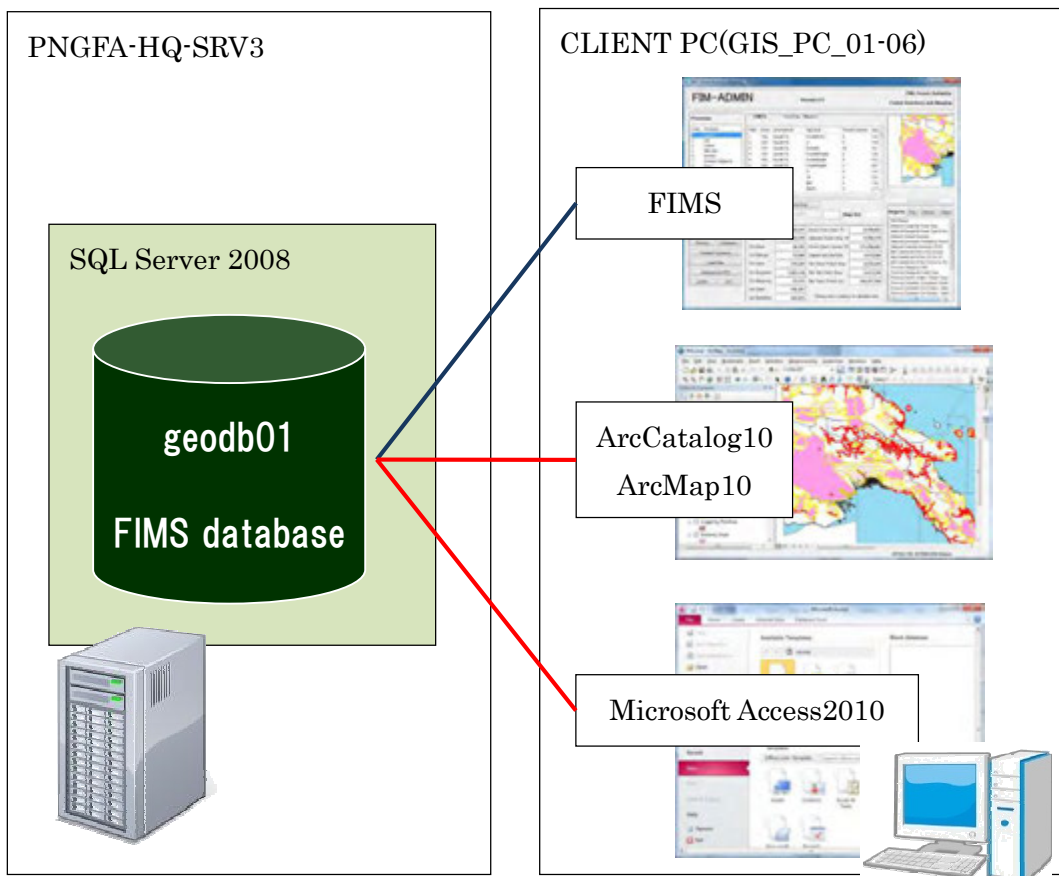
The contents of the exported Excel file are followings:

Field	Field Name	Contents/Comments
1	SPEC_CODE	Species Code
2	SPEC_NAME	Species Name
3	A_VOL10	10-19cm Volume of Form A
4	B_VOL10	10-19cm Volume of Form B
5	C_VOL10	10-19cm Volume of Form C
6	D_VOL10	10-19cm Volume of Form D
7	E_VOL10	10-19cm Volume of Form E
8	F_VOL10	10-19cm Volume of Form F
9	TOTAL_VOL10	Total 10-19cm Volume
10	VOL10_PER_HA	10-19cm Volume per Hectare
11	COMP_VOL10	Percent of 10-19cm Volume
12	BA10	Total 10-19cm Basal Area
13	A_PVOL	20-49cm Volume of Form A
14	B_PVOL	20-49cm Volume of Form B
15	C_PVOL	20-49cm Volume of Form C
16	D_PVOL	20-49cm Volume of Form D
17	E_PVOL	20-49cm Volume of Form E
18	F_PVOL	20-49cm Volume of Form F
19	TOTAL_PVOL	Total 20-49cm Volume
20	PVOL_PER_HA	20-49cm Volume per Hectare
21	COMP_PVOL	Percent of 20-49cm Volume
22	PBA	Total 20-49cm Basal Area
23	A_SVOL	50cm+ Volume of Form A
24	B_SVOL	50cm+ Volume of Form B
25	C_SVOL	50cm+ Volume of Form C
26	D_SVOL	50cm+ Volume of Form D
27	E_SVOL	50cm+ Volume of Form E
28	F_SVOL	50cm+ Volume of Form F
29	TOTAL_SVOL	Total 50cm+ Volume
30	SVOL_PER_HA	50cm+ Volume per Hectare
31	COMP_SVOL	Percent of 50cm+ Volume
32	SBA	Total 50cm+ Basal Area
33	SPEC_GROUP	Species Group(= Mep Group)

## 2. Use of the Forest Resource Database

### 2.1. Overview of FIMS database in SQL Server of pngfa-hq-srv3 server

The data of the new FIMS are stored in ArcGIS GeoDatabase "geodb01" as the database of SQL Server. You can use the FIMS data by ArcMap10 and Microsoft Access2010 without FIMS.



"geodb01" is a database name in SQL Server, which stores FIMS map data.

- Centralized management of a wide variety of geographic information.
- Large data management in a continuous integrated environment (raster/vector)

The following specific users can only access "geodb01" and edit values(shape and attribute). (As of 5/2/2014):

pngfa¥jicasupport

pngfa¥cbigol

pngfa¥pmalan

pngfa¥plaa

pngfa¥jantiko

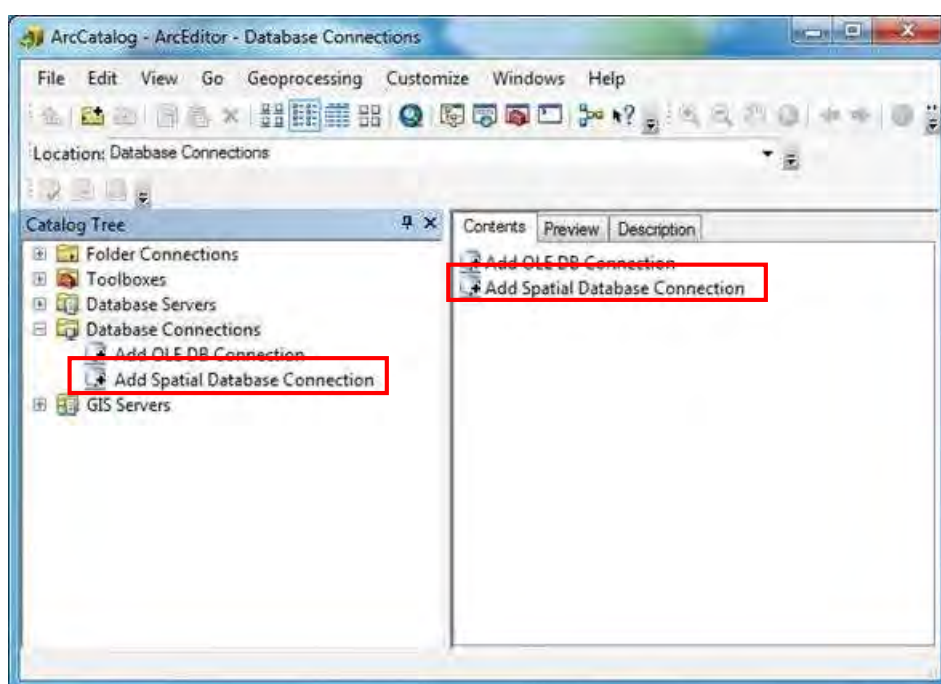
## **2.2. Access to the FIMS database “geodb01” from ArcMap10 or ArcCatalog10**

### **2-1. Create a direct connection to the FIMS database from ArcGIS Desktop**

If you want to use FIMS database “geodb01” directly without FIMS, you need to make a spatial database connection.

This configuration is needed for accessing first time to the database. From next time, you can connect easily.

- (1) Start ArcCatalog.
- (2) Double click “Add Spatial Database Connection” under “Database Connections” in Catalog Tree.



- (3) You need to fill the “geodb01” information after ”Spatial Database Connection” window open.

Server: “pngfa-hq-srv3”

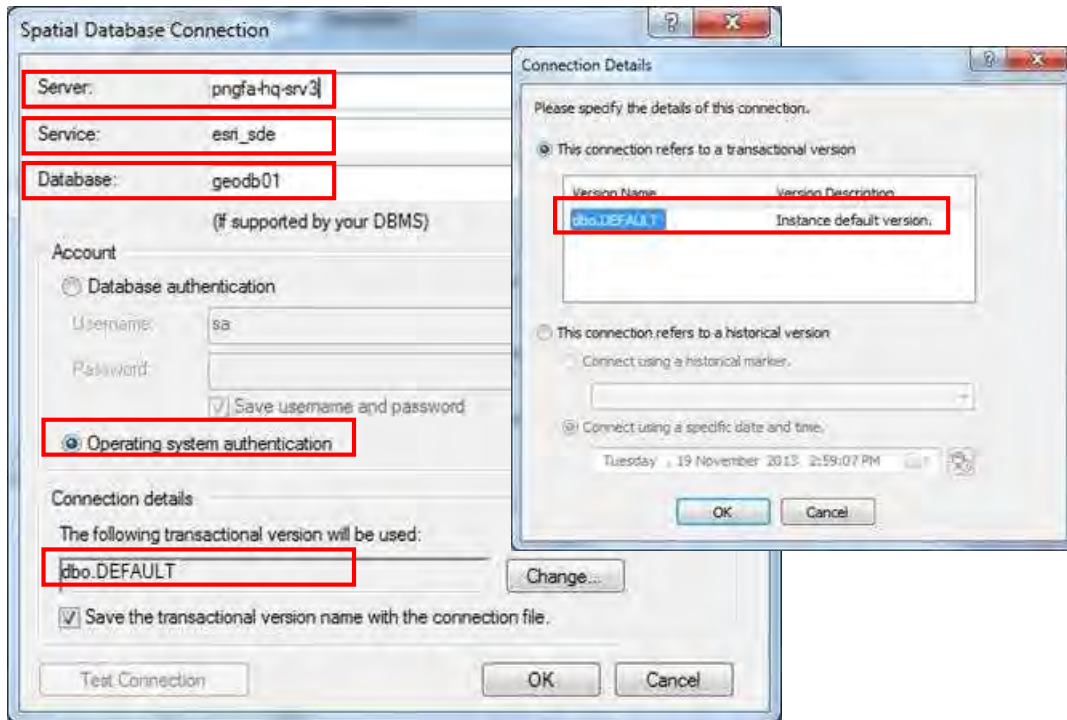
Service: “esri\_sde”

Database: “geodb01”

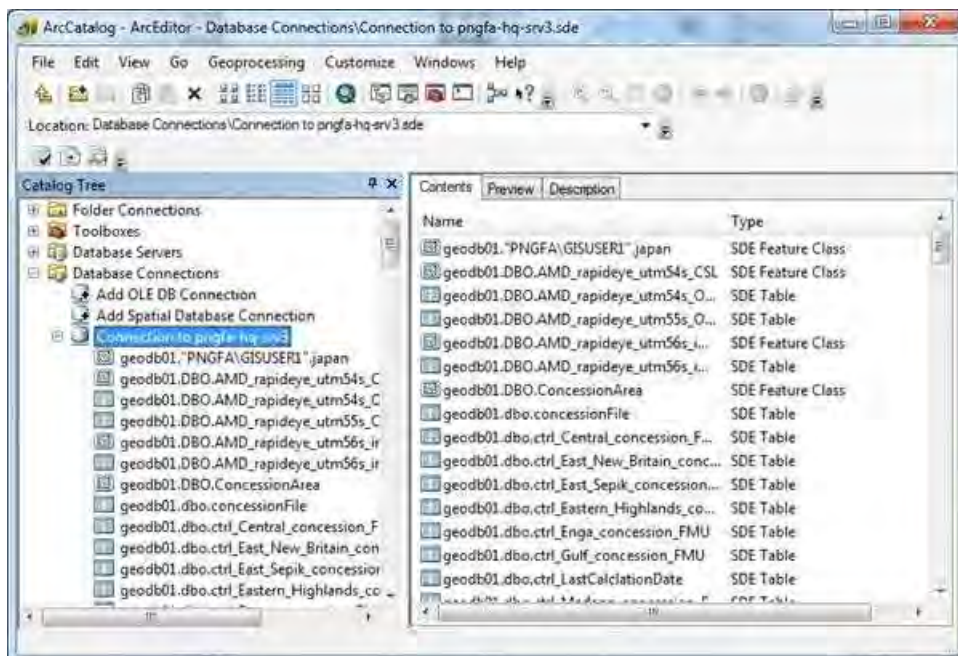
Account: select “Operating system authentication”

Connection details: Click on the Change button and select “dbo. DEFAULT”

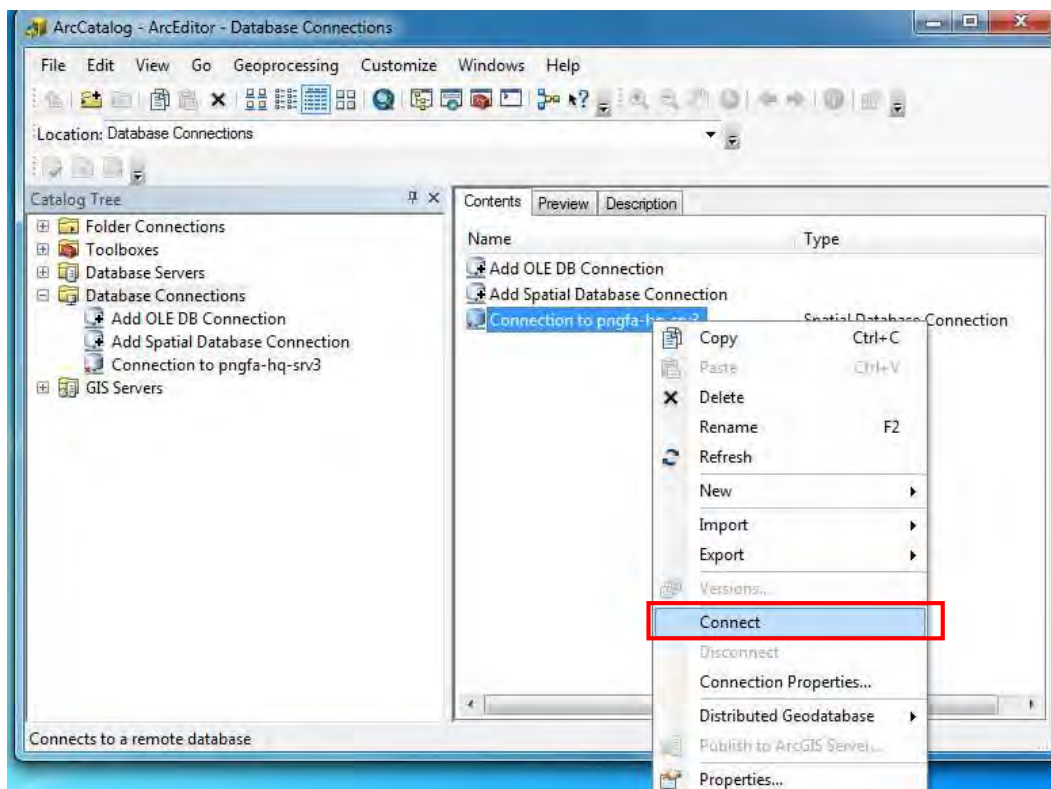
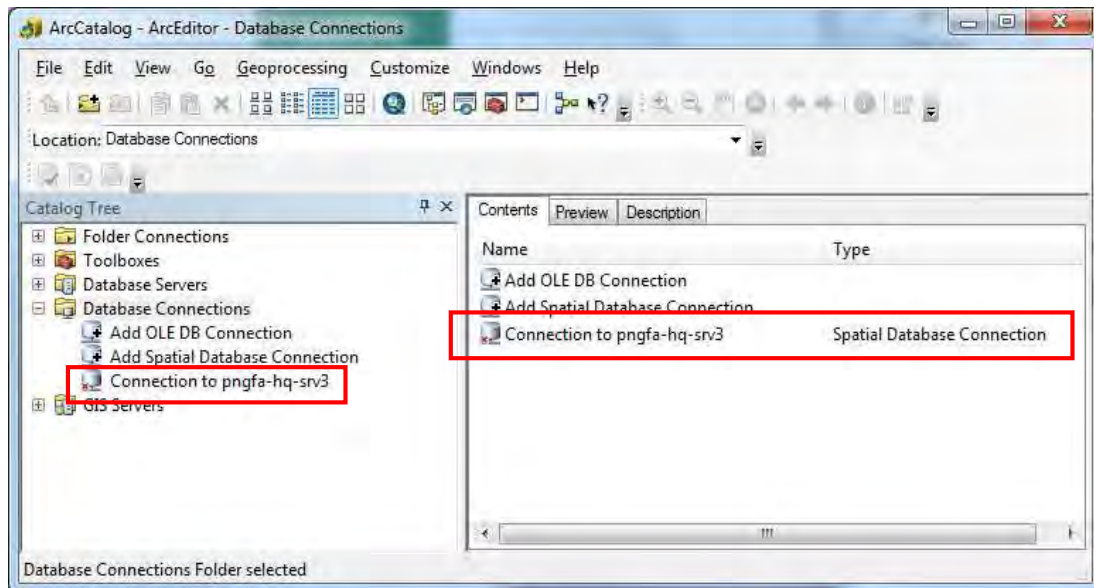




The database connection will be established, then you can see the FIMS map tables.



(4) If you have already established database connection once, it is only necessary to select “connection to pngfa-hq-srv3” in the database connection.



## 2-2. Display the FIMS map layers by using ArcMap10

You can open the FIMS map layers as same as opening shape-file.

FIMS map layers in “geodb01” are as follows:

geodb01.DBO.FMU  
geodb01.DBO.ConcessionArea  
geodb01.DBO.Logged\_NotLandUse\_Current  
geodb01.DBO.LandUse\_NotLogged\_Current  
geodb01.DBO.Logged\_LandUse\_Current  
geodb01.DBO.PlanArea  
geodb01.DBO.Protected\_Area  
geodb01.DBO.Extreme\_Altitude  
geodb01.DBO.Extreme\_Inundation  
geodb01.DBO.Extreme\_Karst  
geodb01.DBO.Extreme\_Mangrove  
geodb01.DBO.Extreme\_Slope  
geodb01.DBO.Serious\_Inundation  
geodb01.DBO.Serious\_SlopeRelief  
geodb01.DBO.PROV  
geodb01.DBO.png2000\_prov\_region

○Print Maps

The new FIMS has a simplified print template, but you can not arrange layout of the map.

If you want to make and print a variety map, it will be better to create that by ArcMap10.

○Edit shape and attribute of layer

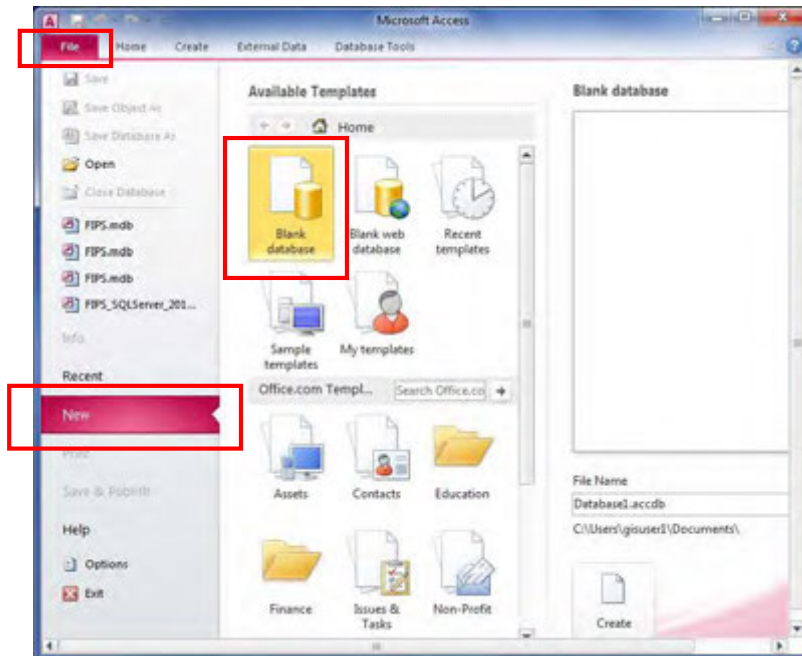
You can edit map layers by using new FIMS and ArcMap10. Editable layers are as follows:

geodb01.DBO.ConcessionArea  
geodb01.DBO.Logged\_NotLandUse\_Current  
geodb01.DBO.LandUse\_NotLogged\_Current  
geodb01.DBO.Logged\_LandUse\_Current  
geodb01.DBO.PlanArea  
geodb01.DBO.Protected\_Area

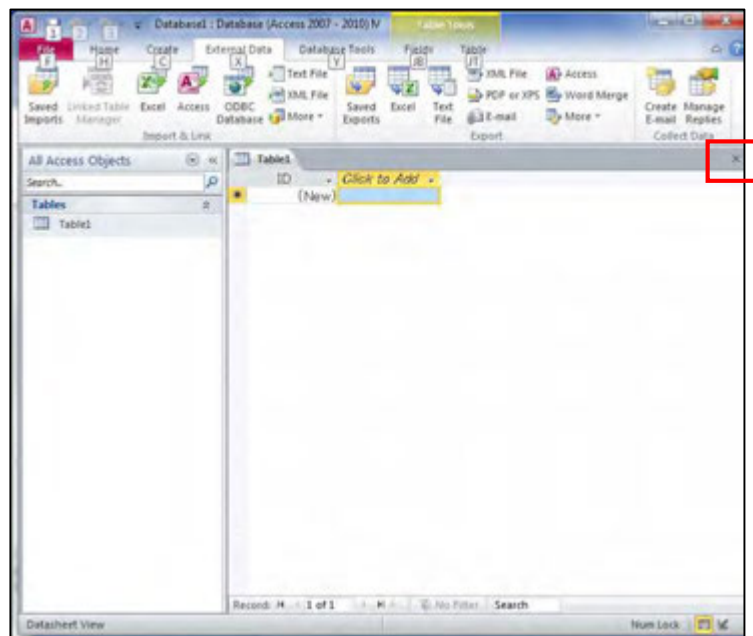
## 2.3. Access to FIMS database "geodb01" from Microsoft Access2010

### 3-1. Create a new Microsoft Access 2010 file

(1) Start Microsoft Access2010, then select File > New > Blank database.

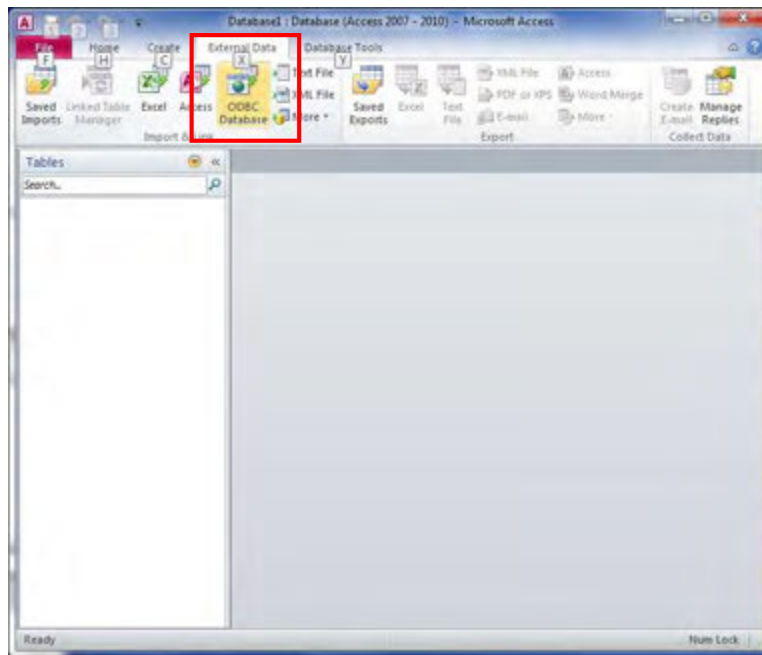


(2) After new table "Table1" will open, then close this table by clicking "×" top right corner of the table. Because you will import tables from the FIMS database "geodb01".

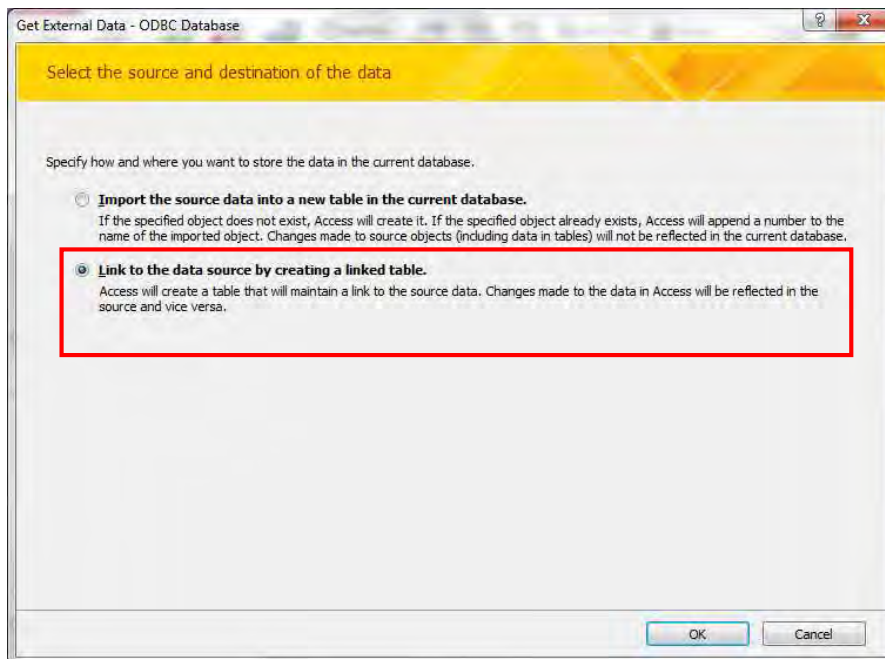


### 3-2. Create a link to the FIMS database from Microsoft Access2010

(1) Select External Data > ODBC Database.

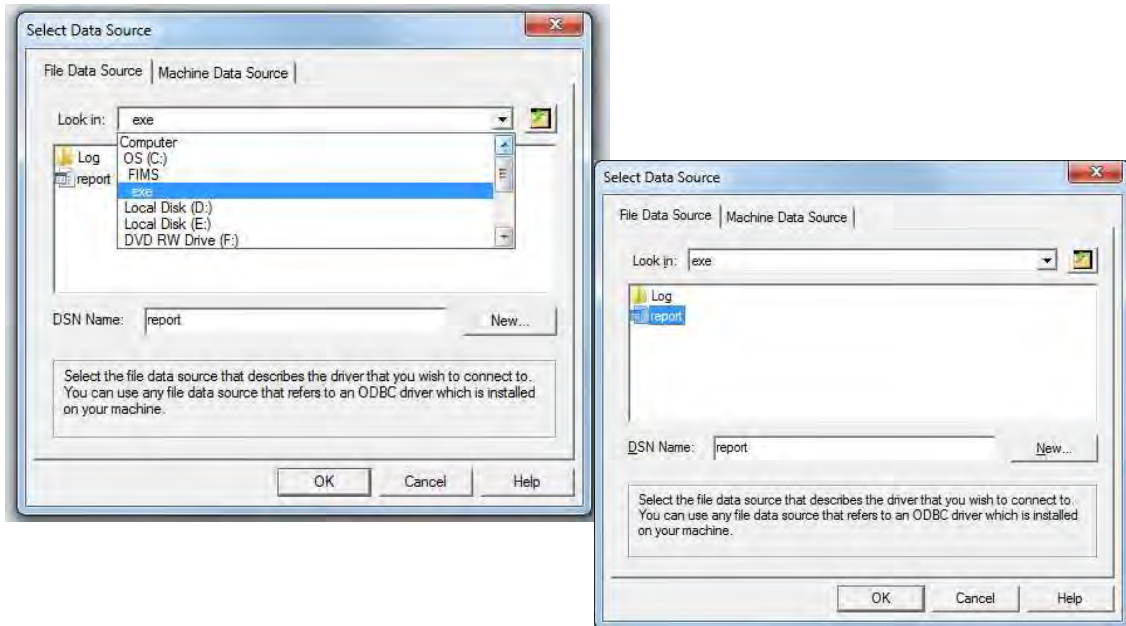


(2) “Get External Data” window will open, then select “Link to the data source by creating a linked table” and click “OK”.

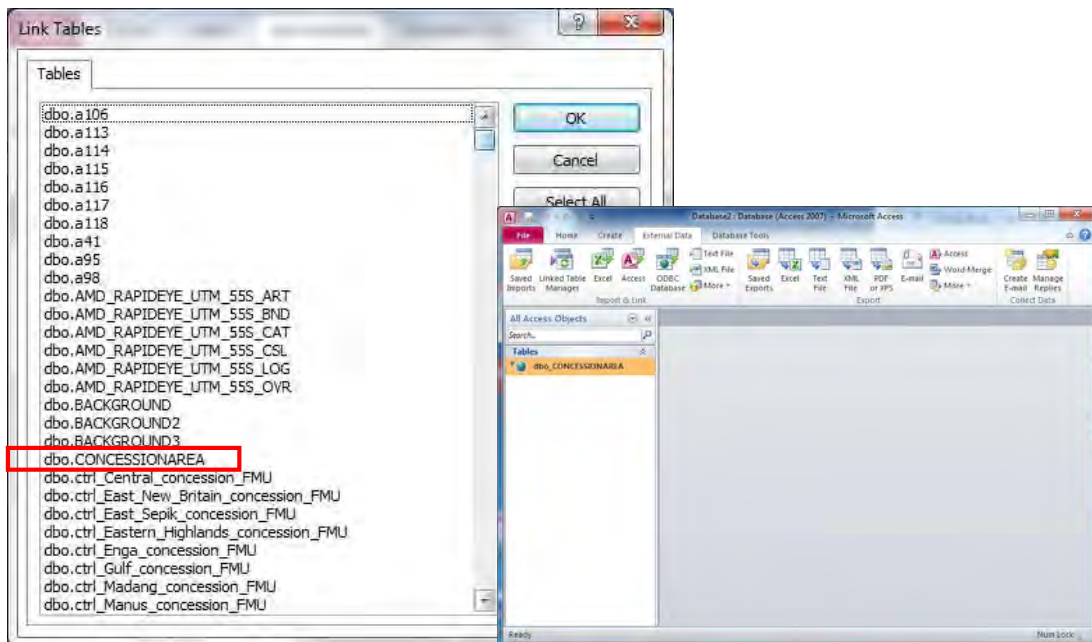


(3) “Select Data Source” window will open, then select the file data source “C:\FIMS\exe\report.dsn”. This file describes an access point for pngfa-hq-rv3. New FIMS is using this file. Then click “OK”.

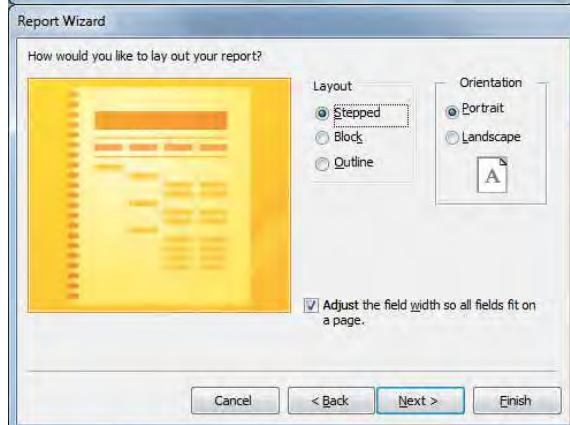
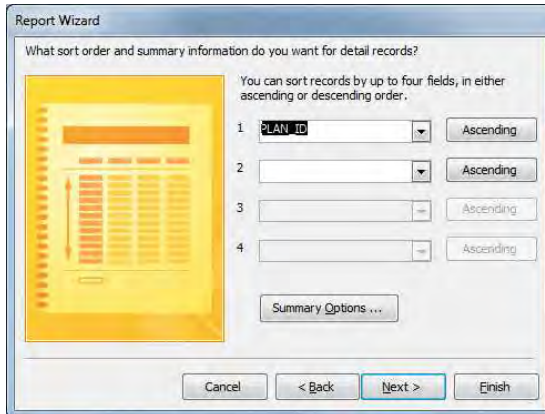
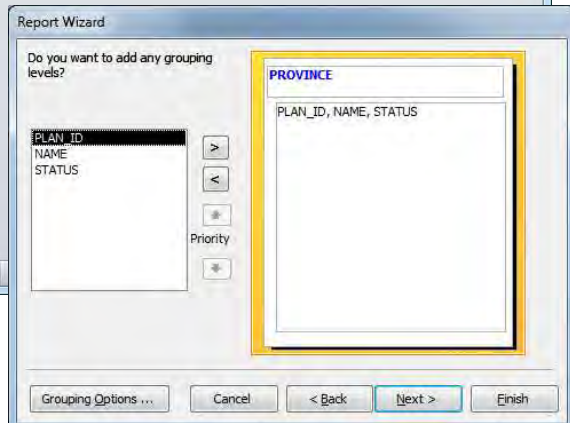
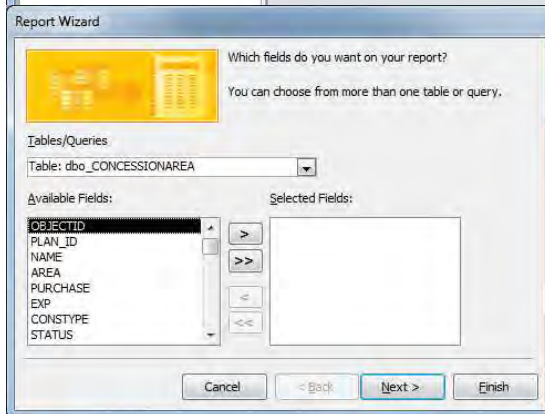




(4) “Link Table” window will open, you can select the tables that you want to use. The exercise of this time, select “dbo\_CONCESSIONAREA”, then click “OK”.



(5) Select Create > Report Wizard, then you can make a report. Report Wizard window will open. Select Tables or Queries, then select fields which you want to print.



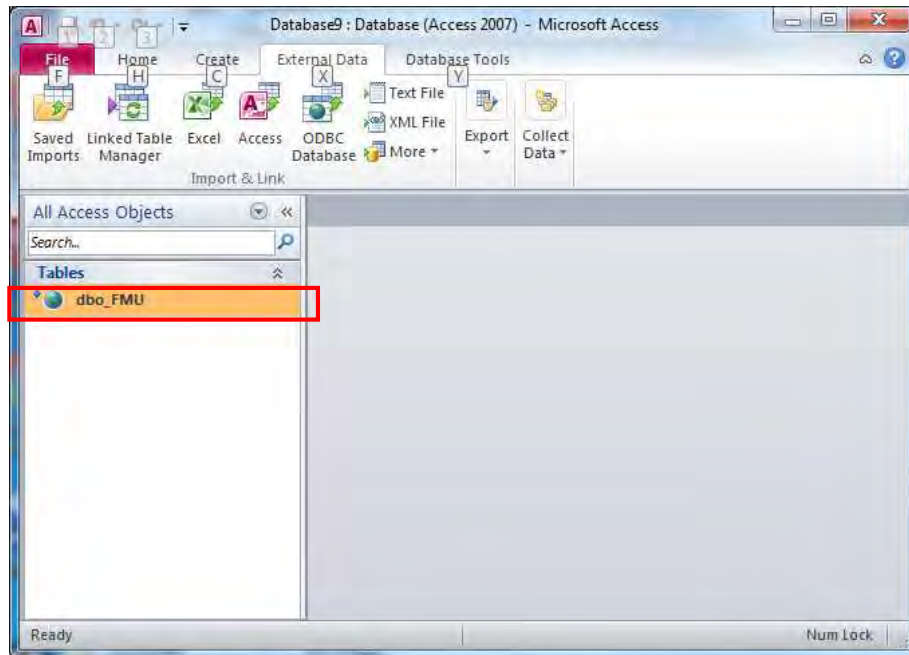
CONCESSIONAREA			
PROVINCE	PLAN_ID	NAME	STATUS
1			
	1001	Waimare (Oriomo)	Concession
	1002	Wawoi Guavi Block 1	Concession
	1003	Wawoi Guavi Block 2	Concession
	1004	Wawoi Guavi Block 3	Concession
	1005	Makapa	Concession
	1006	SEMABO	Concession
	1007	EAST AWIN	Concession
	1008	Wipim Tapila FMA	Concession
	1009	Balimo Fly	Proposed

## 2.4. Query on Microsoft Access2010 using SQL

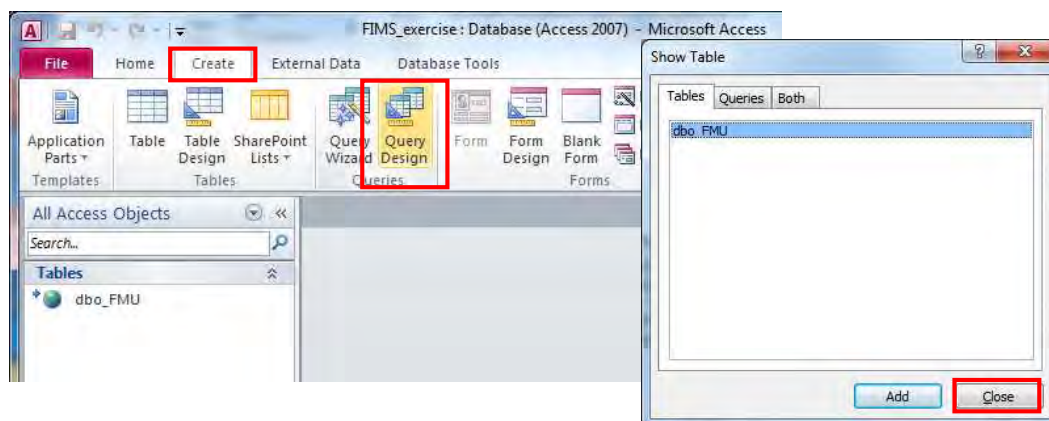
When you want to bring data from a database, you can ask for the data using Structured Query Language(SQL).

### 4-1. Preparation for using SQL

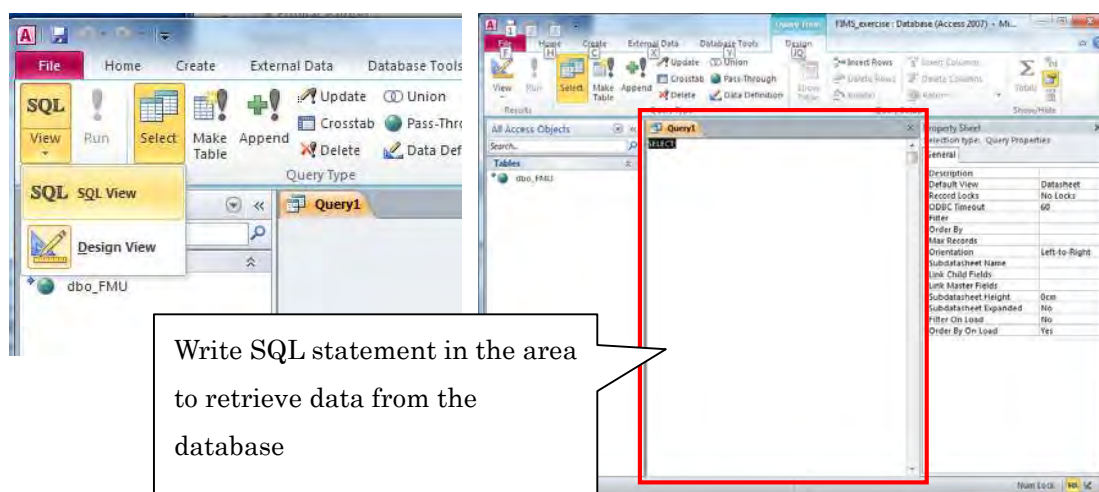
- (1) Create a new Microsoft Access 2010 file and link to “dbo\_FMU”. (See 3.)



- (2) Select Create > Query Design. “Show Table” window will open, then close it, and select View > SQL View.







#### 4-2. Main structure of commonly-used tables for the reports

The following table shows a main structure of “**dbo\_FMU**” table.

Field name in dbo_FMU	Description
PROVINCE	Province code
FMU	FMU No
ZONE	Forest Zone code
VEG_TYPE	Vegetation type
VEG_AREA	Vegetation area (hectares)
NO_DIST	Forest type code without reference to disturbance
VEG_TYPE_1	First Vegetation Type (in Complex)
VOLUME	Timber volume estimate for forest type per hectare
AREA_750	Gross forest area adjusted in 1975
VOL_75	Gross forest volume in 1975(adjusted forest area * timber volume)
AREA3	Revised adjusted forest area at present
FOREST_VOL	Revised forest volume at present

The following table shows a main structure of “**dbo\_CONCESSIONAREA**” table.

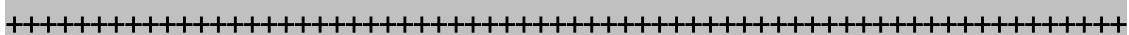
Field name in dbo_CONCESSIONAREA	Description
PLAN_ID	ID given to the concession area of each province
NAME	Name of the concession area

Field name in dbo_CONCESSIONAREA	Description
STATUS	An existing concession area has the status 'Concession'. A new concession area has the status "Proposed".
PROVINCE	Province code

The following table shows a structure of “**dbo\_master\_Province**” table.

You can replace a province code with a province name by using this table. (See 4.10)

Field name in dbo_master_Province	Description
code_n	Province code
code_a	Province short name
descrip	Province name



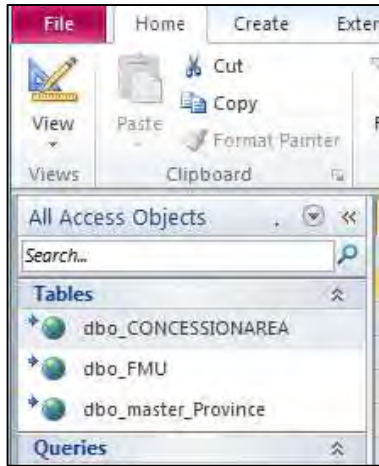
**Exercise 4-2**

**Add link to dbo\_CONCESSIONAREA table and dbo\_master\_Province table.**

**When the following window opens, select “code\_n”.**



**Result**



### 4-3. SQL Clauses

The following table lists the most common SQL clauses.

SQL clause	What it does
SELECT	Lists the fields that contain data of interest.
FROM	Lists the tables that contain the fields listed in the SELECT clause.
WHERE	Specifies field criteria that must be met by each record to be included in the results.
ORDER BY	Specifies how to sort the results.
GROUP BY	In a SQL statement that contains aggregate functions, lists fields that are not summarized in the SELECT clause.
HAVING	In a SQL statement that contains aggregate functions, specifies conditions that apply to fields that are summarized in the SELECT statement.

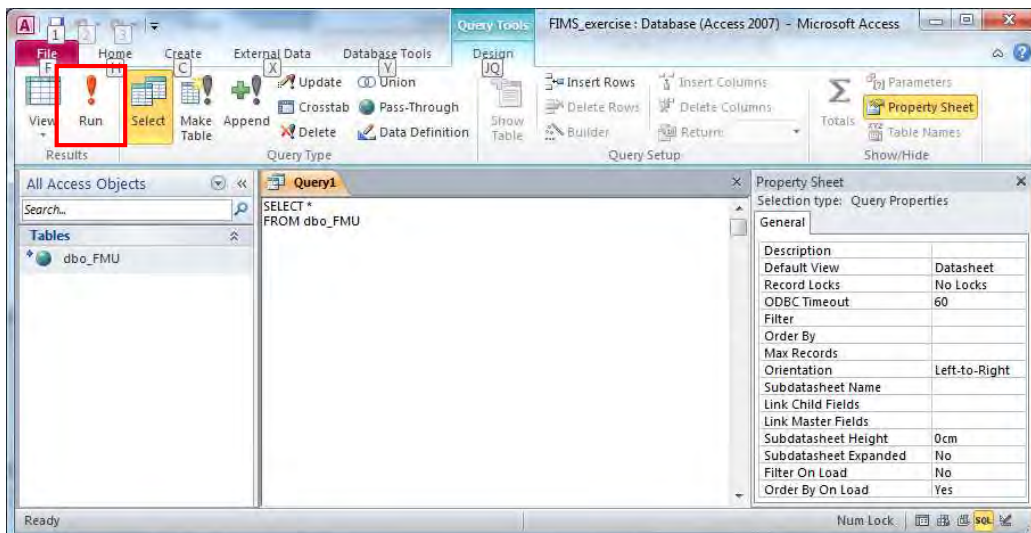
### 4-4. SELECT and FROM statements

SELECT and FROM statements are basic SQL clauses.

Enter the following code:

```
SELECT *
FROM dbo_FMU
```

Select Design > ! RUN , then you can check the result.



The result will show all fields of FMU table. If you want to go back to SQL View window, Select View > SQL View.

- “SELECT” lists the fields that contain data of interest.
- “\*” means to select all fields.
- “FROM” lists the tables that contain the fields listed in the SELECT clause.

---

**Exercise 4-4 (1)**

Retrieve all fields of “dbo\_master\_Province” table.

**Result**

code_n	code_a	descrip
1	Wes	Western
2	Gul	Gulf
3	Cen	Central
5	Mil	Milne Bay
6	Nth	Northern
7	Shy	Southern Highlands
8	Eng	Enga
9	Why	Western Highlands
10	Sim	Simbu
11	Ehy	Eastern Highlands
12	Mor	Morobe
13	Mad	Madang
14	Esk	East Sepik
15	Wsk	West Sepik
16	Man	Manus
17	Nir	New Ireland
18	Enb	East New Britain
19	Wnb	West New Britain
20	Nsl	North Solomons

---

When you want to pick up specific fields, you need to specify the field name after “SELECT”.

Enter the following code:

```
SELECT PROVINCE, FMU, ZONE, VEG_TYPE
FROM dbo_FMU
```

---

**Exercise 4-4 (2)**

Retrieve “code\_n” and “descrip” of dbo\_master\_Province table.

**Result**

code_n	descrip
1	Western
2	Gulf
3	Central
5	Milne Bay
6	Northern
7	Southern Highlands
8	Enga
9	Western Highlands
10	Simbu
11	Eastern Highlands
12	Morobe
13	Madang
14	East Sepik
15	West Sepik
16	Manus
17	New Ireland
18	East New Britain
19	West New Britain
20	North Solomons

**4-5. Rename the original field name to field alias**

When you want to rename column name that is displayed for any field in datasheet view, you can name by using “AS”.

Enter the following code:

```
SELECT PROVINCE, FMU, ZONE, VEG_TYPE AS Vegetaion  
FROM dbo_FMU
```

**Exercise 4-5**

Rename the columns of the `dbo_master_Province` table, from “code\_n” to “ProvinceCode”, from “code\_a” to “ShortName” and from “descrip” to “ProvinceName”.

## Result

ProvinceCode	ShortName	ProvinceName
1	Wes	Western
2	Gul	Gulf
3	Cen	Central
5	Mil	Milne Bay
6	Nth	Northern
7	Shy	Southern Highlands
8	Eng	Enga
9	Why	Western Highlands
10	Sim	Simbu
11	Ehy	Eastern Highlands
12	Mor	Morobe
13	Mad	Madang
14	Esk	East Sepik
15	Wsk	West Sepik
16	Man	Manus
17	Nir	New Ireland
18	Enb	East New Britain
19	Wnb	West New Britain
20	Nsl	North Solomons

### 4-6. Sort the results

You can sort the result using “ORDER BY” statement.

Enter the following code:

```
SELECT PROVINCE, FMU, ZONE, VEG_TYPE  
FROM dbo_FMU  
ORDER BY PROVINCE ASC, FMU DESC
```

- “ORDER BY” clause contains a list of the fields that you want to sort
- “ASC” means ascending order (A to Z, 0 to 9).
- “DESC” means descending order (Z to A, 9 to 0).
- The default sort order is ascending order, so you can omit “ASC”.

### Exercise 4-6

Retrieve “PLAN\_ID”, “NAME” and “STATUS” from “dbo\_CONCESSIONAREA”.

List the concession area of "proposed" status before of "concession" status.

List the “PLAN\_ID” in ascending order.

**Result**

PLAN_ID	NAME	STATUS
1009	Balimo Fly	Proposed
1010	Fly Block 1	Proposed
1011	Fly Block 2	Proposed
1015	Lake Murray Block 1	Proposed
1016	Nomad Strickland	Proposed
1017	Lake Murray Block 2	Proposed
1019	Ningerum	Proposed
1020	Morehead / Suki Block 1	Proposed
1021	Morehead / Suki Block 2	Proposed
1022	East Awin Extension	Proposed
2014	Kakoro	Proposed
2015	Meporo (Malalaua)	Proposed
2096	Polopa	Proposed
2097	Vailala_Purari_oilpalm	Proposed
2098	Bulldog_oilpalm	Proposed
2099	Vailala Blk 1 ext	Proposed
3008	Ormand Lako TRP	Proposed

The rest is omitted.

**4-7. Limit the results (specify condition)**

When you want to use data to limit the number of records that are returned in a query, you can use “WHERE” statement.

Enter the following code:

```

SELECT PROVINCE, FMU, ZONE, VEG_TYPE AS Vegetation
FROM dbo_FMU
Where PROVINCE = 9
ORDER BY PROVINCE ASC, FMU DESC

```

- “Where” clause is set after “FROM” clause.
- Operator

Operator	Description	Example
=	equal	PROVINCE=9 VEG_TYPE="Hm" (When Data Type of Field is “Text”, you need to enclose a value with “ double quotation” )
<>	not equal	PROVINCE<>9
>	grater than	PROVINCE>9
<	less than	PROVINCE<9



>=	grater than or equal	PROVINCE>=9
<=	Less than or equal	PROVINCE<=9
NOT	Not	NOT (PROVINCE =9)
OR	Or	PROVINCE=9 OR PROVINCE=10
AND	And	PROVINCE = 9 AND VEG_TYPE="O"
IN	In	PROVINCE IN (1,2,3)
IS NULL	equal NULL	PROVINCE is null
IS NOT NULL	not equal NULL	PROVINCE is not null

+++++

**Exercise 4-7 (1)**

Retrieve "PLAN\_ID", "NAME" and "STATUS" from "dbo\_CONCESSIONAREA".

Find the concession area of the proposed status.

List the "NAME" in ascending order.

## Result

PLAN_ID	NAME	STATUS
19064	Agulu Reserve	Proposed
15023	Amanab 7	Proposed
3017	Amaru	Proposed
14012	April River	Proposed
15010	Arko-Samei	Proposed
19063	Asirim	Proposed
15011	Au East West	Proposed
1009	Balimo Fly	Proposed
5009	Basilaki Island	Proposed
10001	BIII	Proposed
16005	BLOCK 3	Proposed
16006	BLOCK 4	Proposed
16007	BLOCK 5	Proposed
16008	BLOCK 6	Proposed
16009	BLOCK 7	Proposed
10002	BOGO KAWA	Proposed
14013	Border (Nuku)	Proposed
12027	Borong Timber Area	Proposed
7009	Bosavi	Proposed
3024	Brown River Timber Area	Proposed
2098	Bulldog oilpalm	Proposed
12096	Bunsi-Awom	Proposed
18024	Cape Bogan	Proposed

The rest is omitted.

## Exercise 4-7 (2)

Retrieve "PROVINCE", "FMU", "VEG\_TYPE" and "Volume" as TimberVolume from "dbo\_FMU".

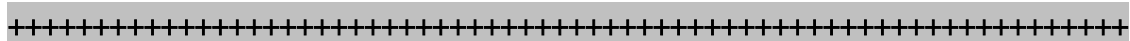
Find the FMUs which have more than 30 of timber volume in Madang province.

List the "VEG\_TYPE" in ascending order, "VOLUME" in descending order.

## Result

PROVINCE	FMU	VEG_TYPE	VOLUME
13	1226	Fri/Sc/Hm	45
13	174	Fsw/PO	40
13	658	FswC	30
13	670	FswC	30
13	735	FswC	30
13	764	FswC	30
13	765	FswC	30
13	350	G/Hmd5	38
13	462	Hm	50
13	610	Hm	50
13	614	Hm	50
13	617	Hm	50
13	737	Hm	50

The rest is omitted.



### 4-8. Aggregate function

When you want to work with summarized data, you can use “GROUP BY” statement, aggregate functions (such as SUM, COUNT, AVG, MAX or MIN).

Enter the following code:

```
SELECT VEG_TYPE, COUNT(*) as Count, MAX(VOLUME) as  
MAX,MIN(VOLUME) as MIN, AVG(VOLUME) as AVG, SUM(VEG_AREA) as  
SUM_AREA  
From dbo_FMU  
GROUP BY VEG_TYPE  
ORDER BY VEG_TYPE ASC
```

- The above statement retrieves the number of each veg\_type and, highest and lowest volume, average of timber volume and total of forest area in each vegetation type.
- GROUP BY clause is used in conjunction with the aggregate functions to group the result-set by one or more columns.
- GROUP BY clause follows FROM clause if there is no WHERE clause.
- GROUP BY clause lists the fields to which you do not apply an aggregate function.
- Major aggregate functions are as follows:

NAME	Description
AVG()	Calculate the average of the values in a field
COUNT()	Count the number of values in a field
MAX()	Extract the highest value in a field
MIN()	Extract the lowest value in a field
SUM()	Calculate the total of the values in a field

- The following statement retrieves the number of each veg\_type and, highest and lowest volume, average of timber volume and **total of forest volume** in each vegetation type.
- Operator “\*” for multiplication : “VOLUME\*VEG\_AREA” means “VOLUME” multiplied by “VEG\_AREA”.

```

SELECT VEG_TYPE, COUNT(*) AS Count, MAX(VOLUME) AS MAX,
MIN(VOLUME) AS MIN, AVG(VOLUME) AS AVG,
SUM(VOLUME*VEG_AREA) AS FOREST_VOLUME
FROM dbo_FMU
GROUP BY VEG_TYPE
ORDER BY VEG_TYPE

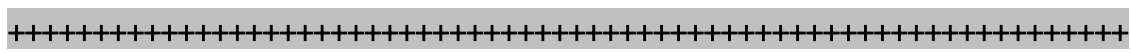
```

- The following statement retrieves the number of each veg\_type and, highest and lowest timber volume, average of timber volume and total volume of forest volume in **each province and vegetation type**.
- If you want to round the figure of aggregate result, you can use "ROUND" function.

```

SELECT PROVINCE, VEG_TYPE, COUNT(*) as Count, MAX(VOLUME) as
MAX,MIN(VOLUME) as MIN, ROUND(AVG(VOLUME),2) as AVG,
SUM(VOLUME*VEG_AREA) as FOREST_VOLUME
From dbo_FMU
GROUP BY PROVINCE, VEG_TYPE
ORDER BY PROVINCE ASC, VEG_TYPE ASC, AVG(VOLUME) ASC

```



**Exercise 4-8 (1)**

**Find the number of FMUs in each province.**

**Reneme the Column name that shows figure of the number to “Count”.**

**List province code in ascending order.**

## Result

PROVINCE	COUNT
1	1992
2	986
3	774
5	1105
6	711
7	545
8	288
9	186
10	120
11	224
12	802
13	1228
14	1324
15	775
16	327
17	521
18	338
19	878
20	584

## Exercise 4-8 (2)

Retrieve first vegetation type (in complex) "Hm" in each province.

Find the number of "Hm" polygons in each province.

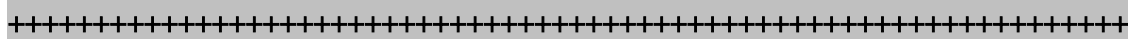
Find the maximum value, minimum value and average amount of "Hm".

Find the total area of "Hm" in each province.

Find the total forest volume and adjusted forest volume in each province.

## Result

Province	Veg_Type_1	Count	Max	Min	Avg	AREA	Forest_Volume	AdjForest_Volume
1	Hm	165	45	16	37.91	3140363	103813419	83625284
2	Hm	178	40	16	35.15	1665238	58648482	50627680
3	Hm	63	50	44	45.1	651241	29644734	25571199
5	Hm	55	40	30	30.18	283338	8508300	6413550
6	Hm	68	60	26	36.87	407655	17811472	15712482
7	Hm	113	40	25	38.27	468096	17675790	16029960
8	Hm	18	40	40	40	35169	1406760	1266440
9	Hm	24	60	40	41.67	74603	3269300	2531840
10	Hm	29	50	25	40.52	129153	5151715	4342895
11	Hm	33	60	40	43.64	48053	2117140	1988940
12	Hm	176	68	45	54.6	713267	38713384	26178119
13	Hm	175	50	20	44.73	834465	35872411	23354910
14	Hm	169	50	25	43.7	1005613	44517140	42322815
16	Hm	28	42	42	42	67548	2837016	567504
17	Hm	128	45	25	32.59	575329	18694478	7862180
18	Hm	116	40	28	36.52	931110	33467552	18790212
19	Hm	217	40	28	30.98	1322764	39451724	17067805
20	Hm	92	45	30	41.9	358241	15037695	11851725



### 4-9. Limiting aggregate values by using group criteria

When you want to use criteria to limit the results, but the field that you want to apply criteria to is used in an aggregate function, you cannot use a WHERE clause.

Instead, you can use a HAVING clause. A HAVING clause works like a WHERE clause, but is used for aggregated data.

Enter the following code:

```
SELECT PROVINCE, VEG_TYPE, COUNT(*) as Count, MAX(VOLUME) as  
MAX,MIN(VOLUME) as MIN, ROUND(AVG(VOLUME),2) as AVG,  
SUM(VEG_AREA) as SUM_AREA, SUM(VOLUME*VEG_AREA) as  
FOREST_VOLUME  
From dbo_FMU  
WHERE PROVINCE = 1  
GROUP BY PROVINCE, VEG_TYPE  
HAVING COUNT(*)>=10  
ORDER BY COUNT(*) DESC
```

- The above statement finds if **any vegetation type has more than 10 polygons in Western province (province code = 1)**.
- A statement can have a WHERE clause and a HAVING clause — criteria for fields that are not used in an aggregate function go in the WHERE clause, and criteria for fields that are used with aggregate functions go in the HAVING clause.

- “WHERE” clause appears in front of “GROUP BY” clause.
- “HAVING” clause is set after “GROUP BY” clause.



**Exercise 4-9**

Retrieve first vegetation type (in complex) in Western Highlands province (province code=9).

Find the total area and total adjusted area in each vegetation type.

Find the total forest volume and adjusted forest volume in each vegetation type.

Find the total forest volume more than 0.

List the total forest volume in descending order.

**Result**

PROVINCE	FirstVegetaionType	AREA	ADJUSTED_AREA	FOREST_VOLUME	AdjFOREST_VOLUME
9	L	247675	166674	13782310	9590770
9	LN	137260	125857	9608200	8809990
9	Hm	74603	56332	3269300	2531840
9	HmAr	40450	35397	1901150	1663659
9	Lc	7026	7026	667470	667470
9	Ls	2129	2129	64544	64544
9	LsN	69	69	2070	2070





## 5. ADVANCED

### 5.1. Combine tables

If you want to replace province code with province name on table of result, you can retrieve province name from another table.

"dbo\_master\_Province" table has both province code and province name.

"code\_n" field of "dbo\_master\_Province" table means province code.

"descrip" field of "dbo\_master\_Province" table means province name.

On the other hand, "dbo\_FMU" table also has the "province" field which shows province code.

"dbo\_FMU" table and "dbo\_master\_Province" has province code as common field.

You can combine tables by using this common field.

By uniting "province" with "code\_n", you can show province name on table of result.

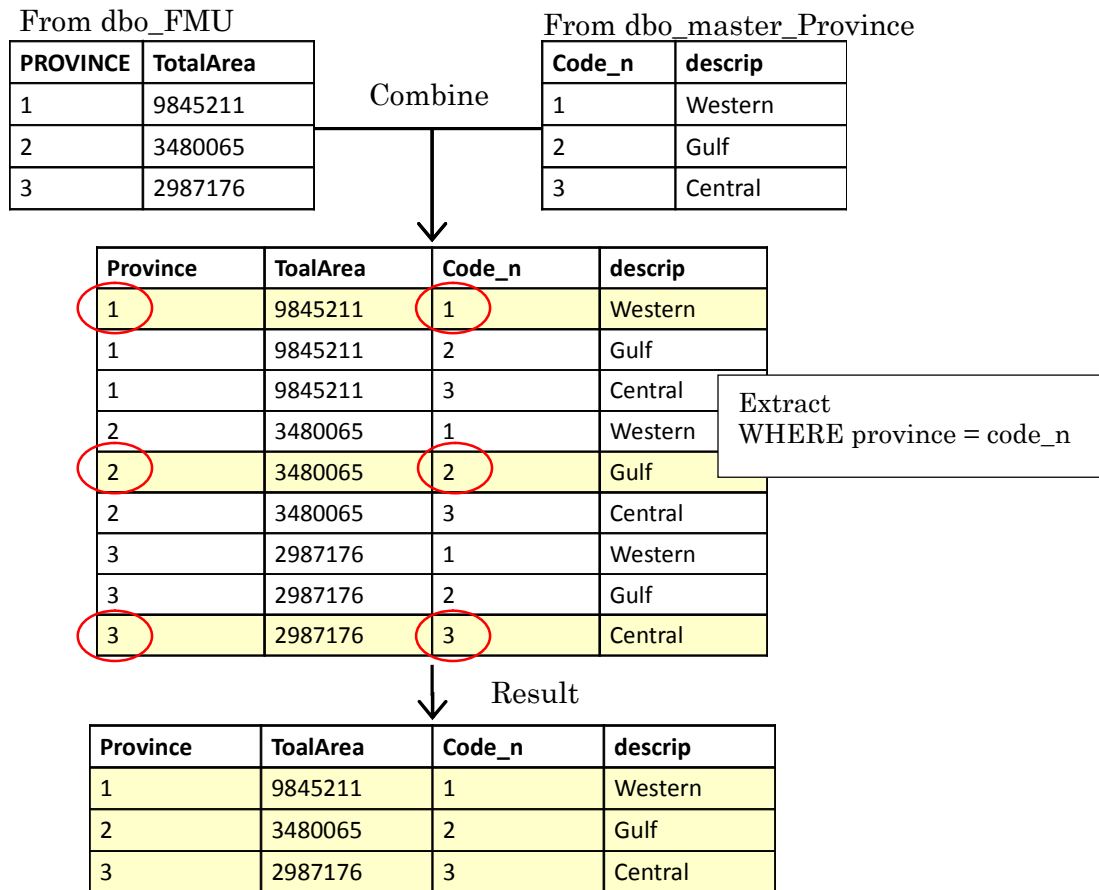
Enter the following code:

```
SELECT F.province, P.descrip AS ProvinceName, SUM(F.veg_area) AS  
TotalArea  
FROM dbo_FMU AS F, dbo_master_Province AS P  
WHERE F.province = P.code_n  
GROUP BY F.province, P.descrip  
ORDER BY F.province;
```

Result:

province	ProvinceName	TotalArea
1	Western	9845211
2	Gulf	3480065
3	Central	2987176
5	Milne Bay	1426403
6	Northern	2277222
7	Southern Highlands	2574829
8	Enga	1182384
9	Western Highlands	914120
10	Simbu	613361
11	Eastern Highlands	1120510
12	Morobe	3393295
13	Madang	2909527
14	East Sepik	4381318
15	West Sepik	3605390
16	Manus	215029
17	New Ireland	961034
18	East New Britain	1534365
19	West New Britain	2045590
20	North Solomons	943273

- The above statement, “province” column is retrieved from “dbo\_FMU”, and “ProvinceName” column is retrieved from “dbo\_master\_Province”. “TotalArea” column is calculated using field of “dbo\_FMU”  
(Regarding table structure, see 4.2)
- “WHERE” clause shows a condition for combination.



- The readability of a SELECT statement can be improved by giving a table an alias. A table alias can be assigned either with or without the AS keyword.
  - table\_name AS table alias
  - table\_name table\_alias

+++++

**Exercise 5-1**

Retrieve province code, province name and total area of first vegetation type (in complex) “O” and “Hm” in each province.

Find the total area of each vegetation.

List the province code in ascending order.

## Result

ProvinceCode	ProvinceName	Vegetation	TotalArea
1	Western	Hm	3140363
1	Western	O	102240
2	Gulf	Hm	1665238
2	Gulf	O	65010
3	Central	Hm	651241
3	Central	O	375449
5	Milne Bay	Hm	283338
5	Milne Bay	O	162728
6	Northern	Hm	407655
6	Northern	O	167366
7	Southern Highlands	Hm	468096
7	Southern Highlands	O	472314
8	Enga	Hm	35169
8	Enga	O	309257

The rest is omitted.



## 5.2. Nested table

If you want to know the portion of first vegetation type(in complex) in each province, you need to divide the area of each first vegetation type(in complex) by the total area of each province.

“dbo\_FMU” table does not have the total area of each province, so you can **create a temporary virtual table(Nested table)** for the total area of each province.

Enter the following code:

```
SELECT PROVINCE, SUM(VEG_AREA) AS TotalArea  
FROM dbo_FMU  
GROUP BY PROVINCE
```

## Result

Create temporary virtual table

PROVINCE	TotalArea
1	9845211
2	3480065
3	2987176
5	1426403
6	2277222
7	2574829
8	1182384
9	914120
10	613361
11	1120510
12	3393295
13	2909527
14	4381318
15	3605390
16	215029
17	961034
18	1534365
19	2045590
20	943273

You need to prepare another table of result which shows the area of the area of each first vegetation type (in complex).

Enter the following code:

```
SELECT F.PROVINCE, F.Veg_Type_1, SUM(F.VEG_AREA) AS AREA  
FROM dbo_FMU AS F  
GROUP BY F.PROVINCE, F.Veg_Type_1  
ORDER BY F.PROVINCE, SUM(F.VEG_AREA) DESC;
```

## Result

PROVINCE	Veg_Type_1	AREA
	Hm	3140363
1	D	1156099
1	Hs	736479
1	W	634048
1	Sa	556160
1	Gsw	468613
1	Sc	466456
1	Fsw	387764
1	Wsw	279272
1	FswMI	258458
1	SaMI	208645
1	Po	187349
1	E	183748
1	L	179829
1	Hsw	162108
1	WswMI	156916
1	M	130484
1	O	102240
1	Ps	59045
1	Is	58714

This table shows the area of each first vegetation type in province.

The rest is omitted.

After you retrieve the area of each first vegetation type (in complex) in each province, you can find portion of each first vegetation type (in complex).

You need to combine the above two tables.

The following statement extracts the first vegetation type (incomplex) which accounts for 5% or more of the each province area.

Enter the following code:

```

SELECT F.PROVINCE, F.Veg_Type_1, SUM(F.VEG_AREA) AS AREA,
Nest.TotalArea AS AreaOfProvince,
ROUND((SUM(F.VEG_AREA)/Nest.TotalArea),2) AS PROPORTION
FROM dbo_FMU AS F,
(
SELECT PROVINCE, SUM(VEG_AREA) AS TotalArea
FROM dbo_FMU
GROUP BY PROVINCE
) As Nest
WHERE F.PROVINCE=Nest.PROVINCE
GROUP BY F.PROVINCE, F.Veg_Type_1, Nest.TotalArea
HAVING ROUND((SUM(F.VEG_AREA)/Nest.TotalArea),2)>=0.05

```



ORDER BY F.PROVINCE ASC, SUM(F.VEG\_AREA) DESC;

Result

PROVINCE	Veg_Type_1	AREA	AreaOfProvince	PROPORTION
1	Hm	3140363	9845211	0.32
1	D	1156099	9845211	0.12
1	Hs	736479	9845211	0.07
1	W	634048	9845211	0.06
1	Sa	556160	9845211	0.06
1	Gsw	468613	9845211	0.05
1	Sc	466456	9845211	0.05
2	Hm	1665238	3480065	0.48
2	Fsw	400704	3480065	0.12
2	Po	261685	3480065	0.08
2	Hs	260649	3480065	0.07
2	M	251122	3480065	0.07
3	Hm	651241	2987176	0.22
3	Hs	466971	2987176	0.16
3	O	375449	2987176	0.13
3	L	369546	2987176	0.12
3	LN	221967	2987176	0.07
5	Hs	478172	1426403	0.34
5	Hm	283338	1426403	0.2
5	O	162728	1426403	0.11
5	L	91763	1426403	0.06
5	Ps	88406	1426403	0.06
5	G	69276	1426403	0.05
5	Gf	68689	1426403	0.05

The rest is omitted.

- The above statement is using two tables.
  - “dbo\_FMU”, which alias name is “F”
  - Temporary virtual table, which alias name is “Nest”.
- The virtual table (Nested table) is placed into FROM statement.
- Operator “/” for division: “(SUM(F.VEG\_AREA)/Nest.TotalArea” means total of “F.VEG\_AREA” divided by “Nest.TotalArea”.

+++++

**Exercise 5-2**

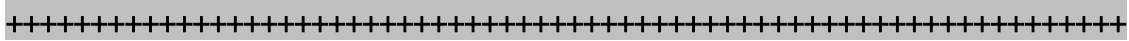
**Change the last example statement.**

**Limit to only the result of Madang Province.**

**Extract the first vegetation type (incomplex) which accounts for 10% or more.**

**Result**

PROVINCE	Veg_Type_1	AREA	AreaOfProv	PROPORTI
13	Hm	834465	2909527	0.29
13	L	447638	2909527	0.15
13	Hmd	399021	2909527	0.14
13	O	393133	2909527	0.14



## **Answer**

### **Exercise4-4 (1)**

```
SELECT *  
FROM dbo_master_province;
```

### **Exercise4-4 (2)**

```
SELECT dbo_master_Province.code_n, dbo_master_Province.descrip  
FROM dbo_master_Province;
```

### **Exercise4-5**

```
SELECT code_n as ProvinceCode, descrip as ProvinceName  
FROM dbo_master_Province;
```

### **Exercise4-6**

```
SELECT PLAN_ID, NAME, STATUS  
From dbo_CONCESSIONAREA  
ORDER BY Status DESC, Plan_ID ASC;
```

### **Exercise4-7 (1)**

```
SELECT PLAN_ID, NAME, STATUS  
FROM dbo_CONCESSIONAREA  
WHERE STATUS = "PROPOSED"  
ORDER BY NAME;
```

### **Exercise4-7 (2)**

```
SELECT PROVINCE, FMU, VEG_TYPE, VOLUME  
FROM dbo_FMU  
WHERE VOLUME >= 30 AND PROVINCE = 13  
ORDER BY VEG_TYPE ASC, VOLUME DESC
```

### **Exercise4-8 (1)**

```
SELECT dbo_FMU.PROVINCE, Count(*) AS COUNT  
FROM dbo_FMU  
GROUP BY dbo_FMU.PROVINCE  
ORDER BY dbo_FMU.PROVINCE;
```

**Exercise4-8 (2)**

```
SELECT Province, Veg_Type_1, Count(*) AS Count, Max(Volume) AS Max,
Min(Volume) AS Min, Round(Avg(Volume),2) AS Avg, SUM(VEG_AREA) AS AREA,
SUM(Volume*VEG_AREA) AS FOREST_VOLUME,SUM(Volume*AREA3) AS
AdjFOREST_VOLUME
FROM dbo_Fmu
WHERE Veg_type_1="Hm"
GROUP BY Province, Veg_Type_1
ORDER BY Province, Veg_Type_1;
```

**Exercise4-9**

```
SELECT PROVINCE, VEG_TYPE_1 AS FirstVegetaionType, SUM(VEG_AREA) AS
AREA, SUM(AREA3) AS ADJUSTED_AREA, SUM(Volume*VEG_AREA) AS
FOREST_VOLUME, SUM(Volume*AREA3) AS AdjFOREST_VOLUME
FROM dbo_FMU
WHERE PROVINCE = 9
GROUP BY PROVINCE, VEG_TYPE_1
HAVING SUM(VOLUME*VEG_AREA) > 0
ORDER BY SUM(VOLUME*VEG_AREA) DESC;
```

**Exercise5-1**

```
SELECT F.province AS ProvinceCode, P.descrip AS ProvinceName, F.VEG_TYPE_1
AS Vegetation, Sum(F.VEG_AREA) AS TotalArea
FROM dbo_FMU AS F, dbo_master_Province AS P
WHERE (F.province=P.code_n) AND ((F.VEG_TYPE_1)="O" OR
(F.VEG_TYPE_1)="Hm")
GROUP BY F.province, P.descrip, F.VEG_TYPE_1
ORDER BY F.province ASC;
```

**Exercise5-2**

```
SELECT F.PROVINCE, F.Veg_Type_1, SUM(F.VEG_AREA) AS AREA,
Nest.TotalArea AS AreaOfProvince,
ROUND((SUM(F.VEG_AREA)/Nest.TotalArea),2) AS PROPORTION
FROM dbo_FMU AS F, (SELECT PROVINCE, SUM(VEG_AREA) AS TotalArea
FROM dbo_FMU GROUP BY PROVINCE) AS Nest
WHERE F.PROVINCE=Nest.PROVINCE AND F.PROVINCE=13
GROUP BY F.PROVINCE, F.Veg_Type_1, Nest.TotalArea
HAVING ROUND((SUM(F.VEG_AREA)/Nest.TotalArea),2)>=0.1
ORDER BY F.PROVINCE, SUM(F.VEG_AREA) DESC;
```



## 3. Maintenance of the Forest Resource Database

### 3.1. Backup and Restoring

FIPS data is stored on an SQL Server, so backup is carried out in accordance with normal SQL Server backup procedures.

#### 3.1.1. Backup setting procedure

Backup of data is automated by the following procedure.

(1) Prepare the backup destination

Prepare a hard disk for storing the backup files.

(2) Prepare a backup batch file

Prepare a batch file for performing the backup.

In the following, the SQLServer instance is “PNG-SERVER”, the login user is “sa”, the login password is “pngf@123”. The DBs to be stored are “geodb01” and “FIPS”, the storage destination is “E:\DB\_BACKUP”, and the criterion for deleting files is “files that are 30 days old or more”.

```
echo off
rem
rem SQL Server backup
rem

rem Get Date
set TODAY=%date:~-10,2%%date:~-7,2%%date:~-4,4%
rem echo %TODAY%

rem BackUp Main Process
echo Start Backup.....
sqlcmd -U sa -P pngf@123 -S PNG-SERVER -Q "BACKUP DATABASE geodb01 TO DISK
=N'E:\DB_BACKUP\%TODAY%_geodb01.bak' WITH INIT"
sqlcmd -U sa -P pngf@123 -S PNG-SERVER -Q "BACKUP DATABASE FIPS TO DISK =
N'E:\DB_BACKUP\%TODAY%_FIPS.bak' WITH INIT"
```

```
rem Delete Old Backup
echo Delete Old Backup...
forfiles /P E:\DB_BACKUP /S /D -30 /C "cmd /c del /F /S /Q e:\DB_BACKUP\*file"
```

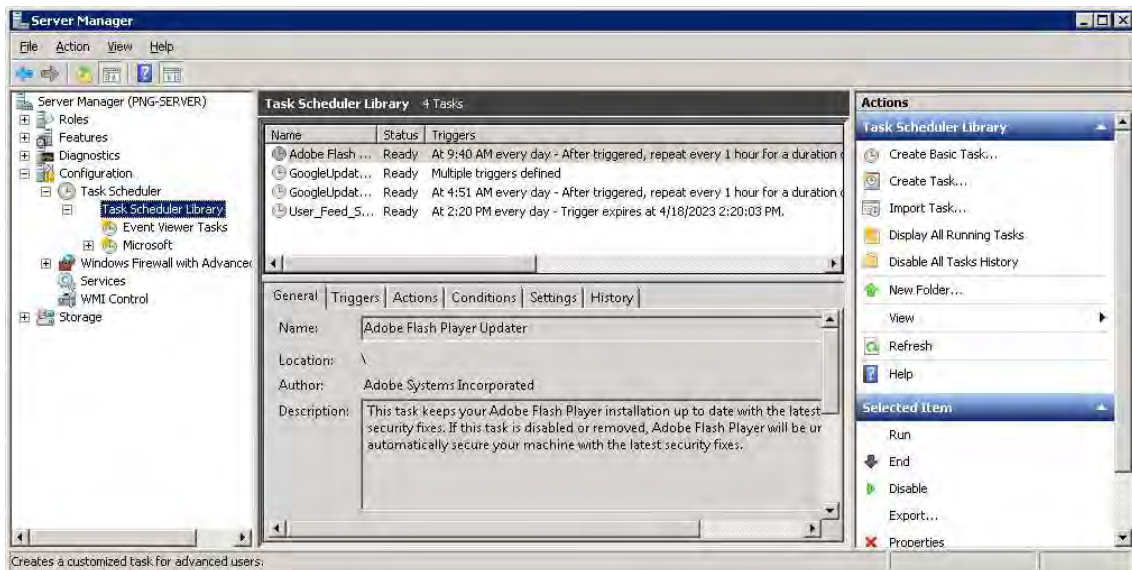
The login user and password for SQL Server need to be included in the batch file. Therefore, it is desirable for security that the batch file is in a location that normal users cannot see it.

### (3) Prepare backup task

A Task is registered in the Task Scheduler in order to perform periodic backups and delete old backup files.

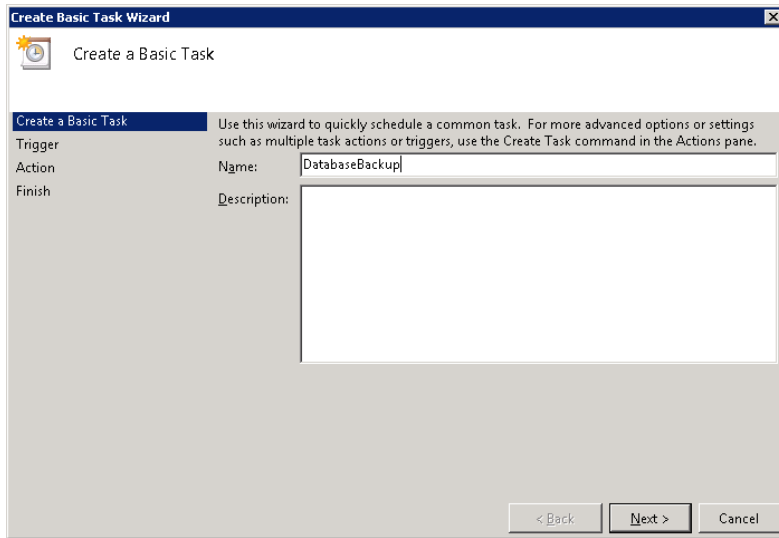
Start up Server Manager, and select Configuration->Task Scheduler->Task Scheduler Library from the tree on the left.

Then, select Create Basic Task from Actions.



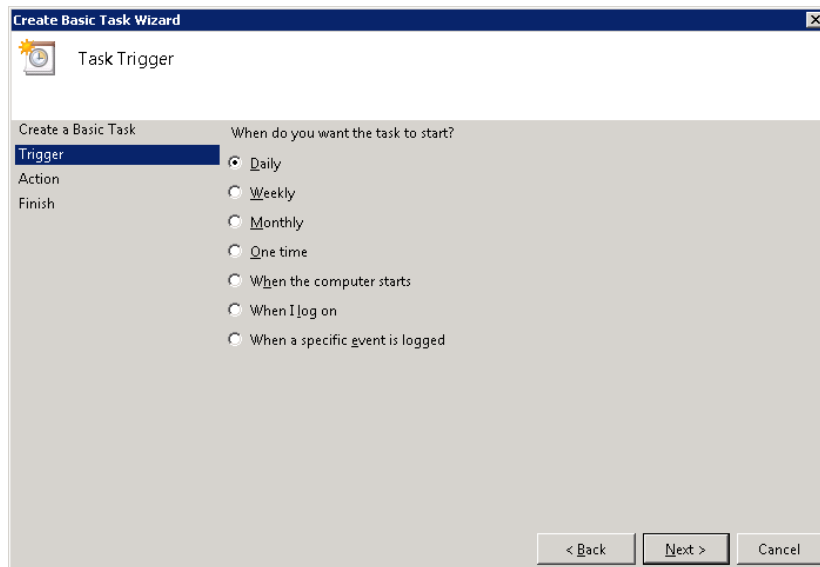
**Figure 3-1 Task Scheduler Library**

Create Basic Task Wizard opens, so enter the Task name in Name, and click the Next button.



**Figure 3-2 Create Basic Task Wizard (1)**

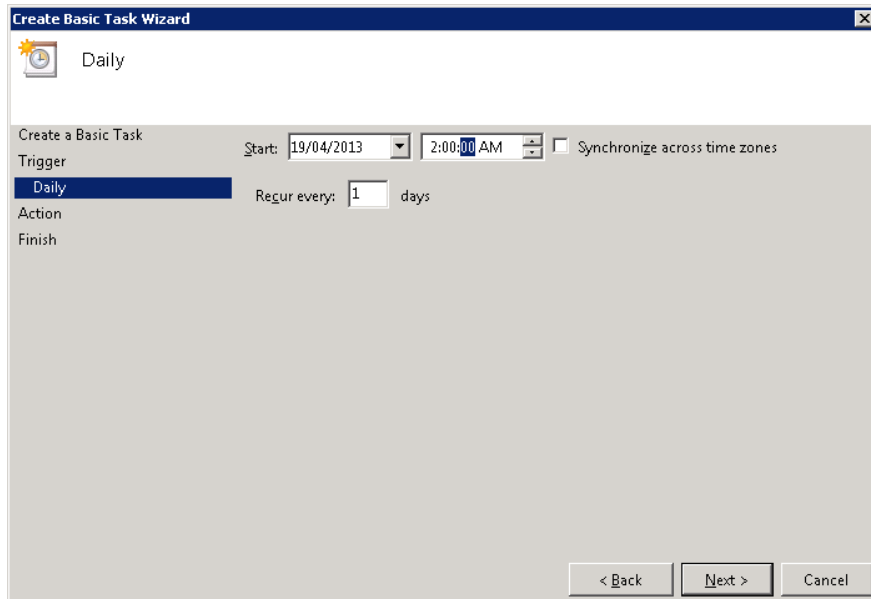
Select the interval for performing the Task, and click the Next button.



**Figure 3-3 Create Basic Task Wizard (2)**

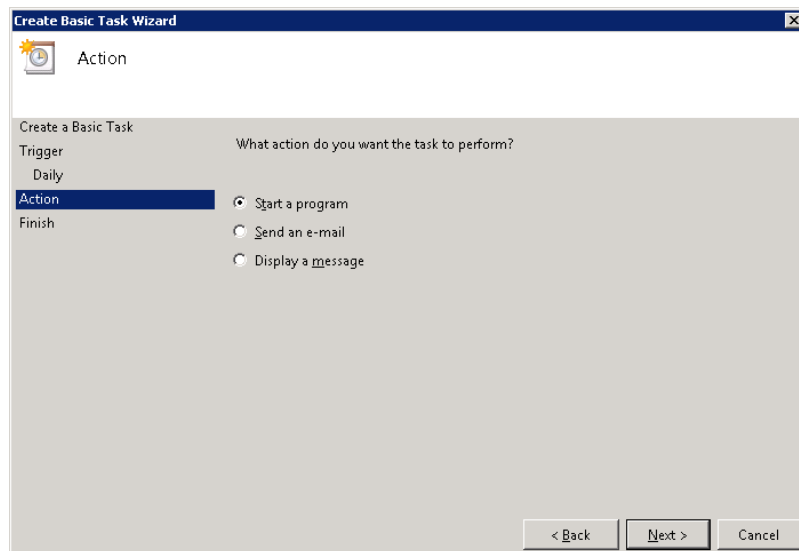
Specify the timing (date and time) for performing the Task.

Also, specify the interval for performing the Task, and click the Next button.

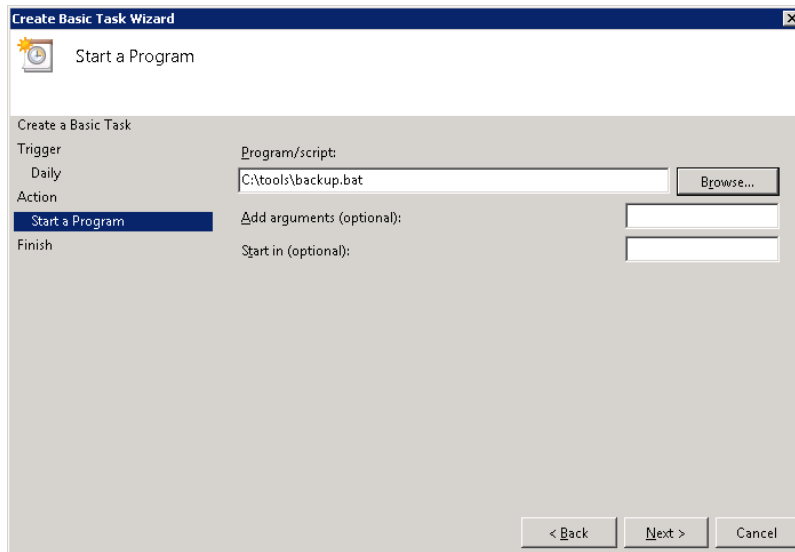


**Figure 3-4 Create Basic Task Wizard (3)**

Select Start a program, and enter the path to the prepared batch file (it is not necessary to set arguments, etc.). Then, click the Next button.

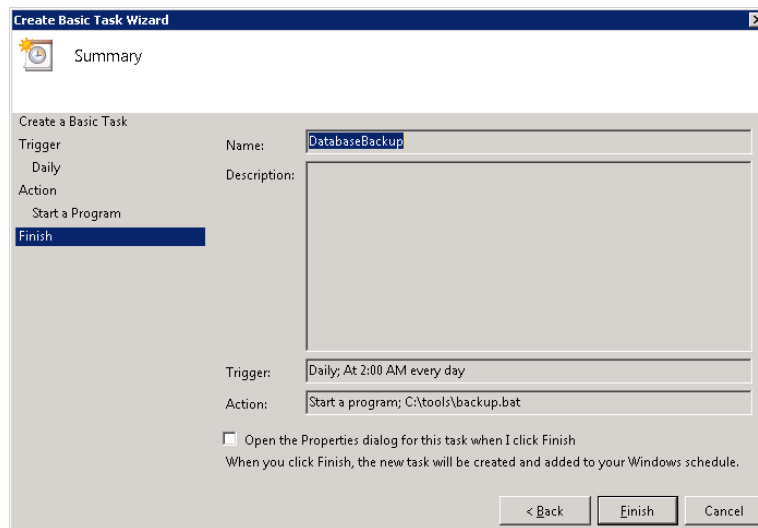


**Figure 3-5 Create Basic Task Wizard (4)**



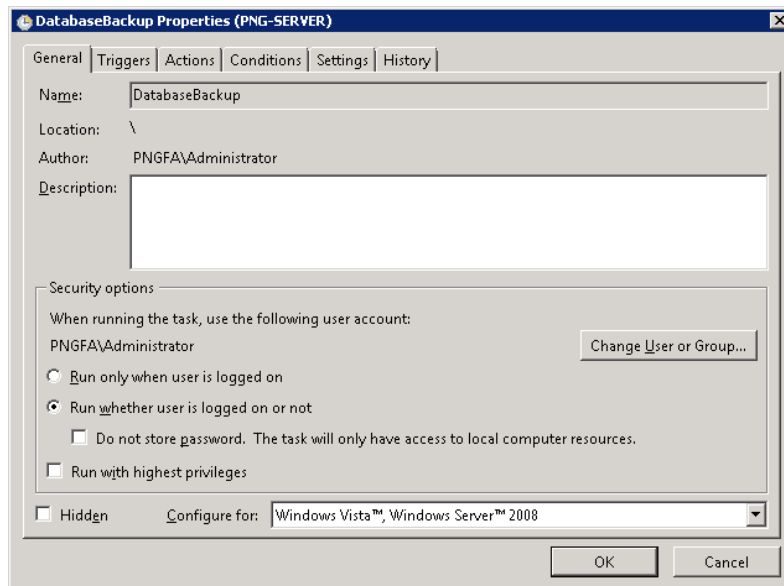
**Figure 3-6 Create Basic Task Wizard (5)**

Finally, confirm the settings, and click the Finish button.



**3-7 Create Basic Task Wizard (6)**

After preparing the Task, right click the prepared Task with the mouse and select Properties. Then select “Run whether user is logged on or not” from the Security options of the General tab, then click the OK button. (Input of the password is required, so input the password.)



**Figure 3-8 Task Properties**

This completes the backup settings.

### 3.1.2. Restore procedure

Restoring files that have been backed up should be performed for DBs with the same name as during backup.

(If the GeoDatabase backup file is restored to a DB with a different name, it may not operate correctly.)

Restoring a database is performed by the following procedure.

(1) Stop and restart services

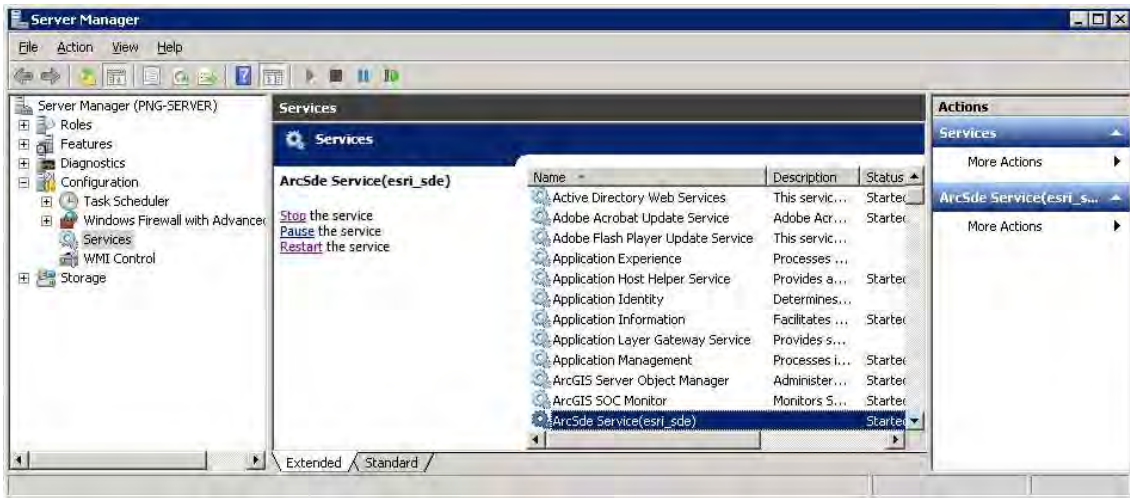
Stop the ArcSDE service, and restart SQL Server services.

Restoring SQL Server will not terminate normally if there is access to the database (session), so access (the session) is forcibly severed by restarting the SQL Server service, etc.

a. Start Server Manager, and select Configuration->Services from the tree on the left.

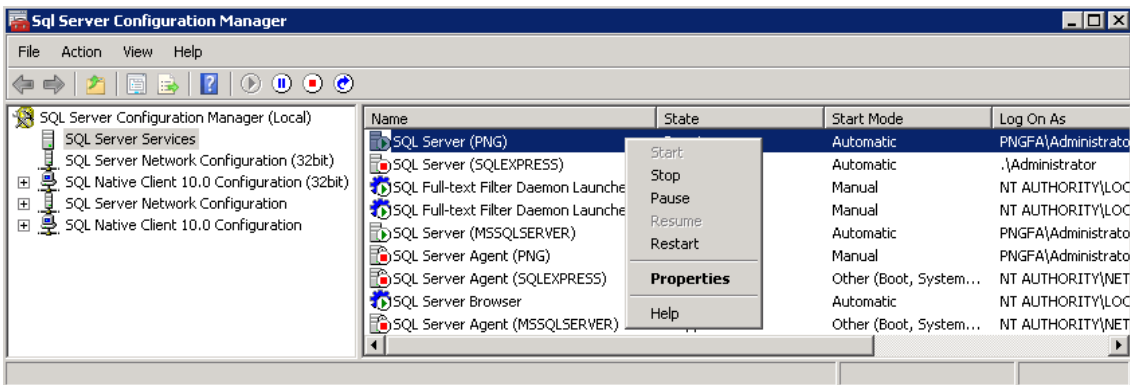
b. From the list, select ArcSde Service(\*\*\*), and Stop it.





**Figure 3-9 Services**

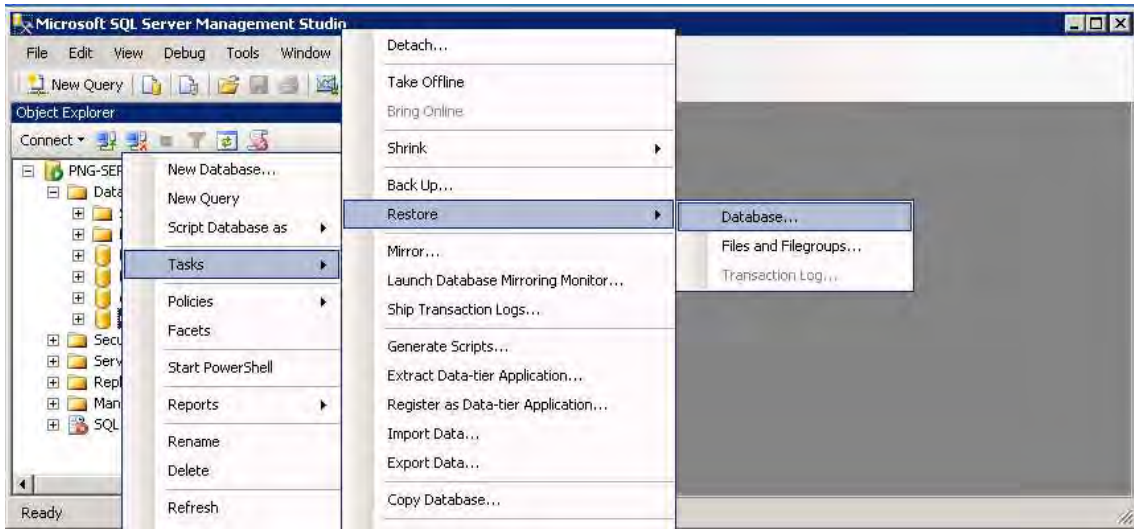
- c. Open the Start menu, and select All Program->Microsoft SQL Server 2008->Configuration Tools->SQL Server Configuration Manager.
- d. From SQL Server Service, right click SQL Server (\*\*\*) with the mouse, and select Restart.



**Figure 3-10 SQL Server Configuration Manager**

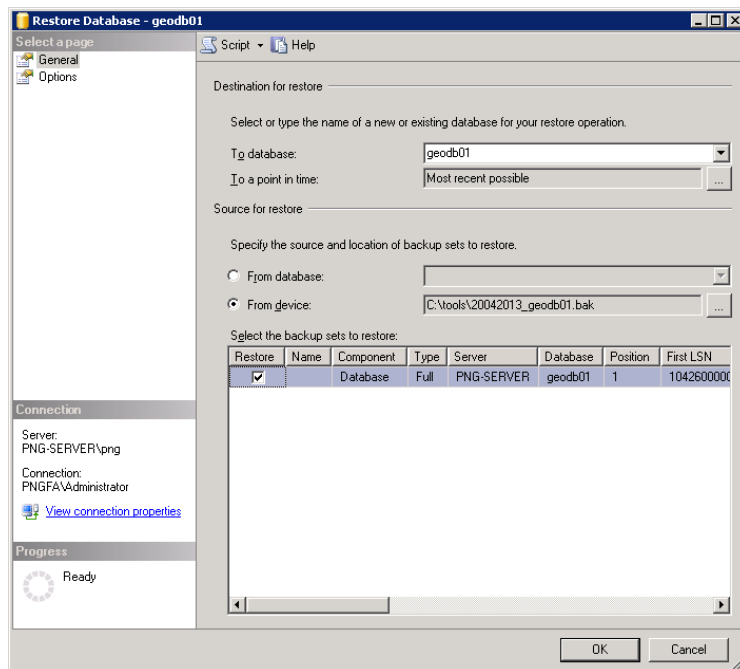
(2) Restore the DB

- a. Start SQL Server Management Studio, right click the DB whose data is to be restored using the mouse, and select Tasks->Restore->Database.



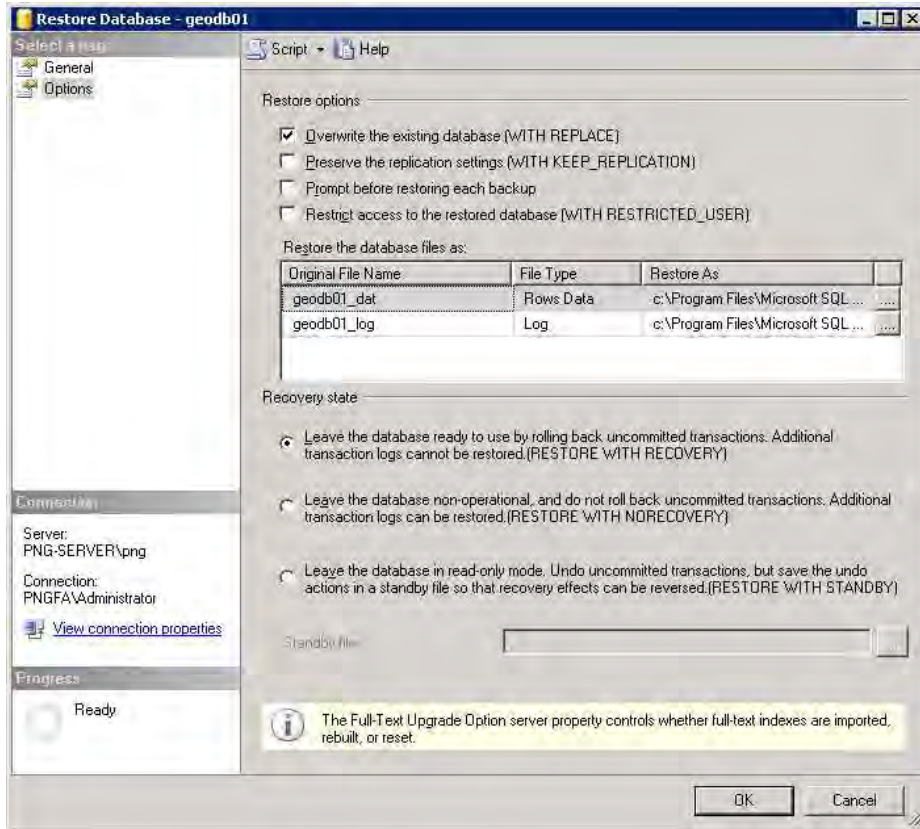
**Figure 3-11 SQL Server Management Studio**

b. In the General menu, select [From device] from Source for restore, and select the backed up DB file. Then, enter a check in the list.



**Figure 3-12 Restore Menu (General)**

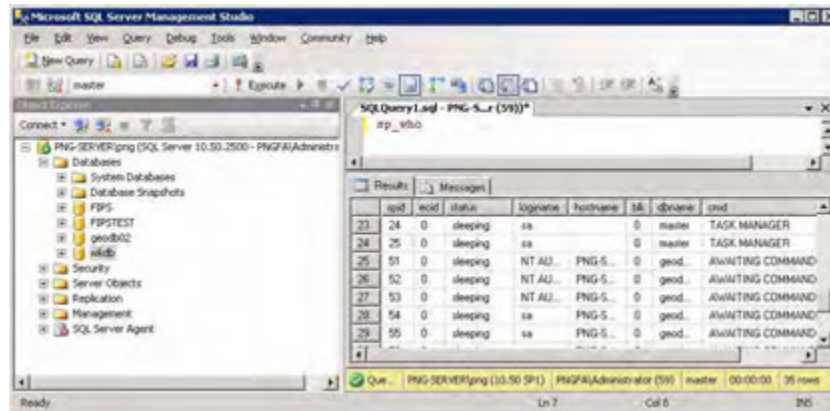
c. Select Options, and select [Overwrite the existing database].



**Figure 3-13 Restore Menu (Options)**

d. Click the OK button, and execute the restore.

- ※ If the database is in use (if a session remains) when the operation in (1) is performed, the restore will fail with an error. In this case, execute the `sp_who` command in SQL Server Management Studio to check the session. Search for the DB session whose `dbname` is the target of the restore, and delete the session by executing the `kill [spid]` command so that restore can be carried out.



**Figure 3-14 sp\_who Command**

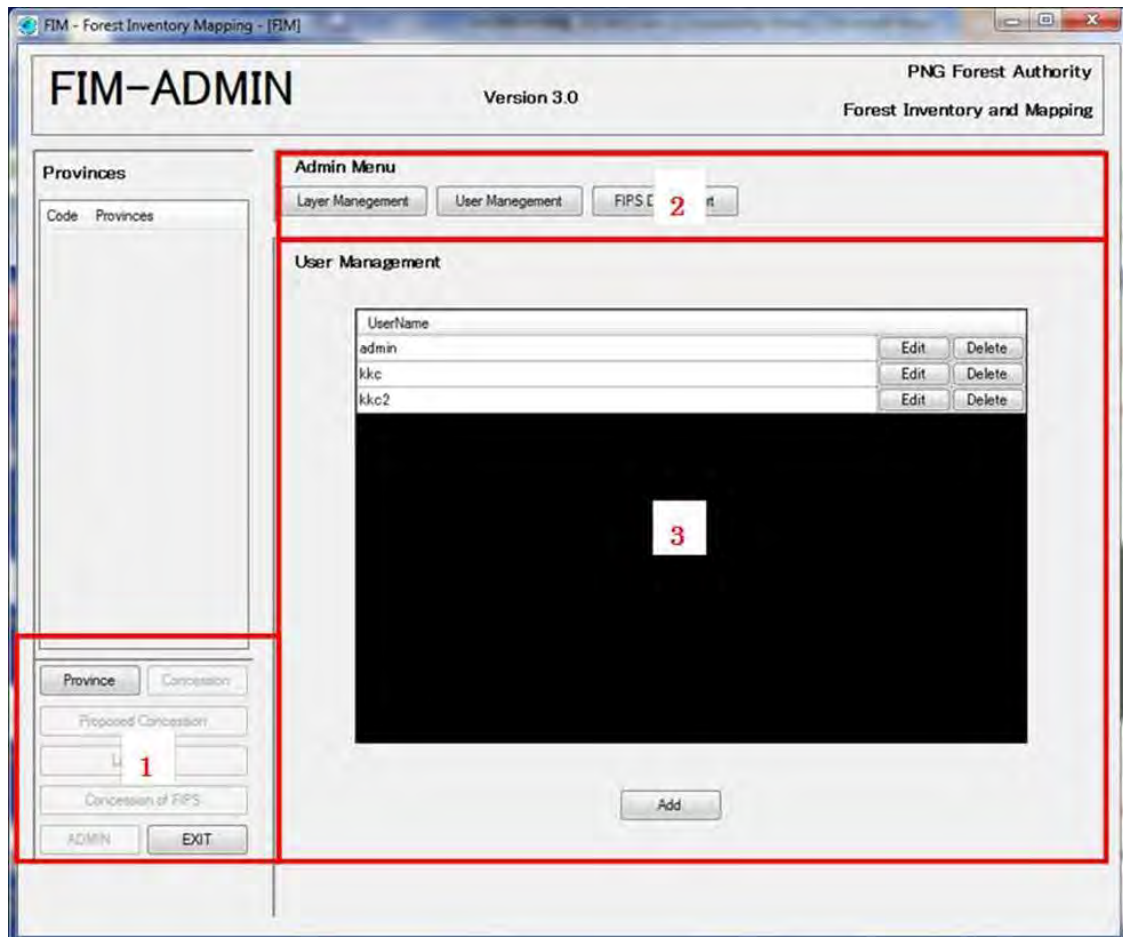
(3) Restart the service

a. Start Server Manager, and select Configuration->Services from the tree on the left.

b. From the list, select ArcSde Service(\*\*\*), and Start it.

## 3.2. Adding and deleting FIMS users

This screen is displayed by clicking the User Management button in the Admin screen.



1. **Province** : Click to go to the Provinces screen and display the list of provinces.  
**EXIT** : Click to exit the system.
2. **Layer Management** : Click to go to the Layer Management screen.  
**User Management** : Click to go to the User Management screen.  
**FIPS Data Import** : Click to go to the FIPS Data Import screen..
3. Displays user information.  
**Edit**: Click to go to the Edit User screen.  
**Delete**: Click to delete user information.  
**Add**: Click to go to the Add User screen.

### 3.3. Adding and deleting FIPS users

You can manage the accounts of FIPS users. User management requires the administrative authority or the developer authority to run, and the user with general authority cannot use this option.

The user with administrative authority can manage only the account of users with administrative authority or general authority. The developer authority is superior to the administrative authority; therefore the user with administrative authority cannot add / edit the account of user with developer authority.

The user with developer authority can manage all the accounts of users.

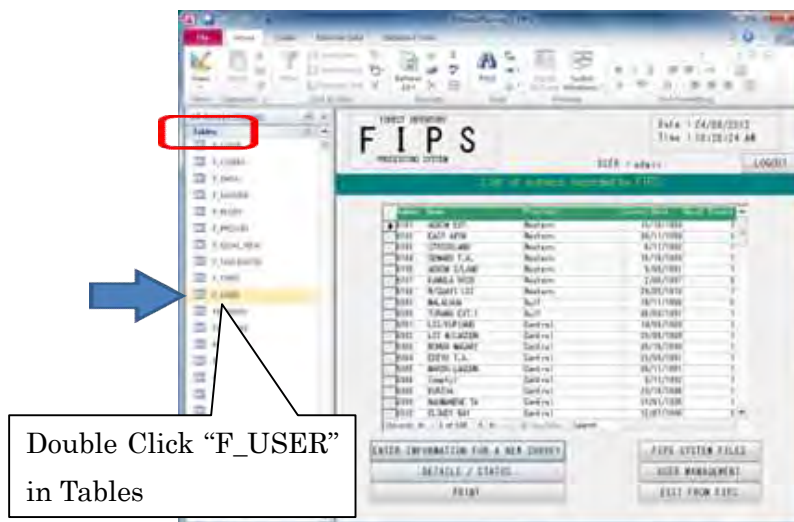
#### 3.3.1. Logging in with administrative authority or developer authority

Login with administrative authority or developer authority.

The Microsoft Access menu is displayed.

#### 3.3.2. Access to tables for user management

Double click “F\_USER” in Tables on the left side of the screen, and the user management table opens.

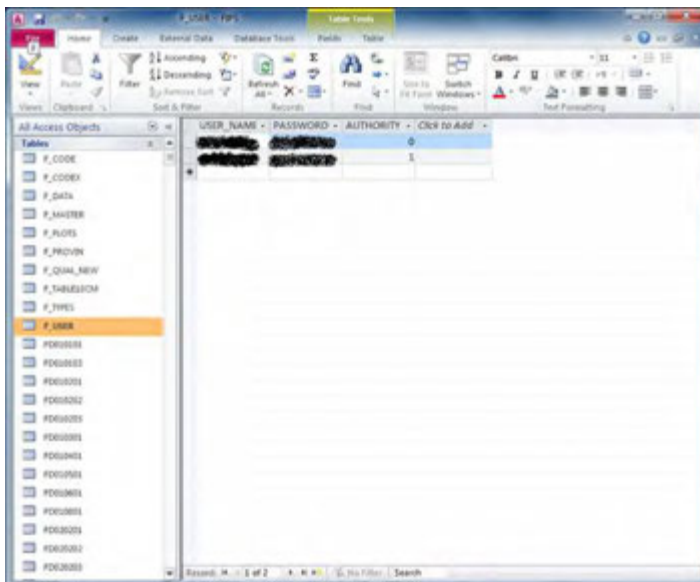


### 3.3.3. Adding or modifying users

---

To add or modify a user, enter “USER\_NAME”, “PASSWORD”, “AUTHORITY”.

Field Name	Description	Points to note
USER_NAME	User name	50 text characters or less
PASSWORD	Password	50 text characters or less
AUTHORITY	User’s authority	Enter either 1, 2, or 3 1 : Developer authority 2 : Administrative authority 3 : General authority



### 3.3.4. Deleting a user

---

To delete a user, select the user to be deleted, and right click. Select “Delete” from the menu.



# **Forest Resource Database specification**

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---

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# 1 Data content and structure of FIMS Database

## 1.1 FIMS application schema

<<Polygon>> <b>FMU</b>	<<ObjectClass>> <b>Ctrl_#_Concession_FMU</b>
<<Field>> + province :esriFieldTypeDouble + FMU :esriFieldTypeDouble + zone :esriFieldTypeDouble + map_no :esriFieldTypeDouble + map_id :esriFieldTypeDouble + veg_type :esriFieldTypeString + veg_area :esriFieldTypeDouble + slope :esriFieldTypeDouble + altitude :esriFieldTypeDouble + karst :esriFieldTypeDouble + inundation :esriFieldTypeDouble + mangrove :esriFieldTypeDouble + sloperelief :esriFieldTypeDouble + inundat0 :esriFieldTypeDouble + area :esriFieldTypeDouble + area0 :esriFieldTypeDouble + extreme :esriFieldTypeDouble + serious :esriFieldTypeDouble + area1 :esriFieldTypeDouble + ext_sl :esriFieldTypeDouble + ext_alt :esriFieldTypeDouble + ext_kst :esriFieldTypeDouble + ext_in :esriFieldTypeDouble + ext_man :esriFieldTypeDouble + ser_sl :esriFieldTypeDouble + ser_in :esriFieldTypeDouble + type :esriFieldTypeSmallInteger + no_dist :esriFieldTypeString + veg_type_1 :esriFieldTypeString + veg_type_2 :esriFieldTypeString + veg_type_3 :esriFieldTypeString + type_base :esriFieldTypeString + area_75 :esriFieldTypeDouble + index_ :esriFieldTypeDouble + percent_ :esriFieldTypeDouble + area_750 :esriFieldTypeDouble + volume :esriFieldTypeDouble + vol_75 :esriFieldTypeDouble + to96 :esriFieldTypeDouble + to960 :esriFieldTypeDouble + to961 :esriFieldTypeDouble + ext_sl0 :esriFieldTypeDouble + ext_alt0 :esriFieldTypeDouble + ext_kst0 :esriFieldTypeDouble + ext_in0 :esriFieldTypeDouble + ext_man0 :esriFieldTypeDouble + ser_sl0 :esriFieldTypeDouble + ser_in0 :esriFieldTypeDouble + current_ :esriFieldTypeDouble + current0 :esriFieldTypeDouble + current1 :esriFieldTypeDouble + current2 :esriFieldTypeDouble + ext_sl1 :esriFieldTypeDouble + ext_alt1 :esriFieldTypeDouble + ext_kst1 :esriFieldTypeDouble + ext_in1 :esriFieldTypeDouble + ext_man1 :esriFieldTypeDouble + ser_sl1 :esriFieldTypeDouble + ser_in1 :esriFieldTypeDouble + area2 :esriFieldTypeDouble + area3 :esriFieldTypeDouble + forest_vol :esriFieldTypeDouble	<<Field>> + province :esriFieldTypeInteger + FMU :esriFieldTypeInteger + Zone :esriFieldTypeInteger + Map_No :esriFieldTypeDouble + Map_id :esriFieldTypeDouble + Veg_Type :esriFieldTypeString + Veg_Area :esriFieldTypeDouble + Extreme_Slope :esriFieldTypeDouble + Extreme_Altitude :esriFieldTypeDouble + Extreme_Karst :esriFieldTypeDouble + Extreme_Inundation :esriFieldTypeDouble + Extreme_Mangrove :esriFieldTypeDouble + Serious_SlopeRelief :esriFieldTypeDouble + Serious_Inundation :esriFieldTypeDouble + Extreme_Constraints_Area :esriFieldTypeDouble + Serious_Constraints_Area :esriFieldTypeDouble + Prop_Extreme :esriFieldTypeDouble + Prop_Serious :esriFieldTypeDouble + Protected_Area :esriFieldTypeDouble + Protected_Ext_Sl :esriFieldTypeDouble + Protected_Ext_Alt :esriFieldTypeDouble + Protected_Ext_Kst :esriFieldTypeDouble + Protected_Ext_In :esriFieldTypeDouble + Protected_Ext_Man :esriFieldTypeString + Protected_Ser_Sl :esriFieldTypeDouble + Protected_Ser_In :esriFieldTypeDouble + Fragile_Forest_Type :esriFieldTypeInteger + Forest_Type_No_Dist :esriFieldTypeString + Forest_Type_Base :esriFieldTypeString + Gross_Forest_Area_75 :esriFieldTypeDouble + Disturbance_Index :esriFieldTypeDouble + Complex_Percent :esriFieldTypeDouble + Adjusted_Forest_Area_75 :esriFieldTypeDouble + Timber_Volume :esriFieldTypeDouble + Gross_Freost_Vol_75 :esriFieldTypeDouble + Logged_NotLandUse_75to96 :esriFieldTypeDouble + Logged_LandUse_75to96 :esriFieldTypeDouble + LandUse_NotLogged_75to96 :esriFieldTypeDouble + LogAndLUse_75to96_Ext_Sl :esriFieldTypeDouble + LogAndLUse_75to96_Ext_Alt :esriFieldTypeDouble + LogAndLUse_75to96_Ext_Kst :esriFieldTypeDouble + LogAndLUse_75to96_Ext_In :esriFieldTypeDouble + LogAndLUse_75to96_Ext_Man :esriFieldTypeDouble + LogAndLUse_75to96_Ser_Sl :esriFieldTypeDouble + LogAndLUse_75to96_Ser_In :esriFieldTypeDouble + Logged_NotLandUse_Current :esriFieldTypeDouble + Logged_LandUse_Current :esriFieldTypeDouble + LandUse_NotLogged_Current :esriFieldTypeDouble + LogAndLUse_Current :esriFieldTypeDouble + LogAndLUse_Current_Ext_Sl :esriFieldTypeDouble + LogAndLUse_Current_Ext_Alt :esriFieldTypeDouble + LogAndLUse_Current_Ext_Kst :esriFieldTypeDouble + LogAndLUse_Current_Ext_In :esriFieldTypeDouble + LogAndLUse_Current_Ext_Man :esriFieldTypeDouble + LogAndLUse_Current_Ser_Sl :esriFieldTypeDouble + LogAndLUse_Current_Ser_In :esriFieldTypeDouble + Rev_Gross_Forest_Area :esriFieldTypeDouble + Rev_Adjusted_Forest_Area :esriFieldTypeDouble + Rev_Gross_Forest_Vol :esriFieldTypeDouble + plan_id :esriFieldTypeInteger

<<Polygon>> <b>ConcessionArea</b>
<<Field>>
+ plan_id :esriFieldTypeDouble
+ name :esriFieldTypeString
+ area :esriFieldTypeDouble
+ purchase :esriFieldTypeDate
+ exp :esriFieldTypeDate
+ constype :esriFieldTypeString
+ status :esriFieldTypeString
+ scale :esriFieldTypeString
+ province :esriFieldTypeDouble

<<Polygon>> <b>PlanArea</b>
<<Field>>
+ province :esriFieldTypeDouble
+ area :esriFieldTypeDouble
+ type :esriFieldTypeString
+ PRJHARVOL :esriFieldTypeDouble
+ plan_id :esriFieldTypeDouble
+ year :esriFieldTypeString
+ name :esriFieldTypeString
+ area2 :esriFieldTypeDouble

<<Polygon>> <b>Extreme_Karst</b>
<<Field>>
+ province :esriFieldTypeDouble
+ provname :esriFieldTypeString
+ area :esriFieldTypeDouble
+ landform :esriFieldTypeSmallInteger

<<Polygon>> <b>Extreme_Inundation</b>
<<Field>>
+ province :esriFieldTypeDouble
+ provname :esriFieldTypeString
+ area :esriFieldTypeDouble
+ inund :esriFieldTypeString
+ iextent :esriFieldTypeSmallInteger

<<Polygon>> <b>Serious_SlopeRelief</b>
<<Field>>
+ province :esriFieldTypeDouble
+ provname :esriFieldTypeString
+ area :esriFieldTypeDouble
+ slope1 :esriFieldTypeSmallInteger
+ slope2 :esriFieldTypeString
+ relief :esriFieldTypeString

<<Polyline>> <b>F_Strip_Line</b>
<<Field>>
+ vegetation :esriFieldTypeString
+ plan_id :esriFieldTypeInteger
+ survey_number :esriFieldTypeString
+ survey_name :esriFieldTypeString
+ survey_date :esriFieldTypeDate
+ block_number :esriFieldTypeString
+ strip :esriFieldTypeString
+ strip_volume :esriFieldTypeDouble
+ strip_volume_per_ha :esriFieldTypeDouble
+ start_lat :esriFieldTypeDouble
+ start_lon :esriFieldTypeDouble
+ end_lat :esriFieldTypeDouble
+ end_lon :esriFieldTypeDouble
+ last_update :esriFieldTypeDate
+ loi_flag :esriFieldTypeString
+ slope_min :esriFieldTypeDouble
+ slope_max :esriFieldTypeDouble
+ elevation_min :esriFieldTypeDouble
+ elevation_max :esriFieldTypeDouble

<<Polygon>> <b>Extreme_Altitude</b>
<<Field>>
+ province :esriFieldTypeDouble
+ provname :esriFieldTypeString
+ area :esriFieldTypeDouble
+ altitude :esriFieldTypeString

<<Polygon>> <b>Extreme_Slope</b>
<<Field>>
+ slope1 :esriFieldTypeDouble
+ province :esriFieldTypeDouble
+ provname :esriFieldTypeString
+ area :esriFieldTypeDouble

<<Polygon>> <b>Extreme_Mangrove</b>
<<Field>>
+ province :esriFieldTypeDouble
+ vegtype :esriFieldTypeString
+ area :esriFieldTypeDouble

<<Polygon>> <b>Serious_Inundation</b>
<<Field>>
+ province :esriFieldTypeDouble
+ provname :esriFieldTypeString
+ area :esriFieldTypeDouble
+ inund :esriFieldTypeString
+ iextent :esriFieldTypeSmallInteger

<<Polygon>> <b>Logged_NotLandUse_Current</b>	
<<Field>>	
+ province	:esriFieldTypeDouble
+ area	:esriFieldTypeDouble
+ area2	:esriFieldTypeDouble
+ type	:esriFieldTypeString
+ acharvol	:esriFieldTypeDouble
+ plan_id	:esriFieldTypeDouble
+ year	:esriFieldTypeString
+ name	:esriFieldTypeString

<<Polygon>> <b>Logged_LandUse_Current</b>	
<<Field>>	
+ province	:esriFieldTypeDouble
+ area	:esriFieldTypeDouble
+ area2	:esriFieldTypeDouble
+ type	:esriFieldTypeString
+ acharvol	:esriFieldTypeDouble
+ plan_id	:esriFieldTypeDouble
+ year	:esriFieldTypeString
+ name	:esriFieldTypeString

<<Polygon>> <b>LandUse_NotLogged_Current</b>	
<<Field>>	
+ province	:esriFieldTypeDouble
+ area	:esriFieldTypeDouble
+ area2	:esriFieldTypeDouble
+ type	:esriFieldTypeString
+ acharvol	:esriFieldTypeDouble
+ plan_id	:esriFieldTypeDouble
+ year	:esriFieldTypeString
+ name	:esriFieldTypeString

<<Polygon>> <b>PROV</b>	
<<Field>>	
+ code	:esriFieldTypeDouble
+ province	:esriFieldTypeString

<<Polygon>> <b>Protected_Area</b>	
<<Field>>	
+ protected_id	:esriFieldTypeDouble
+ name	:esriFieldTypeString
+ type	:esriFieldTypeString
+ gaz_date	:esriFieldTypeString
+ province	:esriFieldTypeString
+ location	:esriFieldTypeString
+ tenure	:esriFieldTypeString
+ area	:esriFieldTypeDouble
+ altitude	:esriFieldTypeString
+ logitude	:esriFieldTypeString
+ latitude	:esriFieldTypeString

<<Polygon>> <b>Logged_NotLandUse_7596</b>	
<<Field>>	
+ province	:esriFieldTypeDouble
+ area	:esriFieldTypeDouble

<<Polygon>> <b>Logged_NotLandUse_Current_Merge</b>	
<<Field>>	
+ province	:esriFieldTypeDouble
+ area	:esriFieldTypeDouble

<<Polygon>> <b>Logged_LandUse_7596</b>	
<<Field>>	
+ province	:esriFieldTypeDouble
+ area	:esriFieldTypeDouble

<<Polygon>> <b>Logged_LandUse_Current_Merge</b>	
<<Field>>	
+ province	:esriFieldTypeDouble
+ area	:esriFieldTypeDouble

<<Polygon>> <b>LandUse_NotLogged_7596</b>	
<<Field>>	
+ province	:esriFieldTypeDouble
+ area	:esriFieldTypeDouble

<<Polygon>> <b>LandUse_NotLogged_Current_Merge</b>	
<<Field>>	
+ province	:esriFieldTypeDouble
+ area	:esriFieldTypeDouble

<<Polygon>> <b>Logged_And_LUse_Current</b>	
<<Field>>	
+ province	:esriFieldTypeDouble
+ area	:esriFieldTypeDouble

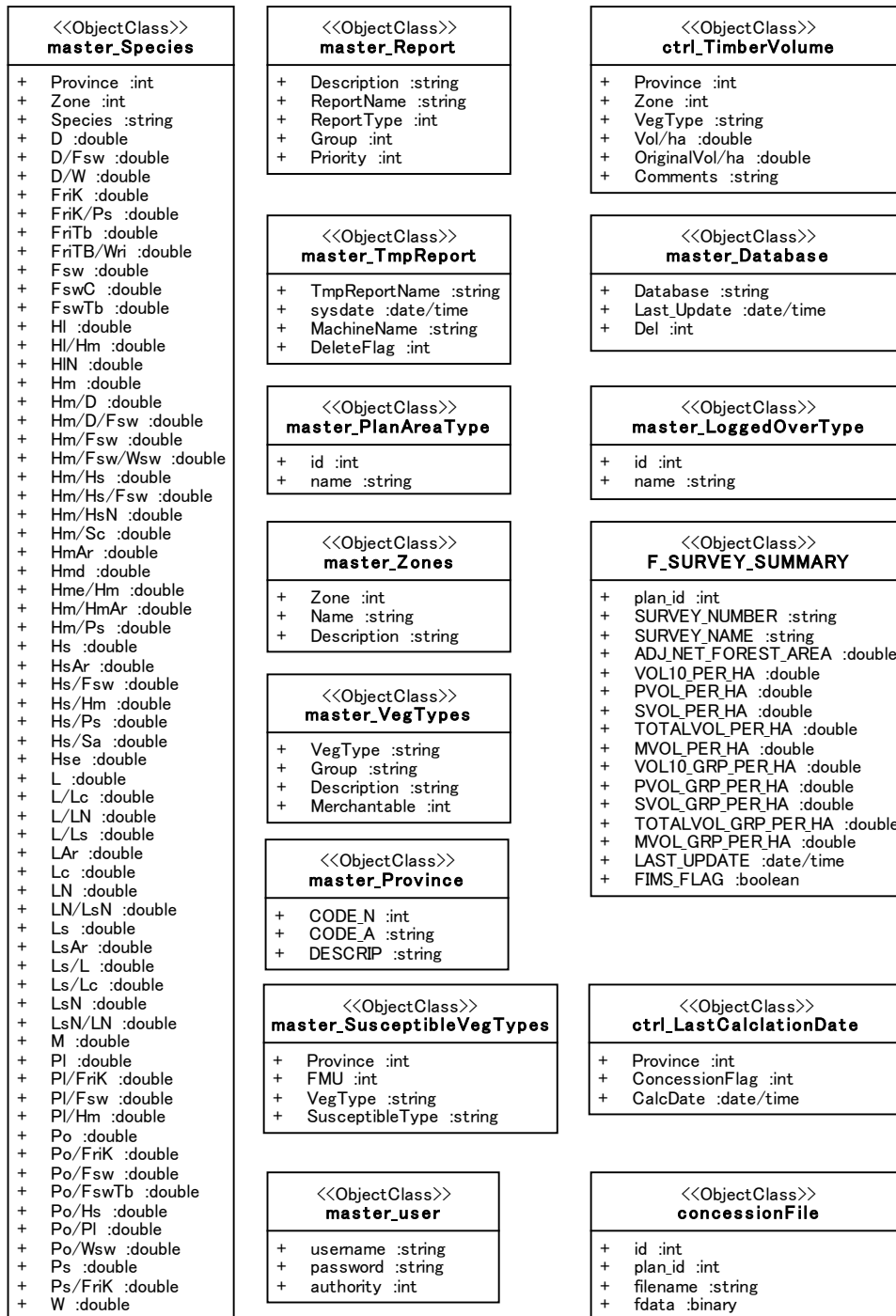
<<Polygon>> <b>Logged_And_LUse_7596</b>	
<<Field>>	
+ area	:esriFieldTypeDouble
+ province	:esriFieldTypeDouble

<<Polygon>> <b>Tmpinfo</b>	
<<Field>>	
+	province :esriFieldTypeString
+	FMU :esriFieldTypeDouble
+	zone :esriFieldTypeDouble
+	map_no :esriFieldTypeDouble
+	map_id :esriFieldTypeDouble
+	veg_type :esriFieldTypeString
+	veg_area :esriFieldTypeDouble
+	slope :esriFieldTypeDouble
+	altitude :esriFieldTypeDouble
+	karst :esriFieldTypeDouble
+	inundation :esriFieldTypeDouble
+	mangrove :esriFieldTypeDouble
+	sloperelie :esriFieldTypeDouble
+	inundati0 :esriFieldTypeDouble
+	area :esriFieldTypeDouble
+	area0 :esriFieldTypeDouble
+	extreme :esriFieldTypeDouble
+	serious :esriFieldTypeDouble
+	area1 :esriFieldTypeDouble
+	ext_sl :esriFieldTypeDouble
+	ext_alt :esriFieldTypeDouble
+	ext_kst :esriFieldTypeDouble
+	ext_in :esriFieldTypeDouble
+	ext_man :esriFieldTypeDouble
+	ser_sl :esriFieldTypeDouble
+	ser_in :esriFieldTypeDouble
+	type :esriFieldTypeSmallInteger
+	no_dist :esriFieldTypeString
+	veg_type_1 :esriFieldTypeString
+	veg_type_2 :esriFieldTypeString
+	veg_type_3 :esriFieldTypeString
+	type_base :esriFieldTypeString
+	index_ :esriFieldTypeDouble
+	percent_ :esriFieldTypeDouble
+	area_75 :esriFieldTypeDouble
+	area_750 :esriFieldTypeDouble
+	volume :esriFieldTypeDouble
+	vol_75 :esriFieldTypeDouble
+	to96 :esriFieldTypeDouble
+	to960 :esriFieldTypeDouble
+	to961 :esriFieldTypeDouble
+	ext_sl0 :esriFieldTypeDouble
+	ext_alt0 :esriFieldTypeDouble
+	ext_kst0 :esriFieldTypeDouble
+	ext_in0 :esriFieldTypeDouble
+	ext_man0 :esriFieldTypeDouble
+	ser_sl0 :esriFieldTypeDouble
+	ser_in0 :esriFieldTypeDouble
+	current_ :esriFieldTypeDouble
+	current0 :esriFieldTypeDouble
+	current1 :esriFieldTypeDouble
+	current2 :esriFieldTypeDouble
+	ext_sl1 :esriFieldTypeDouble
+	ext_alt1 :esriFieldTypeDouble
+	ext_kst1 :esriFieldTypeDouble
+	ext_in1 :esriFieldTypeDouble
+	ext_man1 :esriFieldTypeDouble
+	ser_sl1 :esriFieldTypeDouble
+	ser_in1 :esriFieldTypeDouble
+	area2 :esriFieldTypeDouble
+	area3 :esriFieldTypeDouble
+	forest_vol :esriFieldTypeDouble
+	plan_id :esriFieldTypeString
+	name :esriFieldTypeString
+	constype :esriFieldTypeString
+	status :esriFieldTypeString
+	scale :esriFieldTypeString

<<Polygon>> <b>TmpLayer</b>	
<<Field>>	
+	province :esriFieldTypeString
+	fmu :esriFieldTypeDouble
+	zone :esriFieldTypeDouble
+	plan_id :esriFieldTypeDouble

<<Polygon>> <b>TmpLayer2</b>	
<<Field>>	
+	province :esriFieldTypeString
+	fmu :esriFieldTypeDouble
+	zone :esriFieldTypeDouble
+	plan_id :esriFieldTypeDouble
+	KEY_ID :esriFieldTypeString





## 1.2 Documentation of FIMS application schema

---

### 1.2.1 FMU

Forest Mapping Unit(FMU). The FMU is the basic mapping unit.

An FMU is an area of forest or other vegetation mapped as a polygon during the 1:100,000 mapping process.

Each FMU is assigned a code describing the vegetation/forest type. A total of 58 forest and other vegetation types are distinguished, and of these 35 are forest types. A further four types deal with land use, urban areas, bare areas and lakes. FMU numbering commences with 1 for each Province.

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeDouble

Province code

■ Value Domain

CODE\_N value of master\_Province

FMU : esriFieldTypeDouble

FMU

■ Value Domain

Sequence number from 1 in each province

Zone : esriFieldTypeDouble

Forest Zone code

■ Value Domain

Zone number of master\_Zone

Map\_No : esriFieldTypeDouble

Original map number from 1:100,000 sheets

Map\_id : esriFieldTypeDouble

1:100,000 sheet id

Veg\_Type : esriFieldTypeString

Vegetation type

Veg\_Area : esriFieldTypeDouble

Vegetation area (hectares)

Slope : esriFieldTypeDouble

Extreme physical limitations - slope (ha) - derived from PNGRIS overlay slope1>30 degrees (slope1=6)

Altitude : esriFieldTypeDouble

Extreme physical limitations - altitude (ha) - derived from PNGRIS overlay altitude>2,400m (altitude=7 or 8) (Note: Extreme slope takes precedence)

Karst : esriFieldTypeDouble

Extreme physical limitations - karst (ha) - derived from PNGRIS overlay landform polygonal karst (landform=55)

Inundation : esriFieldTypeDouble

Extreme physical limitations - inundation (ha) - derived from PNGRIS overlay permanent or near permanent inundation > 80% of area (inund=5 or 6, iextent=4)

Mangrove : esriFieldTypeDouble

Extreme physical limitations - mangrove (ha) - derived from FIM vegetation type of Mangrove (Veg\_Type='M')

SlopeRelief : esriFieldTypeDouble

Serious physical limitations - slope and relief (ha) - derived from PNGRIS overlay slope1=20-30 degrees, slope2=0 or 30 degrees (slope2=0 or 6), very high or high relief (relief=4,5)

Inundati0 : esriFieldTypeDouble

Serious physical limitations - inundation (ha) - derived from PNGRIS overlay

permanent or near permanent inundation 50- 80% of area (inund=5 or 6,  
iextent=3)

Area : esriFieldTypeDouble

Total of extreme constraint area

Area0 : esriFieldTypeDouble

Total of serious constraint area

Extreme : esriFieldTypeDouble

Proportion of FMU in extreme constraint area

Serious : esriFieldTypeDouble

Proportion of FMU in serious constraint area

Area1 : esriFieldTypeDouble

Protected area (DEC layer) in FMU

Ext\_SI : esriFieldTypeDouble

Protected area (DEC layer) in extreme slope area

Ext\_Alt : esriFieldTypeDouble

Protected area (DEC layer) in extreme altitude area

Ext\_Kst : esriFieldTypeDouble

Protected area (DEC layer) in extreme karst area

Ext\_In : esriFieldTypeDouble

Protected area (DEC layer) in extreme inundation area

Ext\_Man : esriFieldTypeDouble

Protected area (DEC layer) in extreme mangrove area

Ser\_SI : esriFieldTypeDouble

Protected area (DEC layer) in serious slope area

Ser\_In : esriFieldTypeDouble  
Protected area (DEC layer) in serious inundation area

Type : esriFieldTypeInteger  
Fragile forest type flag (DEC)

No\_Dist : esriFieldTypeString  
Forest type code without reference to disturbance

VEG\_TYPE\_1 : esriFieldTypeString  
Forest type code 1

VEG\_TYPE\_2 : esriFieldTypeString  
Forest type code 2

VEG\_TYPE\_3 : esriFieldTypeString  
Forest type code 3

Type\_Base : esriFieldTypeString  
Forest type code without reference to disturbance or complex

Area\_75 : esriFieldTypeDouble  
Gross forest area in 1975

Index\_ : esriFieldTypeDouble  
Level of disturbance (eg. 9 = 90% undisturbed)

Percent\_ : esriFieldTypeDouble  
Percentage of vegetation type complex that is forest

Area\_750 : esriFieldTypeDouble  
Gross forest area adjusted for disturbance and complex

Volume : esriFieldTypeDouble  
Timber volume estimate for forest type

Vol\_75 : esriFieldTypeDouble

Gross forest volume in 1975 (adjusted forest area \* timber volume)

to96 : esriFieldTypeDouble

Area logged but not converted to land use - 1975 to 1996

to960 : esriFieldTypeDouble

Area logged and converted to land use - 1975 to 1996

to961 : esriFieldTypeDouble

Area land use not logged (cleared) and converted to land use - 1975 to 1996

Ext\_Sl0 : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in extreme slope constraint area

Ext\_Alt0 : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in extreme altitude constraint area

Ext\_Kst0 : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in extreme karst constraint area

Ext\_In0 : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in extreme inundation constraint area

Ext\_Man0 : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in extreme mangrove constraint area

Ser\_Sl0 : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in serious slope/relief constraint area

Ser\_In0 : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in serious inundation constraint area

Current\_ : esriFieldTypeDouble  
Area logged but not converted to land use - current

Current0 : esriFieldTypeDouble  
Area logged and converted to land use - current

Current1 : esriFieldTypeDouble  
Area land use not logged (cleared) and converted to land use - current

Current2 : esriFieldTypeDouble  
Total Area Logged and Land Use

Ext\_SI1 : esriFieldTypeDouble  
Total logged and land use area - current - in extreme slope constraint area

Ext\_Alt1 : esriFieldTypeDouble  
Total logged and land use area - current - in extreme altitude constraint area

Ext\_Kst1 : esriFieldTypeDouble  
Total logged and land use area - current - in extreme ksrst constraint area

Ext\_In1 : esriFieldTypeDouble  
Total logged and land use area - current - in extreme inundation constraint area

Ext\_Man1 : esriFieldTypeDouble  
Total logged and land use area - current - in extreme mangrove constraint area

Ser\_SI1 : esriFieldTypeDouble  
Total logged and land use area - current - in serious slope/relief constraint area

Ser\_In1 : esriFieldTypeDouble  
Total logged and land use area - current - in serious inundation constraint area

Area2 : esriFieldTypeDouble  
Revised gross forest area



Area3 : esriFieldTypeDouble  
Revised adjusted forest area

Forest\_Vol : esriFieldTypeDouble  
Revised timber volume

### 1.2.2 Ctrl\_\*\_Concession\_FMU

Forest Mapping Unit(FMU) in Concession Area

FeatureType : ObjectClass

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeInteger  
Province code  
■ Value Domain  
CODE\_N value of master\_Province

FMU : esriFieldTypeInteger  
FMU  
■ Value Domain  
FMU value

Zone : esriFieldTypeInteger  
Forest Zone code  
■ Value Domain  
Zone code of master\_Zone

Map\_No : esriFieldTypeDouble  
Original map number from 1:100,000 sheets

Map\_id : esriFieldTypeDouble  
1:100,000 sheet id

Veg\_Type : esriFieldTypeString

Vegetation type

Veg\_Area : esriFieldTypeDouble

Vegetation area (hectares)

Extreme\_Slope : esriFieldTypeDouble

Extreme physical limitations - slope (ha) - derived from PNGRIS overlay slope1>30 degrees (slope1=6)

Extreme\_Altitude : esriFieldTypeDouble

Extreme physical limitations - altitude (ha) - derived from PNGRIS overlay altitude>2,400m (altitude=7 or 8) (Note: Extreme slope takes precedence)

Extreme\_Karst : esriFieldTypeDouble

Extreme physical limitations - karst (ha) - derived from PNGRIS overlay landform polygonal karst (landform=55)

Extreme\_Inundation : esriFieldTypeDouble

Extreme physical limitations - inundation (ha) - derived from PNGRIS overlay permanent or near permanent inundation > 80% of area (inund=5 or 6, iextent=4)

Extreme\_Mangrove : esriFieldTypeDouble

Extreme physical limitations - mangrove (ha) - derived from FIM vegetation type of Mangrove (Veg\_Type='M')

Serious\_SlopeRelief : esriFieldTypeDouble

Serious physical limitations - slope and relief (ha) - derived from PNGRIS overlay slope1=20-30 degrees, slope2=0 or 30 degrees (slope2=0 or 6), very high or high relief (relief=4,5)

Serious\_Inundation : esriFieldTypeDouble

Serious physical limitations - inundation (ha) - derived from PNGRIS overlay permanent or near permanent inundation 50- 80% of area (inund=5 or 6, iextent=3)

Extreme\_Constraints\_Area : esriFieldTypeDouble

Total of extreme constraints area

Serious\_Constraints\_Area : esriFieldTypeDouble

Total of serious constraints area

Prop\_Extreme : esriFieldTypeDouble

Proportion of FMU in extreme constraints area

Prop\_Serious : esriFieldTypeDouble

Proportion of FMU in serious constraints area

Protected\_Area : esriFieldTypeDouble

Protected area (DEC layer) in FMU

Protected\_Ext\_SI : esriFieldTypeDouble

Protected area (DEC layer) in extreme slope area

Protected\_Ext\_Alt : esriFieldTypeDouble

Protected area (DEC layer) in extreme altitude area

Protected\_Ext\_Kst : esriFieldTypeDouble

Protected area (DEC layer) in extreme karst area

Protected\_Ext\_In : esriFieldTypeDouble

Protected area (DEC layer) in extreme inundation area

Protected\_Ext\_Man : esriFieldTypeDouble

Protected area (DEC layer) in extreme mangrove area

Protected\_Ser\_SI : esriFieldTypeDouble

Protected area (DEC layer) in serious slope area

Protected\_Ser\_In : esriFieldTypeDouble

Protected area (DEC layer) in serious inundation area

Fragile\_Forest\_Type : esriFieldTypeInteger  
Fragile forest type flag (DEC)

Forest\_Type\_No\_Dist : esriFieldTypeString  
Forest type code without reference to disturbance

Forest\_Type\_Base : esriFieldTypeString  
Forest type code without reference to disturbance or complex

Gross\_Forest\_Area\_75 : esriFieldTypeDouble  
Gross forest area in 1975

Disturbance\_Index : esriFieldTypeDouble  
Level of disturbance (eg. 9 = 90% undisturbed)

Complex\_Percent : esriFieldTypeDouble  
Percentage of vegetation type complex that is forest

Adjusted\_Forest\_Area\_75 : esriFieldTypeDouble  
Gross forest area adjusted for disturbance and complex

Timber\_Volume : esriFieldTypeDouble  
Timber volume estimate for forest type

Gross\_Forest\_Vol\_75 : esriFieldTypeDouble  
Gross forest volume in 1975 (adjusted forest area \* timber volume)

Logged\_NotLandUse\_75to96 : esriFieldTypeDouble  
Area logged but not converted to land use - 1975 to 1996

Logged\_LandUse\_75to96 : esriFieldTypeDouble  
Area logged and converted to land use - 1975 to 1996

LandUse\_NotLogged\_75to96 : esriFieldTypeDouble  
Area land use not logged (cleared) and converted to land use - 1975 to 1996

LogAndLuse\_75to96 : esriFieldTypeDouble

Total Area Logged and Land Use - 1975 to 1996

LogAndLuse\_75to96\_Ext\_SI : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in extreme slope constraint area

LogAndLuse\_75to96\_Ext\_Alt : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in extreme altitude constraint area

LogAndLuse\_75to96\_Ext\_Kst : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in extreme karst constraint area

LogAndLuse\_75to96\_Ext\_In : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in extreme inundation constraint area

LogAndLuse\_75to96\_Ext\_Man : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in extreme mangrove constraint area

LogAndLuse\_75to96\_Ser\_SI : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in serious slope/relief constraint area

LogAndLuse\_75to96\_Ser\_In : esriFieldTypeDouble

Total logged and land use area 1975 to 1996 in serious inundation constraint area

Logged\_NotLandUse\_Current : esriFieldTypeDouble

Area logged but not converted to land use - current

Logged\_LandUse\_Current : esriFieldTypeDouble

Area logged and converted to land use - current

LandUse\_NotLogged\_Current : esriFieldTypeDouble

Area land use not logged (cleared) and converted to land use - current

LogAndLuse\_Current : esriFieldTypeDouble

Total Area Logged and Land Use

LogAndLuse\_Current\_Ext\_SI : esriFieldTypeDouble

Total logged and land use area - current - in extreme slope constraint area

LogAndLuse\_Current\_Ext\_Alt : esriFieldTypeDouble

Total logged and land use area - current - in extreme altitude constraint area

LogAndLuse\_Current\_Ext\_Kst : esriFieldTypeDouble

Total logged and land use area - current - in extreme ksrst constraint area

LogAndLuse\_Current\_Ext\_In : esriFieldTypeDouble

Total logged and land use area - current - in extreme inundation constraint area

LogAndLuse\_Current\_Ext\_Man : esriFieldTypeDouble

Total logged and land use area - current - in extreme mangrove constraint area

LogAndLuse\_Current\_Ser\_SI : esriFieldTypeDouble

Total logged and land use area - current - in serious slope/relief constraint area

LogAndLuse\_Current\_Ser\_In : esriFieldTypeDouble

Total logged and land use area - current - in serious inundation constraint area

Rev\_Gross\_Forest\_Area : esriFieldTypeDouble

Revised gross forest area

Rev\_Adjusted\_Forest\_Area : esriFieldTypeDouble

Revised adjusted forest area

Rev\_Gross\_Forest\_Vol : esriFieldTypeDouble

Revised timber volume

plan\_id : esriFieldTypeInteger

Concession Area ID

### 1.2.3 ConcessionArea

#### Concession Area or Proposed Concession Area

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

plan\_id : esriFieldTypeDouble

The Province (these numbers are formally listed in the Plans Listing document held by the Mapping Branch Manager.

name : esriFieldTypeString

Name of the new concession area.

area : esriFieldTypeDouble

Area in hectares of the new concession area.

purchase : esriFieldTypeDate

Purchase date

exp : esriFieldTypeDate

Expand date

constype : esriFieldTypeString

Concession Type

status : esriFieldTypeString

Status of a new concession area as Proposed.

Value is 「Proposed」 or 「Concession」

scale : esriFieldTypeString

Scale value

province : esriFieldTypeDouble

Province code

- Value Domain  
CODE\_N value of master\_Province

#### 1.2.4 Protected\_Area

##### Protected Area

FeatureType : Polygon

---

isAbstract : False

---

##### Attribute

---

protected\_id : esriFieldTypeDouble

Protected area id

name : esriFieldTypeString

Name of the new protected area.

type : esriFieldTypeString

Protected area type

gaz\_date : esriFieldTypeString

Designated date by protected area

province : esriFieldTypeString

Province code

- Value Domain  
CODE\_N value of master\_Province

location : esriFieldTypeString

Protected area's location (Character string)

tenure : esriFieldTypeString

Protected area's holder

area : esriFieldTypeDouble

Area in hectares of the new protected area.



altitude : esriFieldTypeString

Altitude description

logitude : esriFieldTypeString

Protected area's location (longitude)

latitude : esriFieldTypeString

Protected area's location (latitude)

#### 1.2.5 Extreme\_Altitude

Extreme physical limitations - altitude (ha) - derived from PNGRIS overlay  
altitude>2,400m (altitude=7 or 8) (Note: Extreme slope takes precedence)

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

provname : esriFieldTypeString

Province name.

area : esriFieldTypeDouble

Ext Altitude Area (ha).

altitude : esriFieldTypeString

Description

#### 1.2.6 Extreme\_Karst

Extreme physical limitations - karst (ha) - derived from PNGRIS overlay landform

polygonal karst (landform=55)

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

provname : esriFieldTypeString

Province name.

area : esriFieldTypeDouble

Ext Karst Area (ha).

landfrom : esriFieldTypeSmallInteger

Description

#### 1.2.7 Extreme\_Slope

Extreme physical limitations - slope (ha) - derived from PNGRIS overlay slope1> 30 degrees (slope1=6)

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

provname : esriFieldTypeString

Province name.

area : esriFieldTypeDouble

Ext Slope Area (ha).

slope1 : esriFieldTypeString

Description

#### 1.2.8 Extreme\_Inundation

Extreme physical limitations - inundation (ha) - derived from PNGRIS overlay permanent or near permanent inundation > 80% of area (inund=5 or 6, iextent=4)

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

provname : esriFieldTypeString

Province name.

area : esriFieldTypeDouble

Ext Altitude Area (ha).

inund : esriFieldTypeString

description1

iextent : esriFieldTypeSmallInteger

description2

### 1.2.9 Extreme\_Mangrove

Extreme physical limitations - mangrove (ha) - derived from FIM vegetation type of Mangrove (Veg\_Type='M')

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

vegtype : esriFieldTypeString

Vegetation Type.

area : esriFieldTypeDouble

Ext Altitude Area (ha).

### 1.2.10 Serious\_Inundation

Serious physical limitations - inundation (ha) - derived from PNGRIS overlay permanent or near permanent inundation 50- 80% of area (inund=5 or 6, iextent=3)

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

provname : esriFieldTypeString  
province name.

area : esriFieldTypeDouble  
Ser Inundation Area (ha).

inund : esriFieldTypeString  
description1

iextent : esriFieldTypeSmallInteger  
description2

#### 1.2.11 Serious\_Relief

Serious physical limitations - slope and relief (ha) - derived from PNGRIS overlay  
slope1=20-30 degrees, slope2=0 or 30 degrees (slope2=0 or 6), very high or high relief  
(relief=4,5)

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeDouble  
Province code.

■ Value Domain

CODE\_N value of master\_Province

provname : esriFieldTypeString  
Province name.

area : esriFieldTypeDouble  
Ser Relief Area (ha).

slope1 : esriFieldTypeSmallInteger  
description1

slope2 : esriFieldTypeString  
description2

relief : esriFieldTypeString  
description3

#### 1. 2. 12 Logged\_And\_LUse\_Current

Total Area Logged and Land Use

FeatureType : Polygon

---

isAbstract : False

---

##### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble

Total Area Logged and Land Use (ha).

#### 1. 2. 13 Logged\_And\_Luse\_7596

Total Area Logged and Land Use - 1975 to 1996

FeatureType : Polygon

---

isAbstract : False

---

##### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble

Total Area Logged and Land Use (ha).

#### 1. 2. 14 Logged\_NotLandUse\_Current

Area logged but not converted to land use

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble

Area logged but not converted to land use (ha).  
(Manual input)

area2 : esriFieldTypeDouble

Area logged but not converted to land use (ha).  
(Automatic input by FIMS)

type : esriFieldTypeString

Logged over area type.

■ Value Domain

Code value of master\_LoggedOverType

acharvol : esriFieldTypeDouble

Actual harvest Volume.

Plan\_id : esriFieldTypeDouble

plan\_id to be associated with the area

year : esriFieldTypeString

Years of logging

name : esriFieldTypeString

Name

#### 1. 2. 15 Logged\_NotLandUse\_7596

Area logged but not converted to land use - 1975 to 1996

FeatureType : Polygon

---

isAbstract : False

---

Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble

Area logged but not converted to land use (ha).

#### 1. 2. 16 Logged\_NotLandUse\_Current\_Merge

Layer for process of area logged but not converted to land use - current

FeatureType : Polygon

---

isAbstract : False

---

Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble



Area logged but not converted to land use (ha).

### 1. 2. 17 Logged\_LandUse\_Current

Area logged and converted to land use

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble

Area logged but not converted to land use (ha).

(Manual input)

area2 : esriFieldTypeDouble

Area logged but not converted to land use (ha).

(Automatic input by FIMS)

type : esriFieldTypeString

Logged Over Area Type.

■ Value Domain

Code of master\_LoggedOverType

ACHARVOL : esriFieldTypeDouble

Actual harvest Volume.

Plan\_id : esriFieldTypeDouble

Concession ID.

YEAR : esriFieldTypeString

Years of logging

name : esriFieldTypeString

Name

#### 1. 2. 18 Logged\_LandUse\_7596

Area logged and converted to land use - 1975 to 1996

FeatureType : Polygon

---

isAbstract : False

---

Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble

Area logged but not converted to land use (ha).

#### 1. 2. 19 Logged\_LandUse\_Current\_Merge

Layer for processing of area logged and converted to land use - Current

FeatureType : Polygon

---

isAbstract : False

---

Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble

Area logged but not converted to land use (ha).

#### 1. 2. 20 LandUse\_NotLogged\_Current

Area land use not logged (cleared) and converted to land use

FeatureType : Polygon

---

isAbstract : False

---

#### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble

Area logged but not converted to land use (ha).

(Manual input)

area2 : esriFieldTypeDouble

Area logged but not converted to land use (ha).

(Automatic input by FIMS)

type : esriFieldTypeString

Logged Over Area Type.

■ Value Domain

Code of master\_LoggedOverType

ACHARVOL : esriFieldTypeDouble

Actual harvest Volume.

Plan\_id : esriFieldTypeDouble

Concession ID.

YEAR : esriFieldTypeString

Years of logging.

name : esriFieldTypeString

Name

#### 1. 2. 21 LandUse\_NotLogged\_7596

Area land use not logged (cleared) and converted to land use - 1975 to 1996

FeatureType : Polygon

---

isAbstract : False

---

Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble

Area logged but not converted to land use (ha).

#### 1. 2. 22 LandUse\_NotLogged\_Current\_Merge

Layer for processing of area land use not logged (cleared) and converted to land use –  
Current

FeatureType : Polygon

---

isAbstract : False

---

Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble

Area logged but not converted to land use (ha).

### 1. 2. 23 PROV

Layer for moving process to minimap in Province Window

FeatureType : Polygon

---

isAbstract : False

---

Attribute

---

code : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

province : esriFieldTypeString

province name.

### 1. 2. 24 F\_STRIP\_LINE

Attribute of STRIP LINE of FIPS

FeatureType : PolyLine

---

isAbstract : False

---

Attribute

---

plan\_id : esriFieldTypeInteger

the Province (these numbers are formally listed in the Plans Listing document held by the Mapping Branch Manager.

Survey\_number : esriFieldTypeString

FIPS Survey Number.

Survey\_name : esriFieldTypeString

FIPS Survey Name.

Survey\_date : esriFieldTypeDate

FIPS Survey Date.

Block\_number : esriFieldTypeString

FIPS Block Number.

Strip : esriFieldTypeString

FIPS Strip Line Number.

Strip\_volume : esriFieldTypeDouble

Strip Forest Volume.

Strip\_volume\_per\_ha : esriFieldTypeDouble

Strip Forest Volume / ha.

Start\_lat : esriFieldTypeDouble

Strip Line Start Point (Lat).

Start\_lon : esriFieldTypeDouble

Strip Line Start Point (Lon).

End\_lat : esriFieldTypeDouble

Strip Line End Point (Lat).

End\_lon : esriFieldTypeDouble

Strip Line End Point (Lon).

Last\_update : esriFieldTypeDate

Calculation time and date of FIPS

LOI\_flag : esriFieldTypeString

Type of Survey

Slope\_min : esriFieldTypeDouble

Minimum angle of slope

Slope\_max : esriFieldTypeDouble

Maximum angle of slope

Elevation\_min : esriFieldTypeDouble

Minimum elevation

Elevation\_max : esriFieldTypeDouble

Maximum elevation

Vegetation : esriFieldTypeString

Representative vegetation type

#### 1.2.25 PlanArea

##### Plan Area

FeatureType : Polygon

---

isAbstract : False

---

##### Attribute

---

province : esriFieldTypeDouble

Province code.

■ Value Domain

CODE\_N value of master\_Province

area : esriFieldTypeDouble

Plan area company reported (ha).

area2 : esriFieldTypeDouble

Plan Area (automatic calculation by FIMS) (ha).

type : esriFieldTypeString

Plan Area Type.

■ Value Domain

Code value of master\_PlanAreaType

PRJHARVOL : esriFieldTypeDouble

Project harvest Volume.

Plan\_id : esriFieldTypeDouble

Concession ID.

YEAR : esriFieldTypeString

Years of logging.

name : esriFieldTypeString

Logged Over Area name.

#### 1. 2. 26 TMPINFO

Calculation Temporary Table

FeatureType : Polygon

---

isAbstract : False

---

Attribute

---

province : esriFieldTypeInteger

Province code

■ Value Domain

CODE\_N value of master\_Province

FMU : esriFieldTypeInteger

FMU

■ Value Domain

Sequence number from 1 in each province

Zone : esriFieldTypeInteger

Forest Zone code

■ Value Domain

Zone number of master\_Zone



Map\_No : esriFieldTypeDouble  
Original map number from 1:100,000 sheets

Map\_id : esriFieldTypeDouble  
1:100,000 sheet id

Veg\_Type : esriFieldTypeString  
Vegetation type

Veg\_Area : esriFieldTypeDouble  
Vegetation area (hectares)

Slope : esriFieldTypeDouble  
Extreme physical limitations - slope (ha) - derived from PNGRIS overlay slope1>30 degrees (slope1=6)

Altitude : esriFieldTypeDouble  
Extreme physical limitations - altitude (ha) - derived from PNGRIS overlay altitude>2,400m (altitude=7 or 8) (Note: Extreme slope takes precedence)

Karst : esriFieldTypeDouble  
Extreme physical limitations - karst (ha) - derived from PNGRIS overlay landform polygonal karst (landform=55)

Inundation : esriFieldTypeDouble  
Extreme physical limitations - inundation (ha) - derived from PNGRIS overlay permanent or near permanent inundation > 80% of area (inund=5 or 6, iextent=4)

Mangrove : esriFieldTypeDouble  
Extreme physical limitations - mangrove (ha) - derived from FIM vegetation type of Mangrove (Veg\_Type='M')

SlopeRelief : esriFieldTypeDouble  
Serious physical limitations - slope and relief (ha) - derived from PNGRIS overlay slope1=20-30 degrees, slope2=0 or 30 degrees (slope2=0 or 6), very high or high

relief (relief=4,5)

Inundati0 : esriFieldTypeDouble

Serious physical limitations - inundation (ha) - derived from PNGRIS overlay permanent or near permanent inundation 50- 80% of area (inund=5 or 6, iextent=3)

Area : esriFieldTypeDouble

Total of extreme constraints area

Area0 : esriFieldTypeDouble

Total of serious constraints area

Extreme : esriFieldTypeDouble

Proportion of FMU in extreme constraints area

Serious : esriFieldTypeDouble

Proportion of FMU in serious constraints area

Area1 : esriFieldTypeDouble

Protected area (DEC layer) in FMU

Ext\_SI : esriFieldTypeDouble

Protected area (DEC layer) in extreme slope area

Ext\_Alt : esriFieldTypeDouble

Protected area (DEC layer) in extreme altitude area

Ext\_Kst : esriFieldTypeDouble

Protected area (DEC layer) in extreme karst area

Ext\_In : esriFieldTypeDouble

Protected area (DEC layer) in extreme inundation area

Ext\_Man : esriFieldTypeDouble

Protected area (DEC layer) in extreme mangrove area

Ser\_Sl : esriFieldTypeDouble  
Protected area (DEC layer) in serious slope area

Ser\_In : esriFieldTypeDouble  
Protected area (DEC layer) in serious inundation area

Type : esriFieldTypeInteger  
Fragile forest type flag (DEC)

No\_Dist : esriFieldTypeString  
Forest type code without reference to disturbance

VEG\_TYPE\_1 : esriFieldTypeString  
Forest type code 1

VEG\_TYPE\_2 : esriFieldTypeString  
Forest type code 2

VEG\_TYPE\_3 : esriFieldTypeString  
Forest type code 3

Type\_Base : esriFieldTypeString  
Forest type code without reference to disturbance or complex

Area\_75 : esriFieldTypeDouble  
Gross forest area in 1975

Index\_ : esriFieldTypeDouble  
Level of disturbance (eg. 9 = 90% undisturbed)

Percent\_ : esriFieldTypeDouble  
Percentage of vegetation type complex that is forest

Area\_750 : esriFieldTypeDouble  
Gross forest area adjusted for disturbance and complex

Volume : esriFieldTypeDouble  
Timber volume estimate for forest type

Vol\_75 : esriFieldTypeDouble  
Gross forest volume in 1975 (adjusted forest area \* timber volume)

to96 : esriFieldTypeDouble  
Area logged but not converted to land use - 1975 to 1996

to960 : esriFieldTypeDouble  
Area logged and converted to land use - 1975 to 1996

to961 : esriFieldTypeDouble  
Area land use not logged (cleared) and converted to land use - 1975 to 1996

Ext\_Sl0 : esriFieldTypeDouble  
Total logged and land use area 1975 to 1996 in extreme slope constraint area

Ext\_Alt0 : esriFieldTypeDouble  
Total logged and land use area 1975 to 1996 in extreme altitude constraint area

Ext\_Kst0 : esriFieldTypeDouble  
Total logged and land use area 1975 to 1996 in extreme karst constraint area

Ext\_In0 : esriFieldTypeDouble  
Total logged and land use area 1975 to 1996 in extreme inundation constraint area

Ext\_Man0 : esriFieldTypeDouble  
Total logged and land use area 1975 to 1996 in extreme mangrove constraint area

Ser\_Sl0 : esriFieldTypeDouble  
Total logged and land use area 1975 to 1996 in serious slope/relief constraint area

Ser\_In0 : esriFieldTypeDouble  
Total logged and land use area 1975 to 1996 in serious inundation constraint area

Current\_ : esriFieldTypeDouble  
Area logged but not converted to land use - current

Current0 : esriFieldTypeDouble  
Area logged and converted to land use - current

Current1 : esriFieldTypeDouble  
Area land use not logged (cleared) and converted to land use - current

Current2 : esriFieldTypeDouble  
Total Area Logged and Land Use

Ext\_SI1 : esriFieldTypeDouble  
Total logged and land use area - current - in extreme slope constraint area

Ext\_Alt1 : esriFieldTypeDouble  
Total logged and land use area - current - in extreme altitude constraint area

Ext\_Kst1 : esriFieldTypeDouble  
Total logged and land use area - current - in extreme ksrst constraint area

Ext\_In1 : esriFieldTypeDouble  
Total logged and land use area - current - in extreme inundation constraint area

Ext\_Man1 : esriFieldTypeDouble  
Total logged and land use area - current - in extreme mangrove constraint area

Ser\_SI1 : esriFieldTypeDouble  
Total logged and land use area - current - in serious slope/relief constraint area

Ser\_In1 : esriFieldTypeDouble  
Total logged and land use area - current - in serious inundation constraint area

Area2 : esriFieldTypeDouble  
Revised gross forest area

Area3 : esriFieldTypeDouble  
Revised adjusted forest area

Forest\_Vol : esriFieldTypeDouble  
Revised timber volume

plan\_id : esriFieldTypeInteger  
the Province (these numbers are formally listed in the Plans Listing document held by the Mapping Branch Manager.

name : esriFieldTypeString  
name of the new concession area.

constype : esriFieldTypeString  
Concession Type

status : esriFieldTypeString  
status of a new concession area as Proposed.  
Value is 「Proposed」 or 「Concession」

scale : esriFieldTypeString  
scale value

#### 1. 2. 27 TEMPLAYER

##### Calculation Temporary Table

FeatureType : Polygon

---

isAbstract : False

---

##### Attribute

---

province : esriFieldTypeInteger

Province code

- Value Domain  
CODE\_N value of master\_Province

FMU : esriFieldTypeInteger

FMU

- Value Domain  
Seuence number from one in each province

Zone : esriFieldTypeInteger

Forest Zone code

- Value Domain  
Zone number of master\_Zone

PLAN\_ID : esriFieldTypeDouble

Concession Area ID

#### 1. 2. 28 TEMPLAYER2

Calculation Temporary Table

FeatureType : Polygon

---

isAbstract : False

---

Attribute

---

province : esriFieldTypeInteger

Province code

- Value Domain  
CODE\_N value of master\_Province

FMU : esriFieldTypeInteger

FMU

- Value Domain  
Sequence number from 1 in each province

Zone : esriFieldTypeInteger

Forest Zone code

■ Value Domain

Zone number of master\_Zone

PLAN\_ID : esriFieldTypeDouble

Concession Area ID

KEY\_ID : esriFieldTypeString

Key\_ID



## 1.2.29 Master\_Species

species Percentages by Forest Type by zone

FeatureType : ObjectClass

---

isAbstract : False

---

### Attribute

---

province : int

Province code.

■ Value Domain

CODE\_N value of master\_Province

zone : int

Forest Zone code

■ Value Domain

Zone number of master\_Zone

species : int

species name.(Forest Type name)

D : double

Species percentages by Forest Type by zone by Type "D"

D/Fsw : double

Species percentages by Forest Type by zone by Type "D/Fsw"

D/W : double

Species percentages by Forest Type by zone by Type "D/W"

FriK : double

Species percentages by Forest Type by zone by Type "FriK"

FriK/Ps : double

Species percentages by Forest Type by zone by Type "FriK/Ps"

FriTb : double

Species percentages by Forest Type by zone by Type "FriTb"

FriTb/Wri : double

Species percentages by Forest Type by zone by Type "FriTb/Wri"

Fsw : double

Species percentages by Forest Type by zone by Type "Fsw"

FswC : double

Species percentages by Forest Type by zone by Type "FswC"

Fsw/Tb : double

Species percentages by Forest Type by zone by Type "Fsw/Tb"

HI : double

Species percentages by Forest Type by zone by Type "HI"

HI/Hm : double

Species percentages by Forest Type by zone by Type "HI/Hm"

HIN : double

Species percentages by Forest Type by zone by Type "HIN"

Hm : double

Species percentages by Forest Type by zone by Type "Hm"

Hm/D : double

Species percentages by Forest Type by zone by Type "Hm/D"

Hm/D/Fsw : double

Species percentages by Forest Type by zone by Type "Hm/D/Fsw"

Hm/Fsw : double

Species percentages by Forest Type by zone by Type "Hm/Fsw"

Hm/Fsw/Wsw : double

Species percentages by Forest Type by zone by Type "Hm/Fsw/Wsw"

Hm/Hs : double

Species percentages by Forest Type by zone by Type "Hm/Hs"

Hm/Hs/Fsw : double

Species percentages by Forest Type by zone by Type "Hm/Hs/Fsw"

Hm/HsN : double

Species percentages by Forest Type by zone by Type "Hm/HsN"

Hm/Sc : double

Species percentages by Forest Type by zone by Type "Hm/Sc"

HmAr : double

Species percentages by Forest Type by zone by Type "HmAr"

Hmd : double

Species percentages by Forest Type by zone by Type "Hmd"

Hme/Hm : double

Species percentages by Forest Type by zone by Type "Hme/Hm"

Hm/HmAr : double

Species percentages by Forest Type by zone by Type "Hm/HmAr"

Hm/Ps : double

Species percentages by Forest Type by zone by Type "Hm/Ps"

Hs : double

Species percentages by Forest Type by zone by Type "Hs"

HsAr : double

Species percentages by Forest Type by zone by Type "HsAr"

Hs/Fsw : double

Species percentages by Forest Type by zone by Type "Hs/Fsw"

Hs/Hm : double

Species percentages by Forest Type by zone by Type "Hs/Hm"

Hs/Ps : double

Species percentages by Forest Type by zone by Type "Hs/Ps"

Hs/Sa : double

Species percentages by Forest Type by zone by Type "Hs/Sa"

Hse : double

Species percentages by Forest Type by zone by Type "Hse"

L : double

Species percentages by Forest Type by zone by Type "L"

L/Lc : double

Species percentages by Forest Type by zone by Type "L/Lc"

L/LN : double

Species percentages by Forest Type by zone by Type "L/LN"

L/Ls : double

Species percentages by Forest Type by zone by Type "L/Ls"

LAr : double

Species percentages by Forest Type by zone by Type "LAr"

Lc : double

Species percentages by Forest Type by zone by Type "Lc"

LN : double

Species percentages by Forest Type by zone by Type "LN"

LN/LsN : double

Species percentages by Forest Type by zone by Type "LN/LsN"

Ls : double

Species percentages by Forest Type by zone by Type "Ls"

LsAr : double

Species percentages by Forest Type by zone by Type "LsAr"

Ls/L : double

Species percentages by Forest Type by zone by Type "Ls/L"

Ls/Lc : double

Species percentages by Forest Type by zone by Type "Ls/Lc"

LsN : double

Species percentages by Forest Type by zone by Type "LsN"

LsN/LN : double

Species percentages by Forest Type by zone by Type "LsN/LN"

M : double

Species percentages by Forest Type by zone by Type "M"

PI : double

Species percentages by Forest Type by zone by Type "PI"

PI/FriK : double

Species percentages by Forest Type by zone by Type "PI/FriK"

PI/Fsw : double

Species percentages by Forest Type by zone by Type "PI/Fsw"

PI/Hm : double

Species percentages by Forest Type by zone by Type "Hm"

Po : double

Species percentages by Forest Type by zone by Type "Po"

Po/FriK : double

Species percentages by Forest Type by zone by Type "Po/FriK"

Po/Fsw : double

Species percentages by Forest Type by zone by Type "Po/Fsw"

Po/FswTb : double

Species percentages by Forest Type by zone by Type "Po/FswTb"

Po/Hs : double

Species percentages by Forest Type by zone by Type "Po/Hs"

Po/PI : double

Species percentages by Forest Type by zone by Type "Po/PI"

Po/Wsw : double

Species percentages by Forest Type by zone by Type "Po/Wsw"

Ps : double

Species percentages by Forest Type by zone by Type "Ps"

Ps/FriK : double

Species percentages by Forest Type by zone by Type "Ps/FriK"

W : double

Species percentages by Forest Type by zone by Type "W"

### 1.2.30 Master\_Report

#### Report List

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

Description : string

Viewer's Report Name

ReportName : string

System's Report Name.

ReportType : int

Report Type.

Group : int

Group ID. 1=Province Report, 2=Concession Report, 3=Proposed Concession Report

Priority : int

Viewer's Sort Key

1.2.31 Ctrl\_TimberVolume

---

TimberVolume data by Zone

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

Province : int

Province code

■ Value Domain

CODE\_N value of master\_Province

zone : int

Forest Zone code

■ Value Domain

Zone number of master\_Zone

VegType : string

Vegetation Type.

Vol/ha : double

TimberVolume per ha

OriginalVol/ha : double

Original TimberVolume per ha.

This field is not update.

Comments : double

Comment field.

### 1.2.32 Master\_Zone

zone data

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

zone : int

Forest Zone code

name : string

Forest Zone name

description : string

description



### 1.2.33 Master\_VegTypes

Vegetation Type data

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

VegType : string

Vegetation Type

Group : string

Vegetation Group ID

description : string

description

Merchantable : int

Merchantable 0 = false, 1 = true.

### 1.2.34 Master\_Province

Province data

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

CODE\_N : int

Province code

CODE\_A : string

Province Short Name

DESCRIP : string

Province Name

### 1.2.35 Master\_SusceptibleVegTypes

Susceptible Vegetation Type data

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

Province : int

Province code

■ Value Domain

CODE\_N value of master\_Province

FMU : int

FMU code.

■ Value Domain

FMU value

VegType : string

Vegetation Type.

SusceptibleType : string

SusceptibleType

### 1.2.36 Master\_user

user data

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

username : string

user name ( Unique Key )

password : string

login password.

authority : int

user's authority

0 = viewer

1 = high rank user

2 = administrator

### 1.2.37 Master\_Database

Layer Management

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

Database : string

Layer name which Layer Management displays

Last\_Update : date/time

Date last modified

Del : int

Delete flag

### 1.2.38 Master\_TmpReport

Report Management

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

TmpReportName : string

Report name

sysdate : date/time

report output date

MachineName : string

Report output computer name

DeleteFlag : int

Delete flag

1.2.39 Master\_LoggedOverType

---

Management of type of Logged Over Area

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

id : int

id

name : string

type name

1.2.40 Master\_PlanAreaType

---

Management of type of Plan Area

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

id : int  
id

name : string  
Type name

1. 2. 41 F\_SURVEY\_SUMMARY

---

---

Management of TimberVolume related to Survey of FIPS

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

Plan\_id : int  
Concession ID.

SURVEY\_NUMBER : string  
Survey Number of FIPS

SURVEY\_Name : string  
Survey Name of FIPS

Adjusted\_forest\_area : double  
Adjusted forest Area of FIPS

VOL10\_per\_ha : double  
10cm-19cm TimberVolume of FIPS

PVOL\_per\_ha : double  
20cm-49cm TimberVolume of FIPS

SVOL\_per\_ha : double  
50cm over TimberVolume of FIPS

TotalVol\_per\_ha : double

20cm over TimberVolume of FIPS

MVOL\_per\_ha : double

50cm over (rank A-C) TimberVolume of FIPS.

VOL10\_grp\_per\_ha : double

10cm-19cm TimberVolume belonging to MEP group 1 and 2 of FIPS

PVOL\_ grp\_per\_ha : double

20cm-49cm TimberVolume belonging to MEP group 1 and 2 of FIPS

SVOL\_ grp\_per\_ha : double

50cm over TimberVolume belonging to MEP group 1 and 2 of FIPS

TotalVol\_ grp\_per\_ha : double

20cm over TimberVolume belonging to MEP group 1 and 2 of FIPS

MVOL\_ grp\_per\_ha : double

50cm over (rank A-C) TimberVolume belonging to MEP group 1 and 2 of FIPS

#### 1.2.42 Ctrl\_LastCalculationDate

Management of last processed date

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

province : int

Province code

■ Value Domain

CODE\_N value of master\_Province

ConcessionFrag : int

- 0 = Calculation for Province
- 1 = Calculation for Concession

CalcDate : date/time  
Date and time of calculation

#### 1.2.43 concessionFile

Management of files uploaded on Concession screen

FeatureType : ObjectClass

---

isAbstract : False

---

#### Attribute

---

id : int  
Primary Key.

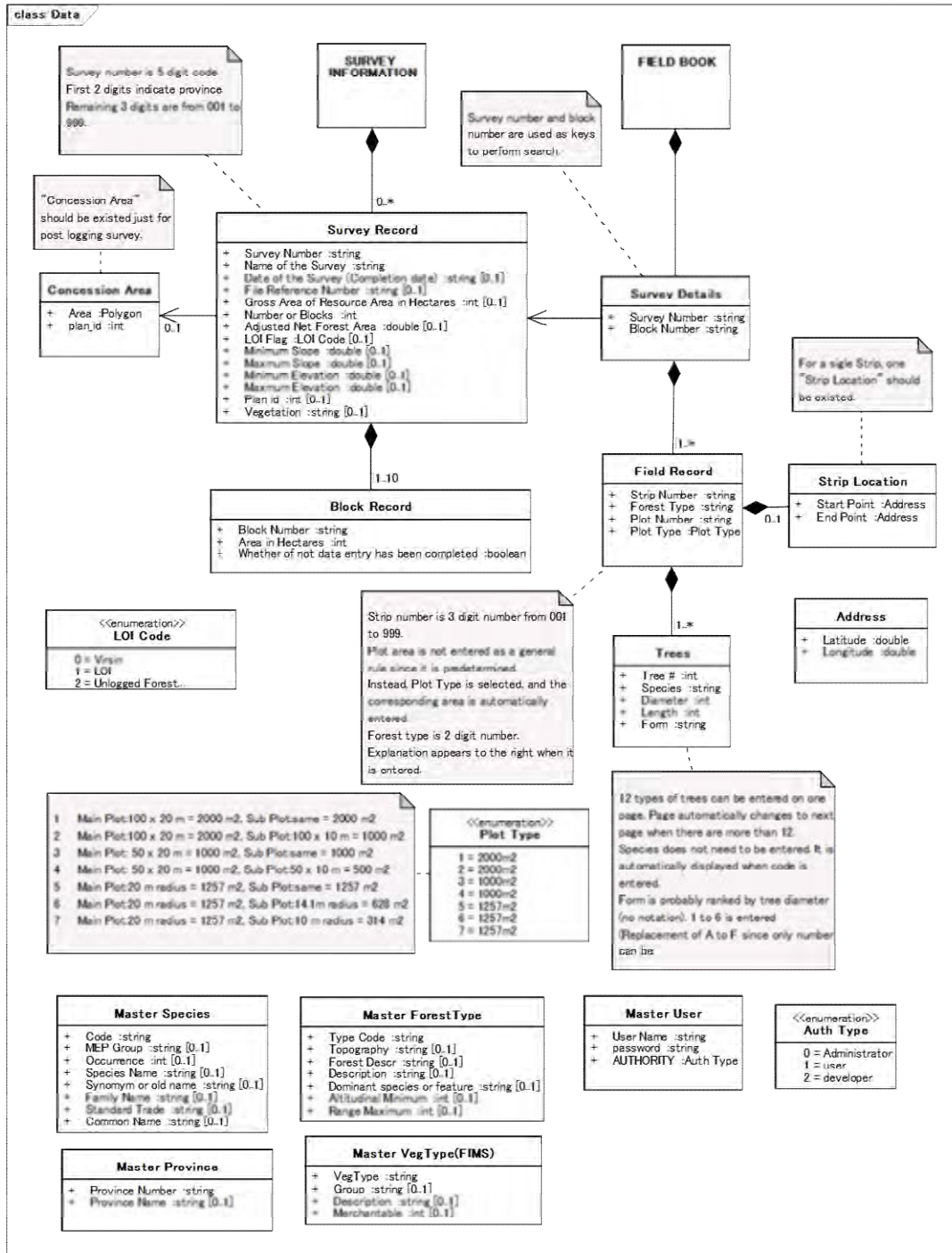
Plan\_id : int  
plan\_id of Concession related to files

filename : string  
File name uploaded

fdata : varbinary  
Soft copy uploaded  
Soft copies can not be downloaded by using except FIMS because the file is binary data.

## 2 Data content and structure of FIPS Database

### 2.1 FIPS application schema





## 2.2 Documentation of FIPS application Schema

---

### 2.2.1 Survey Information

---

#### Dataset of Survey of FIPS

FeatureType : ObjectClass

---

isAbstract : True

---

Attribute

---

### 2.2.2 Survey Record

---

#### Details of Survey

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

Survey Number : string

Survey Number (unique).

The first two digits shows province Number, the last three digits shows sequence number from 001 to 999

■ Value Domain

01001~19999

Name of Survey : string

Survey name.

Date of the Survey (Completion date) : string

Survey date.

File Reference Number : string

Reference number of file

Gross Area of Resource Area in Hectares : int

Total area of all blocks

Number of Blocks : int

Number of blocks

■ Value Domain

1~10

Adjusted Net Forest Area : double

Area of Adjusted Net Forest Area

LOI Flag : LOI Code

Type of Survey

■ Value Domain

code	value
0	Virgin
1	LOI
2	Unlogged Forest Survey

Minimum Slope : double

Minimum angle of slope

Maximum Slope : double

Maximum angle of slope

Minimum Elevation : double

Minimum elevation

Maximum Elevation : double

Maximum elevation

Plan id : int

Plan Id of Concession in FIMS

The first two digits shows province number, the last three digits shows sequential code from 001 to 999

■ Value Domain

1000~99999

Vegetation : string

Vegetation Type of FIMS

■ Value Domain

VegType value of Master VegType(FIMS)

### 2.2.3 Block Record

Block details related to survey

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

Block Number : string

Block Number.

■ Value Domain

01~10.

Area in Hectares : int

Area of Block

Whether of not data entry has been completed : boolean

Existence or non-existence of Field Book Data

### 2.2.4 Survey Details

The information to link Survey Record and Field Record

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

Survey Number : string

Survey Number.

■ Value Domain

## Survey Number value of Survey Record

Block Number : string

Block Number.

■ Value Domain

01~10.

### 2.2.5 Field Record

#### Data related to Strip Line and Plot Area

FeatureType : ObjectClass

---

isAbstract : False

---

#### Attribute

---

Strip Number : string

Strip Number.

■ Value Domain

001~999.

Forest Type : string

Forest Type.

■ Value Domain

TypeCode value of Master ForestType

Plot Number : string

Plot Number.

Plot Type : Plot Type

Plot Type.

■ Value Domain

code	Main Plot Area	Sub plot Area
1	2000m2	2000m2
2	2000m2	1000m2
3	1000m2	1000m2

code	Main Plot Area	Sub plot Area
4	1000m2	500m2
5	1257m2	1257m2
6	1257m2	628m2
7	1257m2	314m2

### 2.2.6 Strip Location

Coordinates of the start point and the end point for Strip Line

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

Start Point : Address

Coordinates (latitude and longitude) of the start point of Strip Line

End Point : Address

Coordinates (latitude and longitude) of the end point of Strip Line

### 2.2.7 Trees

Each tree of Field Book

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

tree # : int

Page Number.

Field Book can have twelve records in a page

Species : string

Species Code.

■ Value Domain

## Code value of Master Species

Diameter : int

Diameter.

Length : int

Length.

Form : string

Form Class.

### ■ Value Domain

code	value
1	A
2	B
3	C
4	D
5	E
6	F

## 2.2.8 Master Species

Master table (Species).

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

Code : string

Species Code (unique).

MEP Group : string

MEP Group.

Occurrence : int

Occurrence.

Species Name : string  
Species Name.

Synonym or old name : string  
Synonym or old name.

Family Name : string  
Family Name.

Standard Trade : string  
Standard Trade.

Common Name : string  
Common Name.

#### 2.2.9 Master Province

Master table (Province).

FeatureType : ObjectClass

---

isAbstract : False

---

##### Attribute

---

Province Number : string  
Province Number (unique).

- Value Domain  
01~19.

Province Name : string  
Province Name.

#### 2.2.10 Master ForestType

Master table (Forest Type).

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

Type Code : string

Forest Type Code(unique).

Topography : string

Topography.

Forest Descr : string

Forest Descr.

Description : string

Description.

Dominant species or feature : string

Dominant species or feature.

Altitudinal Minimum : int

Altitudinal Minimum.

Range Maximum : int

Range Maximum.

#### 2.2.11 Master VegType (FIMS)

Master table (VegType by FIMS).

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

VegType : string



Veg Type Code(unique).

Group : string

Veg Type group name.

Description : string

Description.

Merchantable : int

Merchantable.

■ Value Domain

0 = false

1 = true

## 2.2.12 Master User

Master table (User).

FeatureType : ObjectClass

---

isAbstract : False

---

Attribute

---

User Name : string

User name(unique).

password : string

Password.

AUTHORITY : Auth Type

AUTHORITY.

■ Value Domain

code	value
0	Administrator
1	user
2	developer

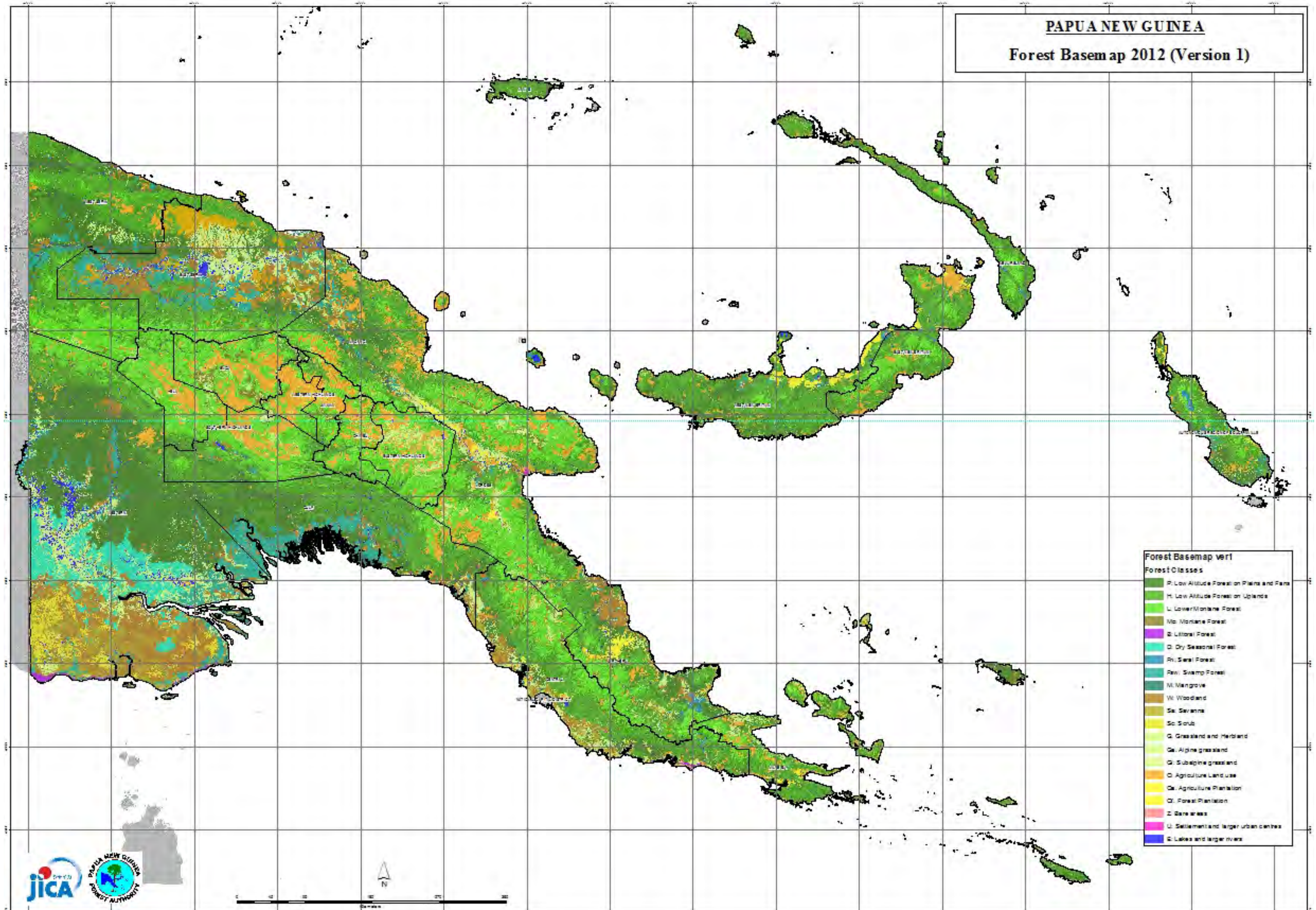
### 添付資料 3 全国森林基盤図 Version 1（州毎の出力図面）

# Forest Basemap 2012 (Version 1): Forest & Vegetation Type

Color	Code	Forest/Vegetation Type	Definition (based on PNGRIS/FIMS)	Elevation
	P	Low Altitude Forest on Plains & Fans	Low Altitude Forest on Plains and Fans,	below 1,000m
	H	Low Altitude Forest on Uplands	Low Altitude Forest on Uplands	below 1,000m
	L	Lower Montane Forest	Lower Montane Forest	above 1,000m
	Mo	Montane Forest	Montane Forest	above 3,000m
	D	Dry Seasonal Forest	The forest is restricted to southwest PNG in a low-rainfall area (1800–2500mm), and occurs on well to imperfectly-drained, very gently undulating to low hilly terrain.	
	B	Littoral Forest	The forest occurs on dry sandy beach plains and on beach ridges	
	Fri	Seral Forest	The forest is heterogeneous, comprising many seral stages, from low forest to original levee forest, following changes in the course of a river.	
	Fsw	Swamp Forest	The forest occurs on low-lying, permanently swampy river back plains and deltas.	
	M	Mangrove Forest	All vegetation of the saline or brackish communities, tidal zone. Ranges from forest over 30m tall, to low halophytic herbs.	
	W	Woodland	Tree with separated crowns. Generally low, up to 10m tall, rarely to 20m, but lower in the case of non-tree life forms e.g. sago palms and Pandanus. A clearly visible ground layer of shrubs, herbs and/or grasses.	
	Sa	Savanna	Scattered to moderately dense layer of trees. Generally less than 6m tall. A clearly visible ground layer of herbs and/or grasses	
	Sc	Scrub	Dense shrubs with or without scattered low trees. Generally less than 6m tall	
	G	Grassland and Herbland	Grasses, sedges, herbs and very low woody shrubs. Generally less than 3m tall. Scattered trees may be present	
	Ga	Grassland (Alpine)	Grasses: above 3,200m	
	Gi	Grassland (Subalpine)	Grasses: 2,500m – 3,200m	
	Z	Bare areas		
	U	Larger Urban Centres		
	E	Lake & Larger Rivers		
	O	Cropland/Agriculture land		
	Qf	Forest Plantation		
	Qa	Plantation other than Forest		



**PAPUA NEW GUINEA**  
**Forest Basemap 2012 (Version 1)**

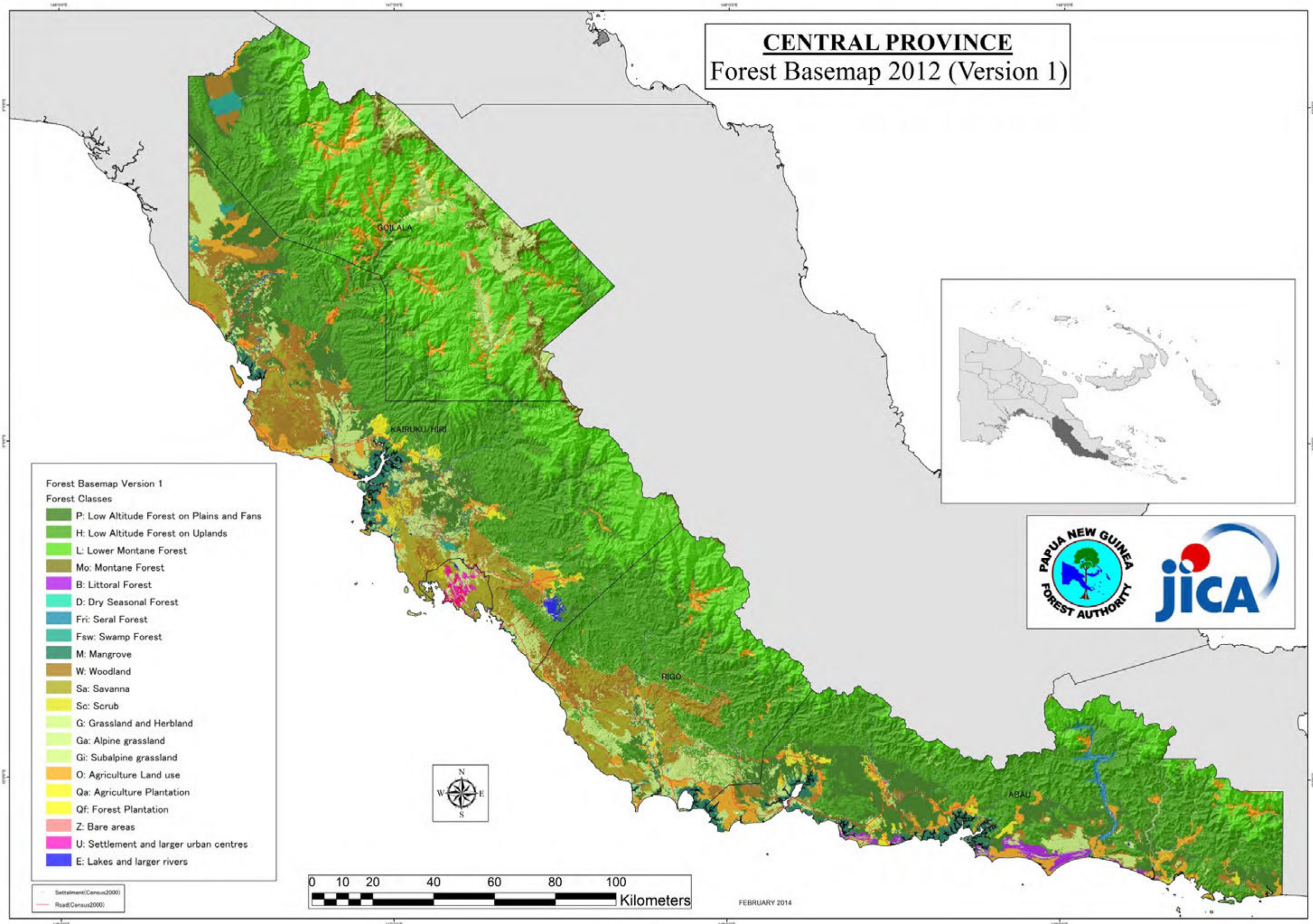


- Forest Basemap ver1**  
**Forest Classes**
- P: Low Altitude Forest on Plains and Fans
  - H: Low Altitude Forest on Uplands
  - L: Lower/Montane Forest
  - Mh: Montane Forest
  - Sl: Littoral Forest
  - D: Dry Seasonal Forest
  - Rh: Reef Forest
  - Rsw: Swamp Forest
  - M: Mangrove
  - W: Woodland
  - Ss: Savanna
  - Sc: Scrub
  - G: Grassland and Herbland
  - Ga: Alpine grassland
  - Gs: Subalpine grassland
  - A: Agriculture Land use
  - Ap: Agriculture Plantation
  - Pl: Forest Plantation
  - Z: Bare areas
  - U: Settlement and larger urban centres
  - L: Lakes and larger rivers



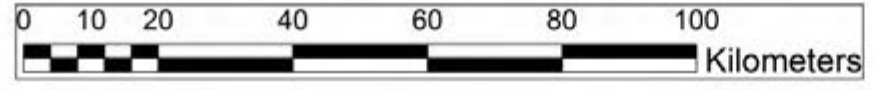


# CENTRAL PROVINCE Forest Basemap 2012 (Version 1)

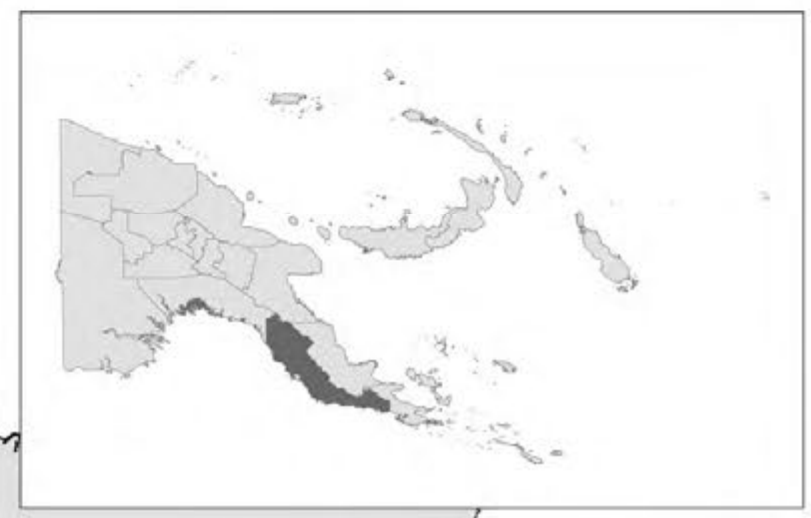


- Forest Basemap Version 1**
- Forest Classes**
- P: Low Altitude Forest on Plains and Fans
  - H: Low Altitude Forest on Uplands
  - L: Lower Montane Forest
  - Mo: Montane Forest
  - B: Littoral Forest
  - D: Dry Seasonal Forest
  - Fri: Seral Forest
  - Fsw: Swamp Forest
  - M: Mangrove
  - W: Woodland
  - Sa: Savanna
  - Sc: Scrub
  - G: Grassland and Herbland
  - Ga: Alpine grassland
  - Gi: Subalpine grassland
  - O: Agriculture Land use
  - Qa: Agriculture Plantation
  - Qf: Forest Plantation
  - Z: Bare areas
  - U: Settlement and larger urban centres
  - E: Lakes and larger rivers

--- Settlement(Census2000)  
--- Road(Census2000)



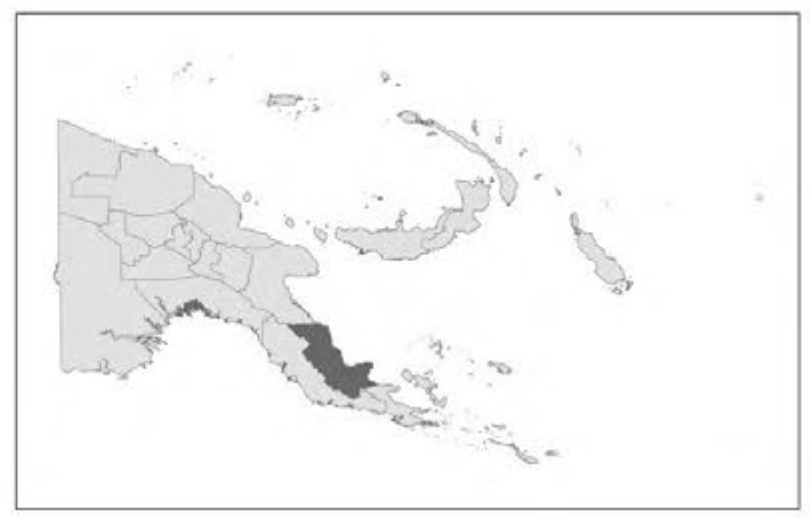
FEBRUARY 2014





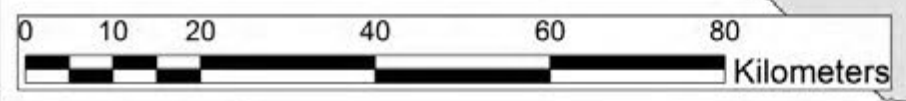
# ORO PROVINCE

## Forest Basemap 2012 (Version 1)



- Forest Basemap Version 1**  
**Forest Classes**
- P: Low Altitude Forest on Plains and Fans
  - H: Low Altitude Forest on Uplands
  - L: Lower Montane Forest
  - Mo: Montane Forest
  - B: Littoral Forest
  - D: Dry Seasonal Forest
  - Fri: Seral Forest
  - Fsw: Swamp Forest
  - M: Mangrove
  - W: Woodland
  - Sa: Savanna
  - Sc: Scrub
  - G: Grassland and Herbland
  - Ga: Alpine grassland
  - Gi: Subalpine grassland
  - O: Agriculture Land use
  - Qa: Agriculture Plantation
  - Qf: Forest Plantation
  - Z: Bare areas
  - U: Settlement and larger urban centres
  - E: Lakes and larger rivers

Settlement(Census2000)  
 Road(Census2000)



FEBRUARY 2014

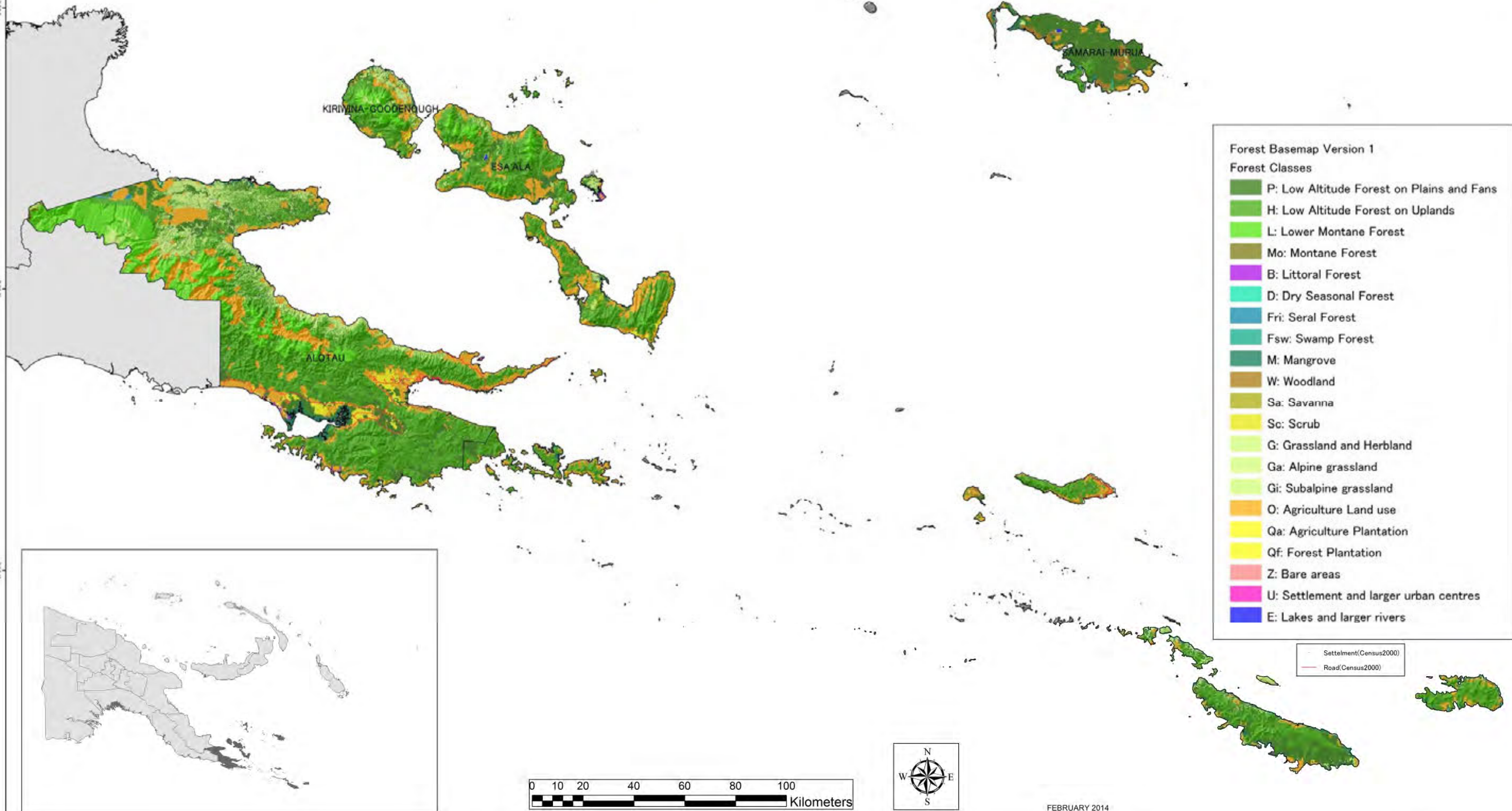




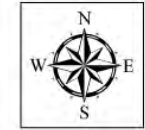
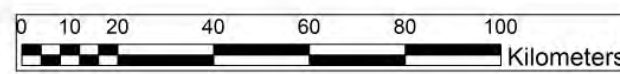
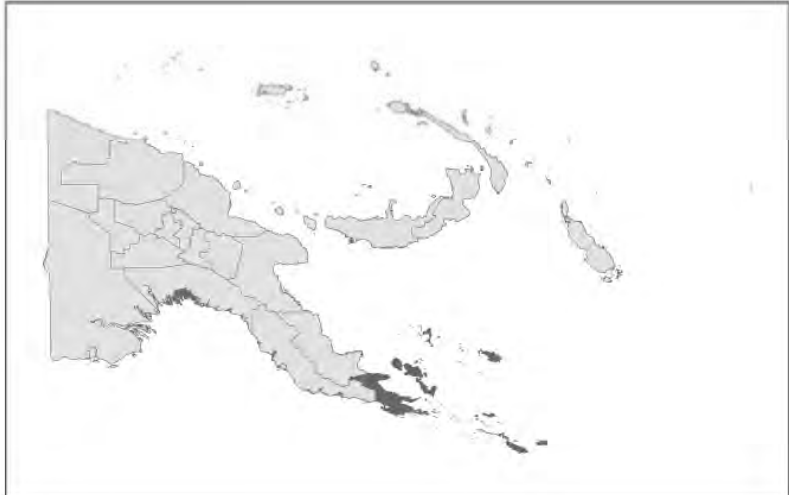


# MILNE BAY PROVINCE

## Forest Basemap 2012 (Version 1)



- Forest Basemap Version 1
- Forest Classes
- P: Low Altitude Forest on Plains and Fans
  - H: Low Altitude Forest on Uplands
  - L: Lower Montane Forest
  - Mo: Montane Forest
  - B: Littoral Forest
  - D: Dry Seasonal Forest
  - Fri: Seral Forest
  - Fsw: Swamp Forest
  - M: Mangrove
  - W: Woodland
  - Sa: Savanna
  - Sc: Scrub
  - G: Grassland and Herbland
  - Ga: Alpine grassland
  - Gi: Subalpine grassland
  - O: Agriculture Land use
  - Qa: Agriculture Plantation
  - Qf: Forest Plantation
  - Z: Bare areas
  - U: Settlement and larger urban centres
  - E: Lakes and larger rivers



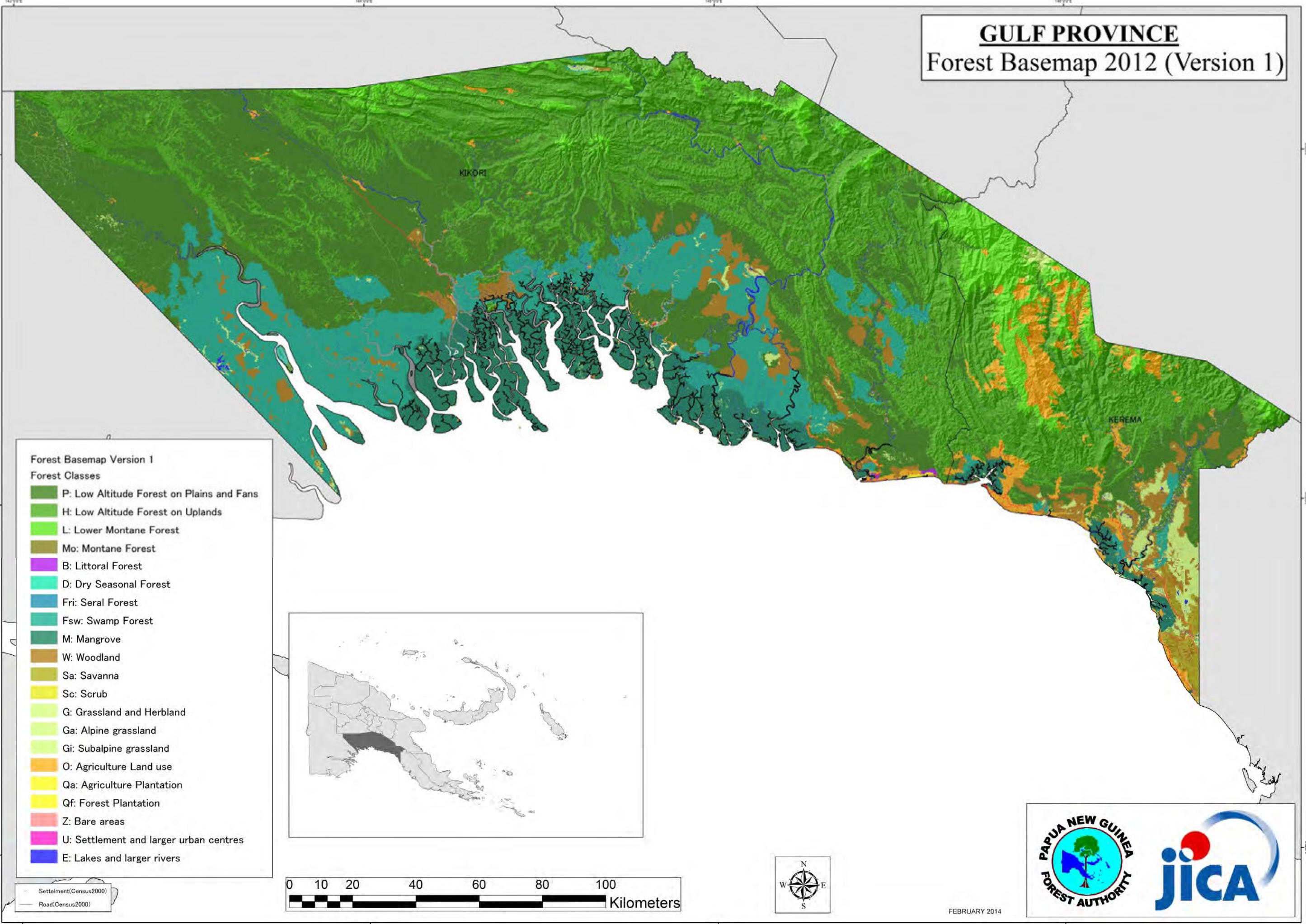
FEBRUARY 2014

Settlement(Census2000)  
Road(Census2000)

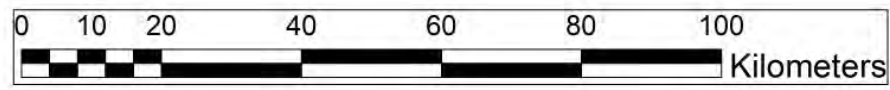
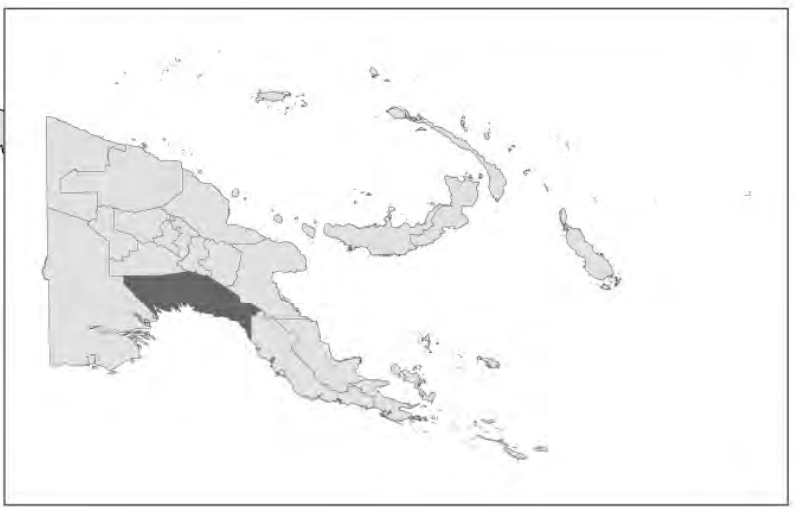


# GULF PROVINCE

## Forest Basemap 2012 (Version 1)



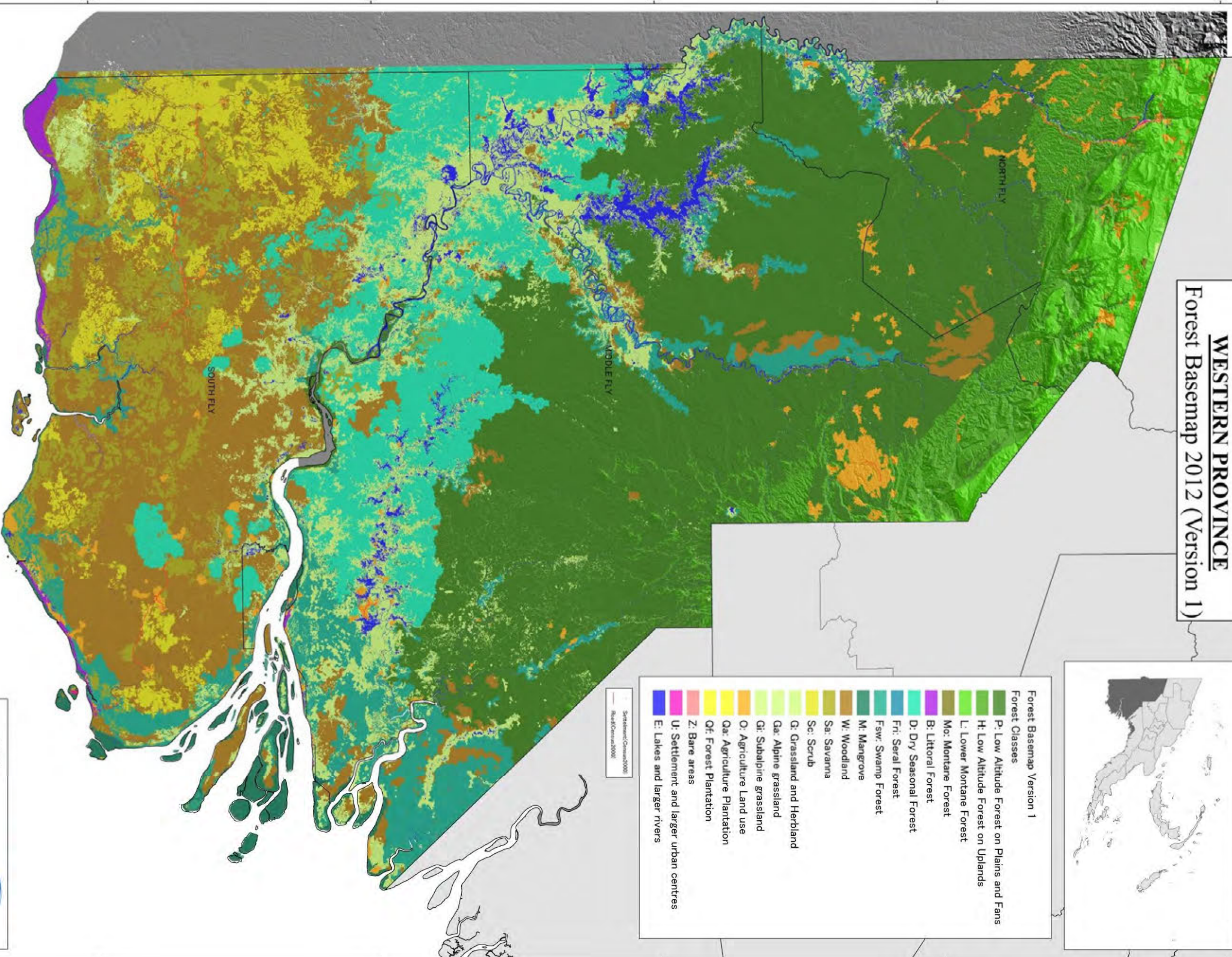
- Forest Basemap Version 1**
- Forest Classes**
- P: Low Altitude Forest on Plains and Fans
  - H: Low Altitude Forest on Uplands
  - L: Lower Montane Forest
  - Mo: Montane Forest
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# WESTERN PROVINCE Forest Basemap 2012 (Version 1)



- Forest Basemap Version 1**
- Forest Classes**
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  - Qa: Agriculture Plantation
  - Qf: Forest Plantation
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  - E: Lakes and larger rivers

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Map: F:\Cmra\2008



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# MOROBE PROVINCE

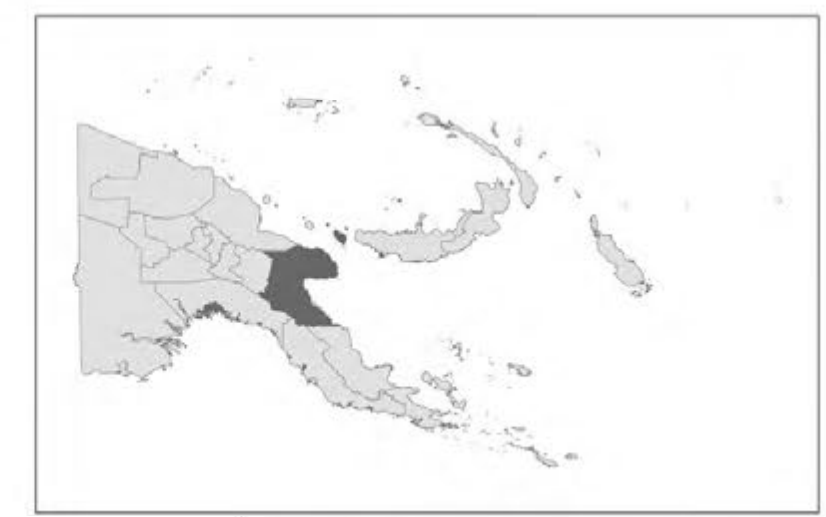
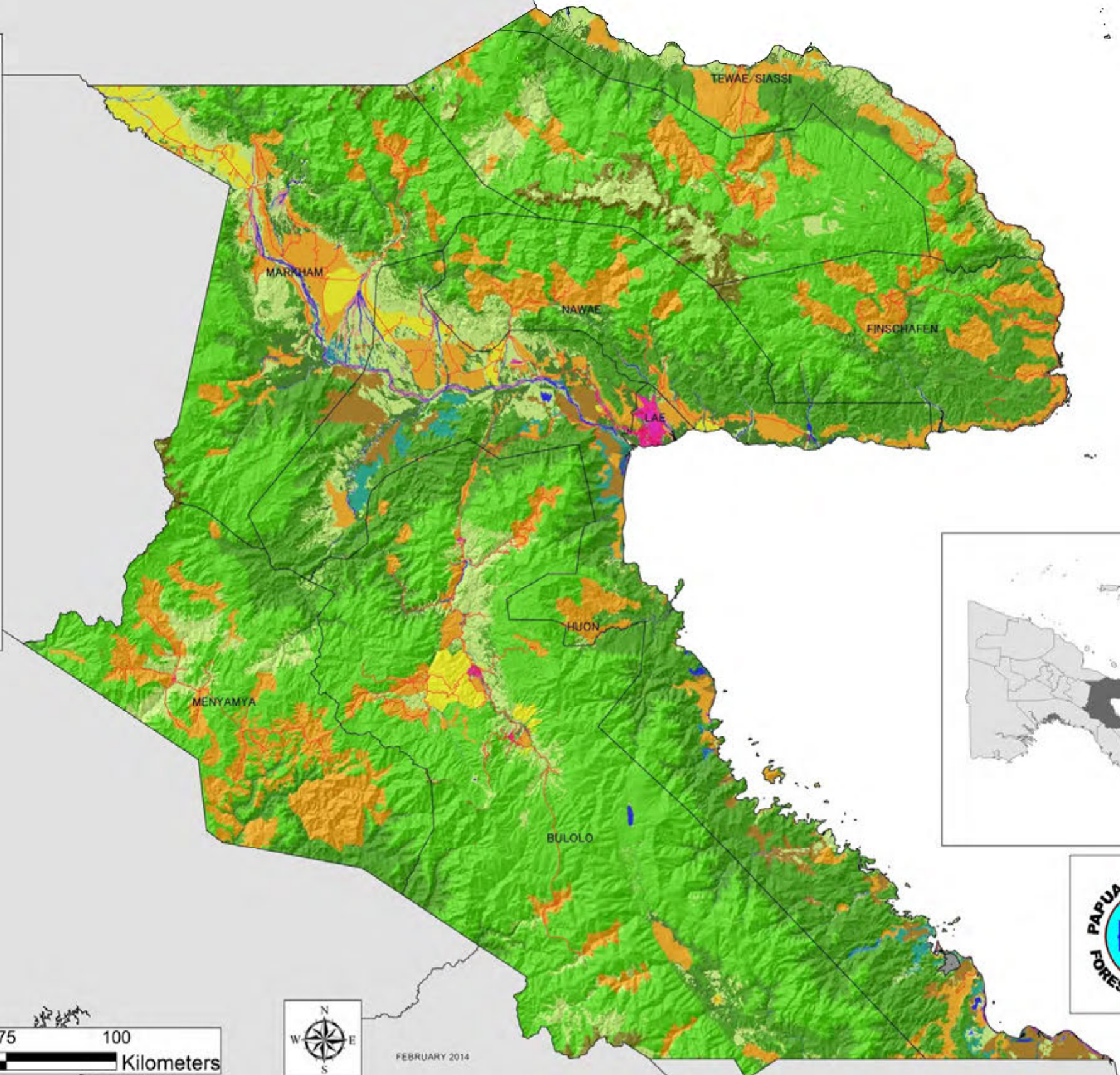
## Forest Basemap 2012 (Version 1)

### Forest Base Map V1

#### Forest Classes

- P: Low Altitude Forest on Plains and Fans
- H: Low Altitude Forest on Uplands
- L: Lower Montane Forest
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- Qf: Forest Plantation
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- E: Lakes and larger rivers

- Settlement (Census 2000)
- Road (Census 2000)



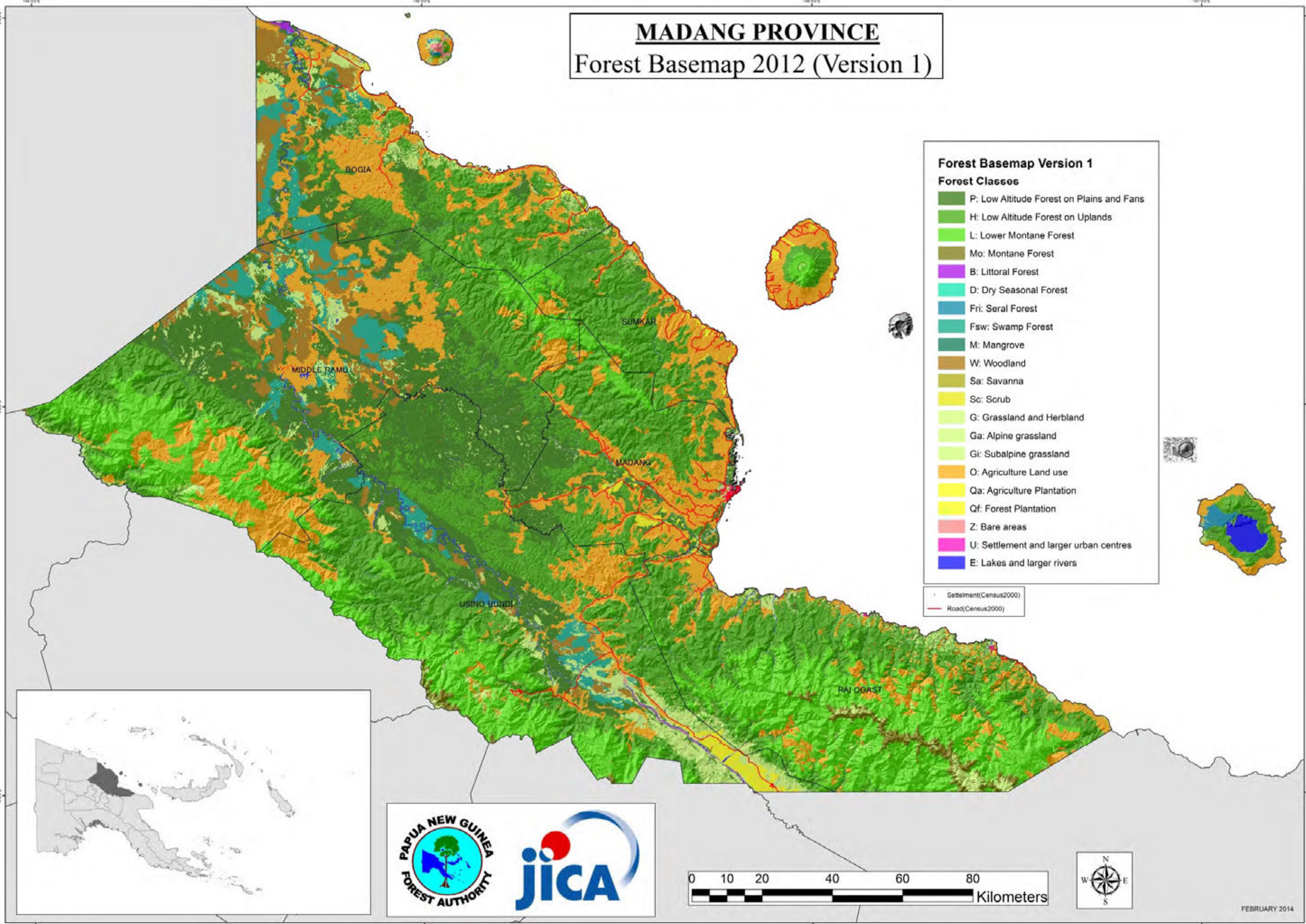
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# MADANG PROVINCE

## Forest Basemap 2012 (Version 1)

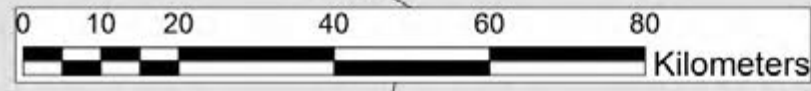
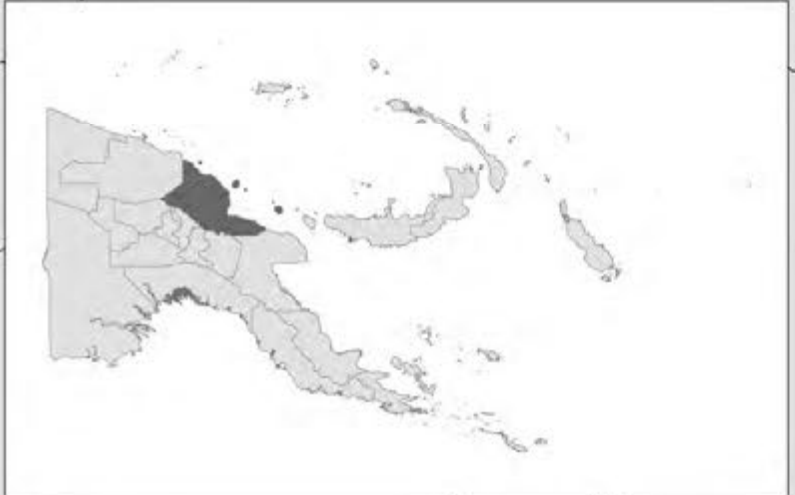


**Forest Basemap Version 1**

**Forest Classes**

- P: Low Altitude Forest on Plains and Fans
- H: Low Altitude Forest on Uplands
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- Qf: Forest Plantation
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- E: Lakes and larger rivers

Settlement(Census2000)  
 Road(Census2000)

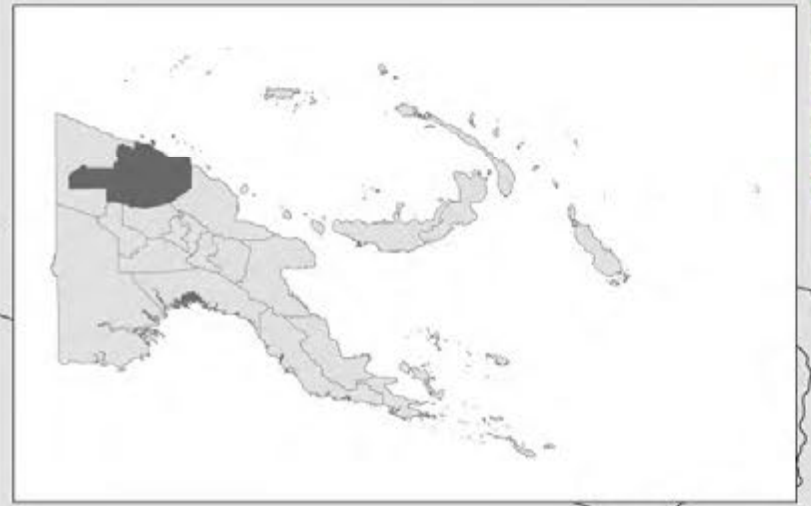
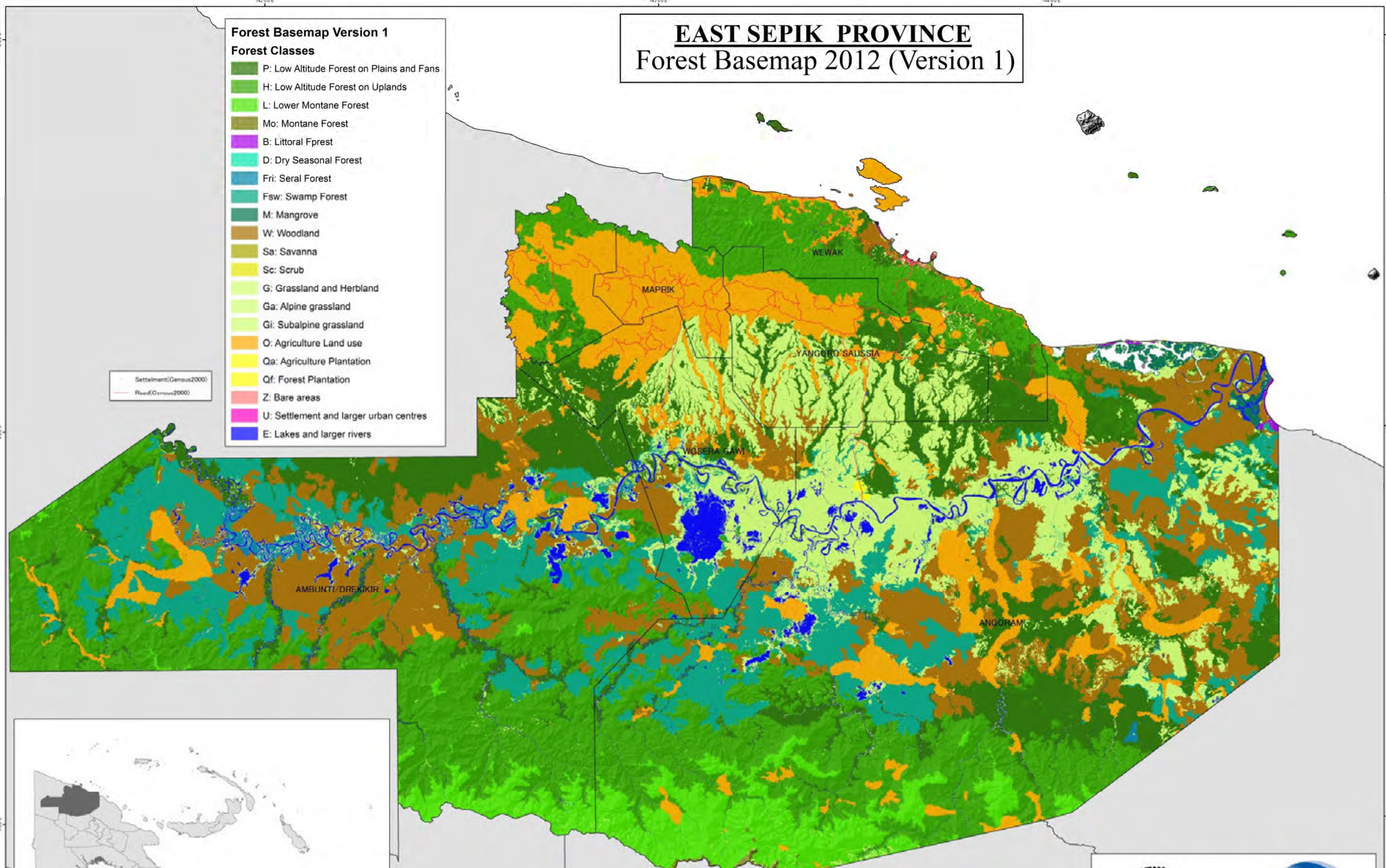




# EAST SEPIK PROVINCE Forest Basemap 2012 (Version 1)

- Forest Basemap Version 1**  
**Forest Classes**
- P: Low Altitude Forest on Plains and Fans
  - H: Low Altitude Forest on Uplands
  - L: Lower Montane Forest
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  - Qf: Forest Plantation
  - Z: Bare areas
  - U: Settlement and larger urban centres
  - E: Lakes and larger rivers

Settlement(Census2000)  
Road(Census2000)



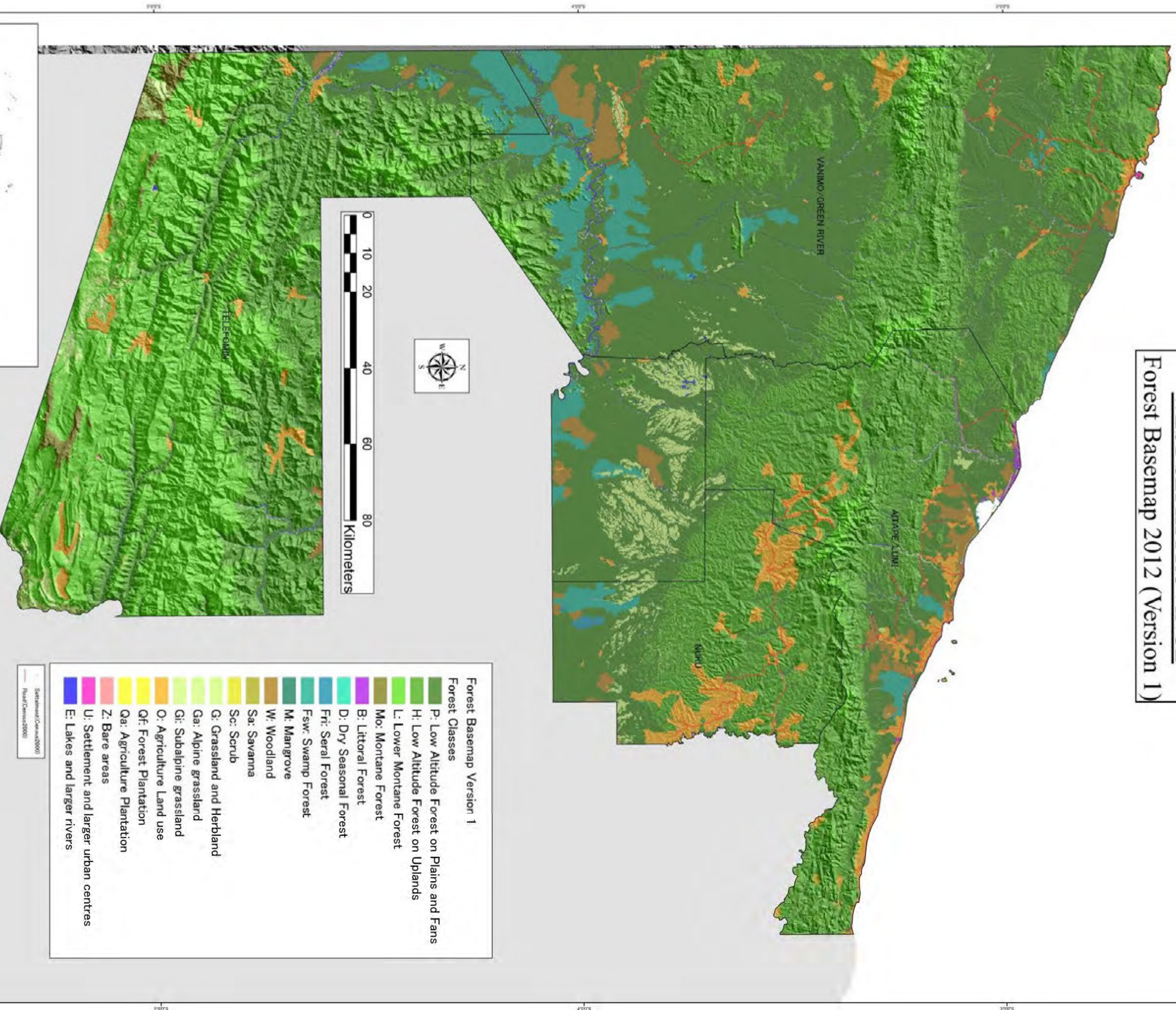
FEBRUARY 2014





# WEST SEPIK PROVINCE

## Forest Basemap 2012 (Version 1)



- Forest Basemap Version 1**
- Forest Classes**
- P: Low Altitude Forest on Plains and Fans
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  - Qa: Agriculture Plantation
  - Z: Bare areas
  - U: Settlement and larger urban centres
  - E: Lakes and larger rivers

Settlement/Census(2000)  
Road/Census(2000)



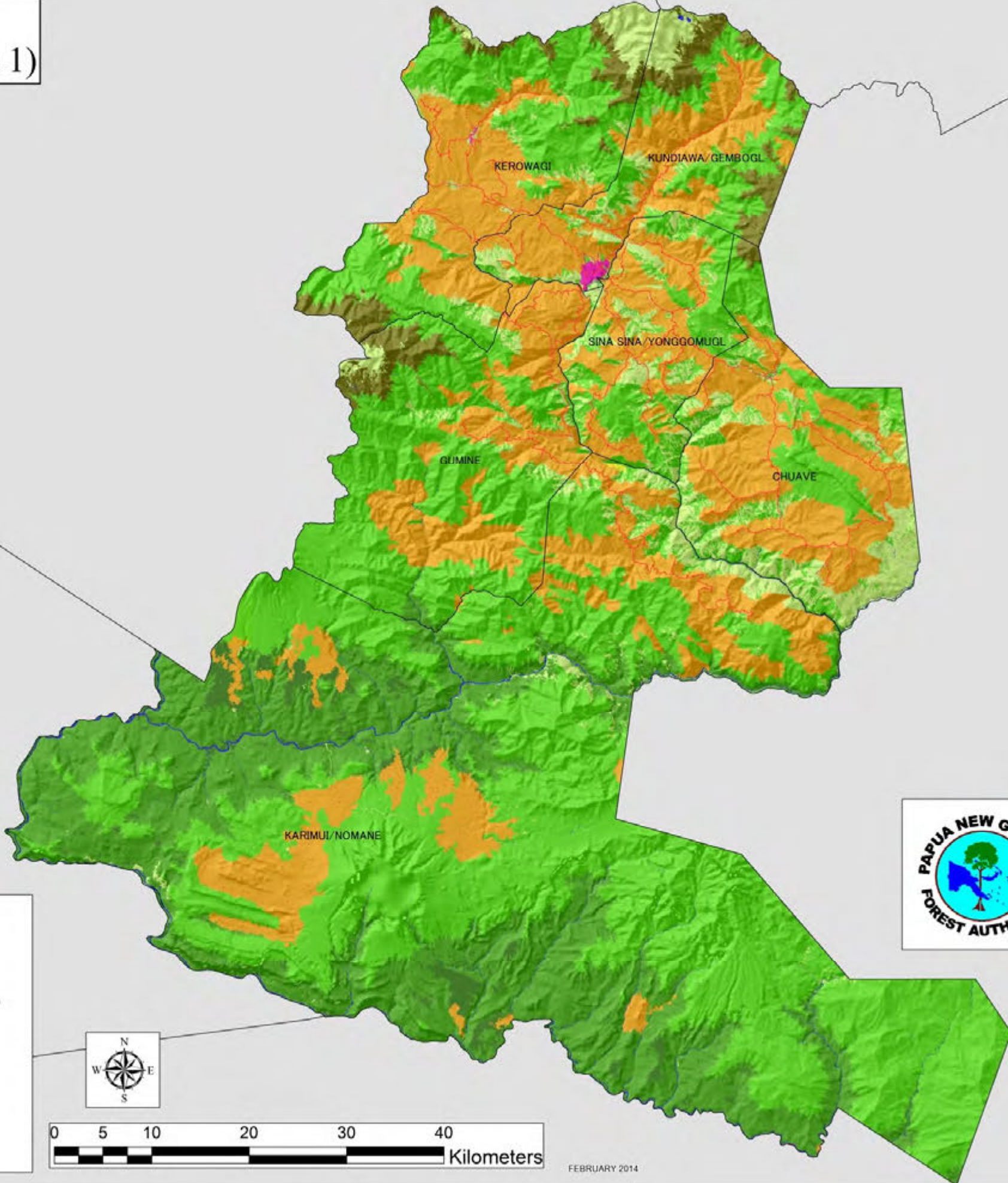


# CHIMBU PROVINCE

## Forest Basemap 2012 (Version 1)

- Forest Basemap Version 1  
Forest Classes
- P: Low Altitude Forest on Plains and Fans
  - H: Low Altitude Forest on Uplands
  - L: Lower Montane Forest
  - Mo: Montane Forest
  - B: Littoral Forest
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  - Qf: Forest Plantation
  - Z: Bare areas
  - U: Settlement and larger urban centres
  - E: Lakes and larger rivers

Settlement(Census2000)  
Road(Census2000)

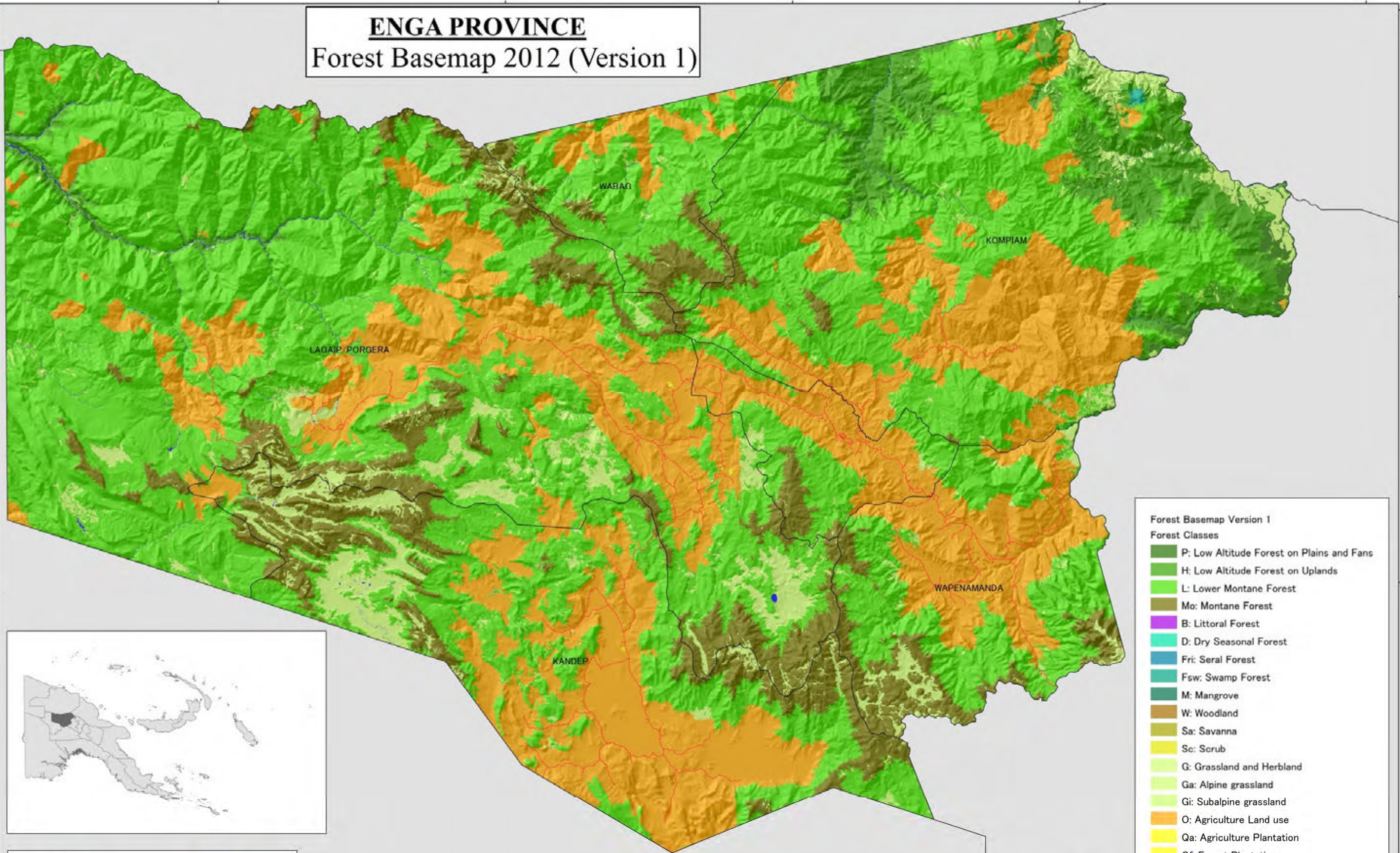


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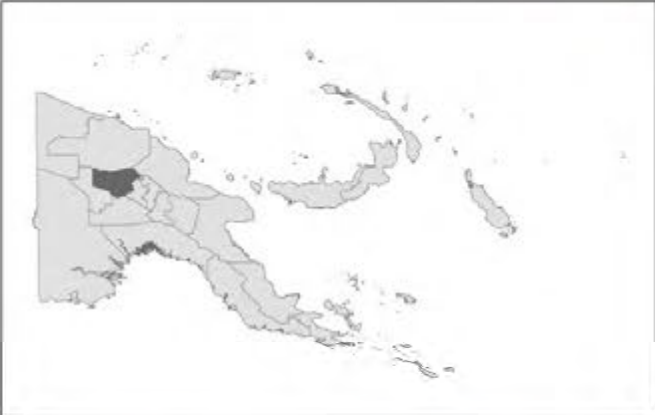


# ENGA PROVINCE

## Forest Basemap 2012 (Version 1)



- Forest Basemap Version 1**  
**Forest Classes**
- P: Low Altitude Forest on Plains and Fans
  - H: Low Altitude Forest on Uplands
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  - Qa: Agriculture Plantation
  - Qf: Forest Plantation
  - Z: Bare areas
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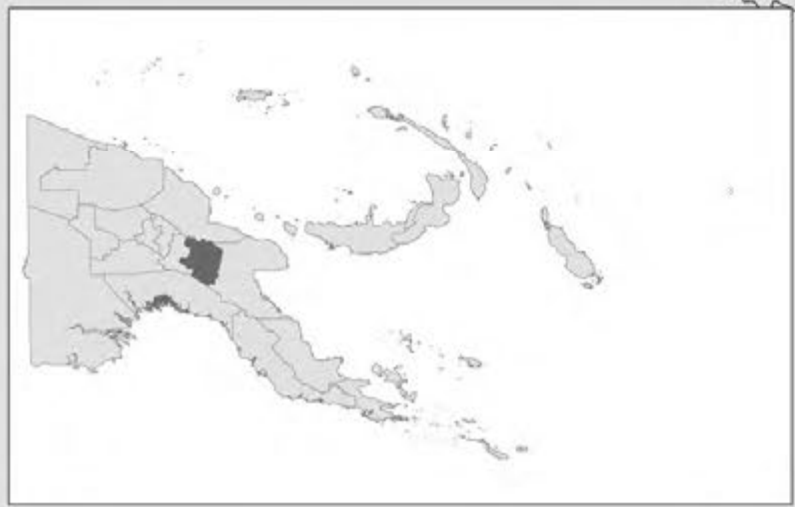
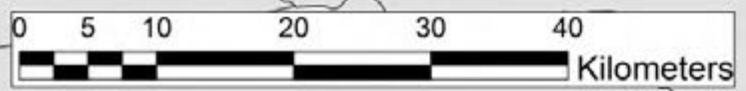
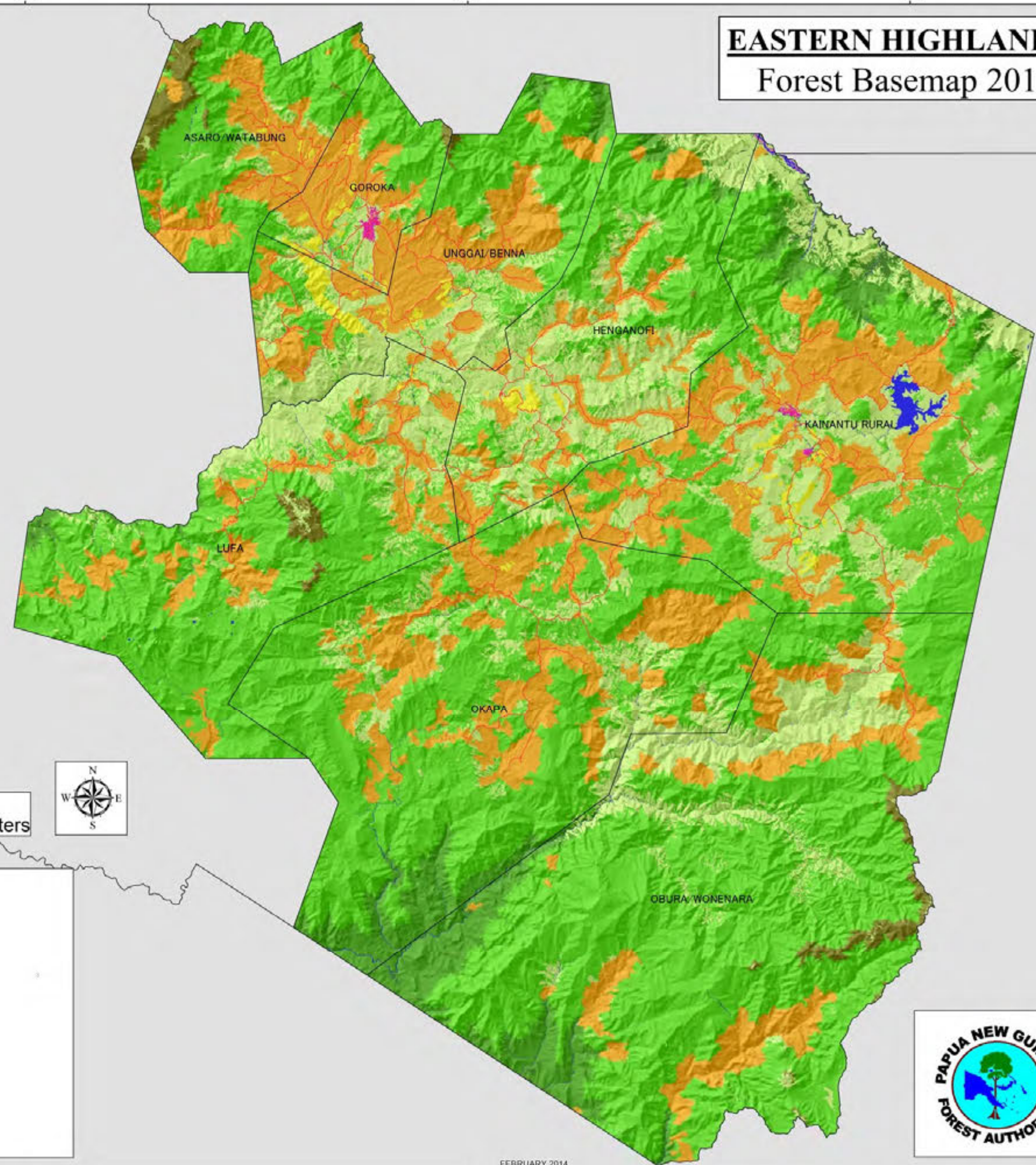


Settlement(Census2000)  
 Road(Census2000)



# EASTERN HIGHLANDS PROVINCE Forest Basemap 2012 (Version 1)

- Forest Basemap Version 1**  
**Forest Classes**
- P: Low Altitude Forest on Plains and Fans
  - H: Low Altitude Forest on Uplands
  - L: Lower Montane Forest
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  - E: Lakes and larger rivers





# SOUTHERN HIGHLANDS PROVINCE

## Forest Basemap 2012 (Version 1)

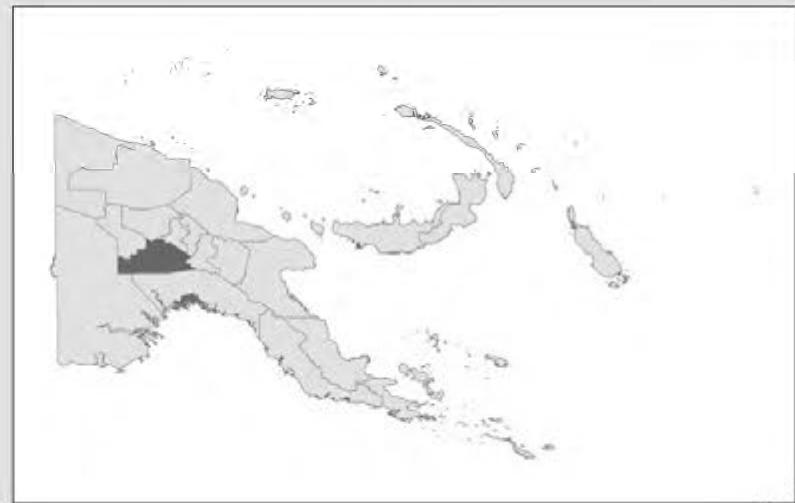
Forest Basemap Version 1

Forest Classes

- P: Low Altitude Forest on Plains and Fans
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- Qf: Forest Plantation
- Z: Bare areas
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- E: Lakes and larger rivers

Settlement(Census2000)

Road(Census2000)

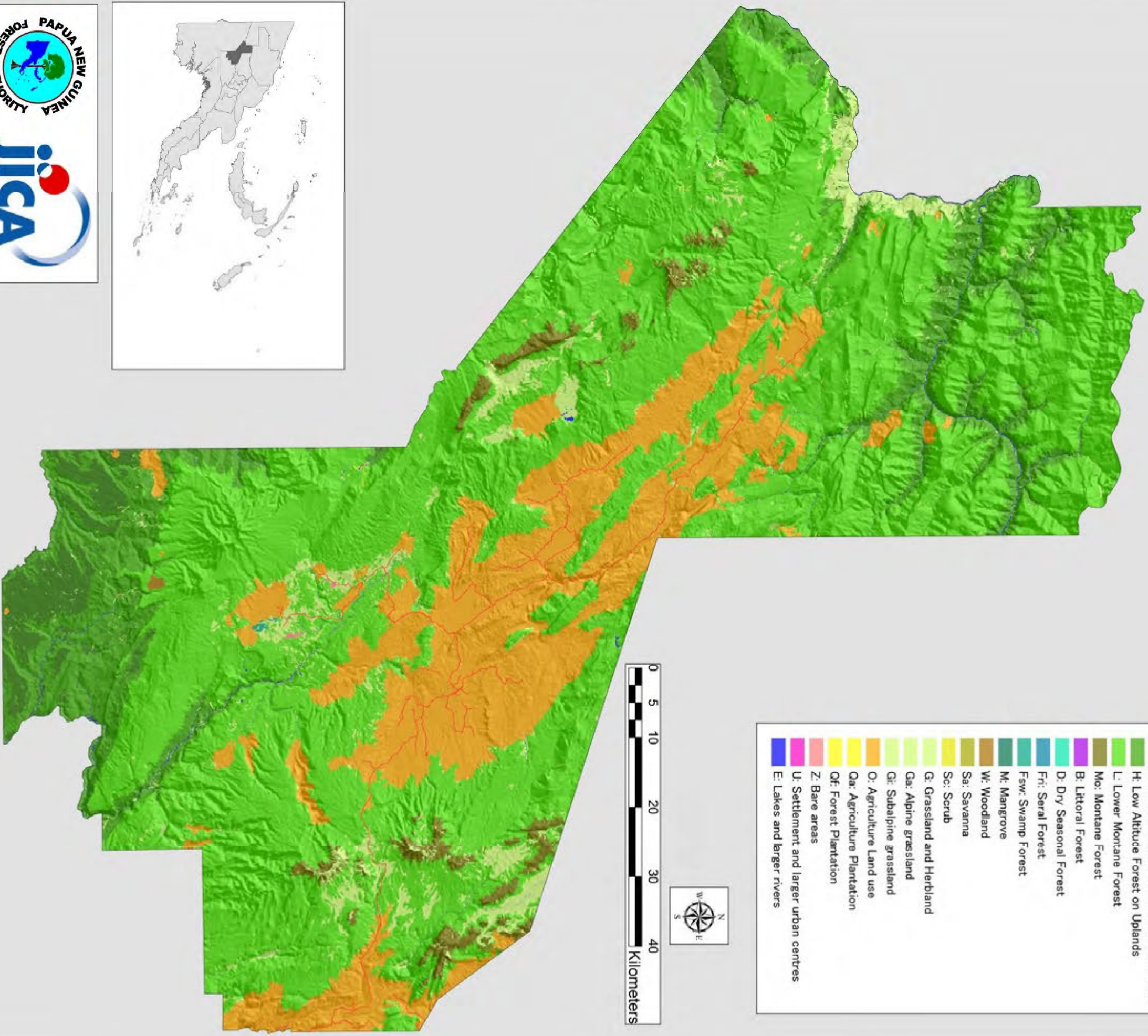


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# HELA PROVINCE

## Forest Basemap 2012 (Version 1)



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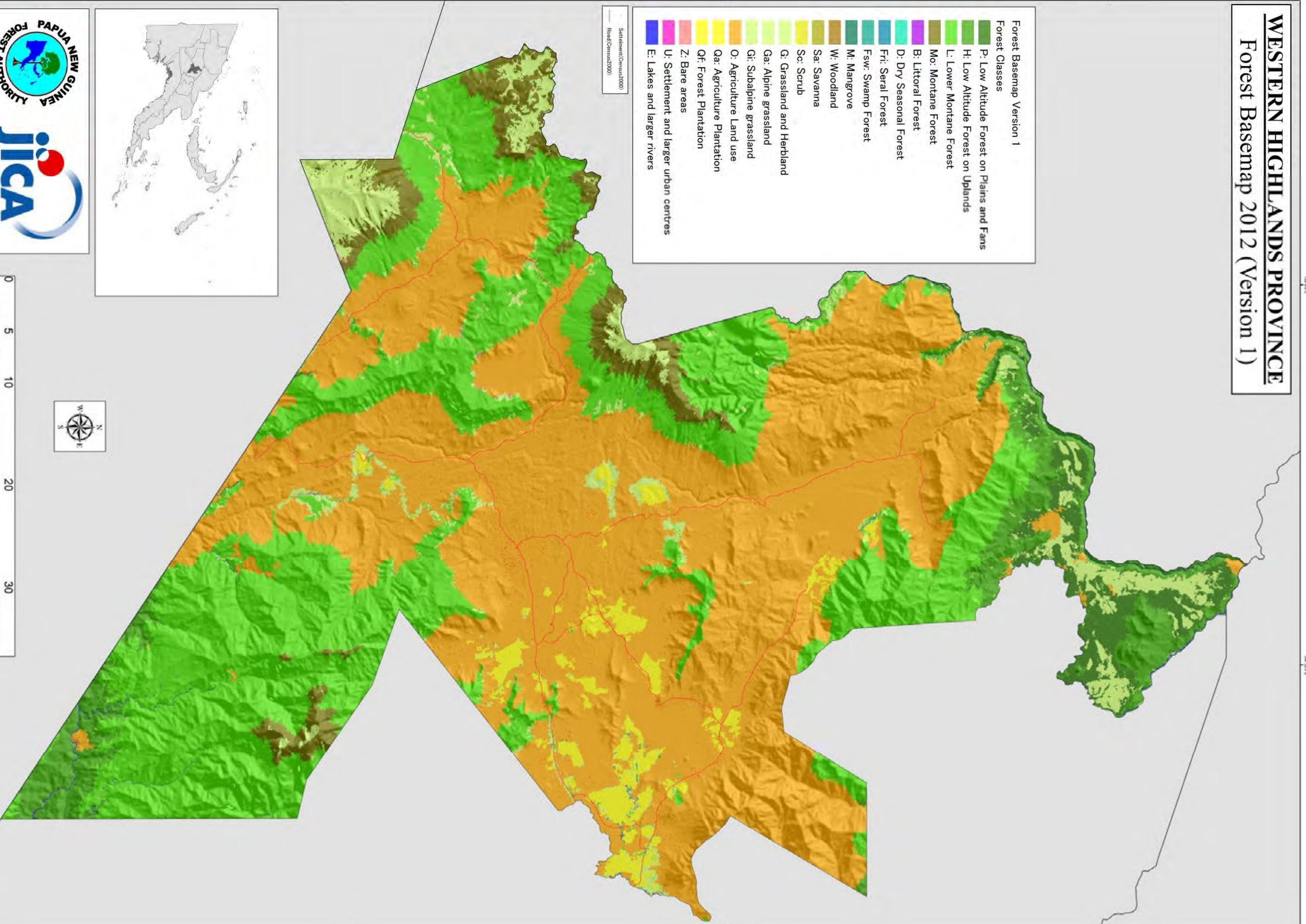


# WESTERN HIGHLANDS PROVINCE

## Forest Basemap 2012 (Version 1)

- Forest Basemap Version 1
- Forest Classes**
- P: Low Altitude Forest on Plains and Fans
  - H: Low Altitude Forest on Uplands
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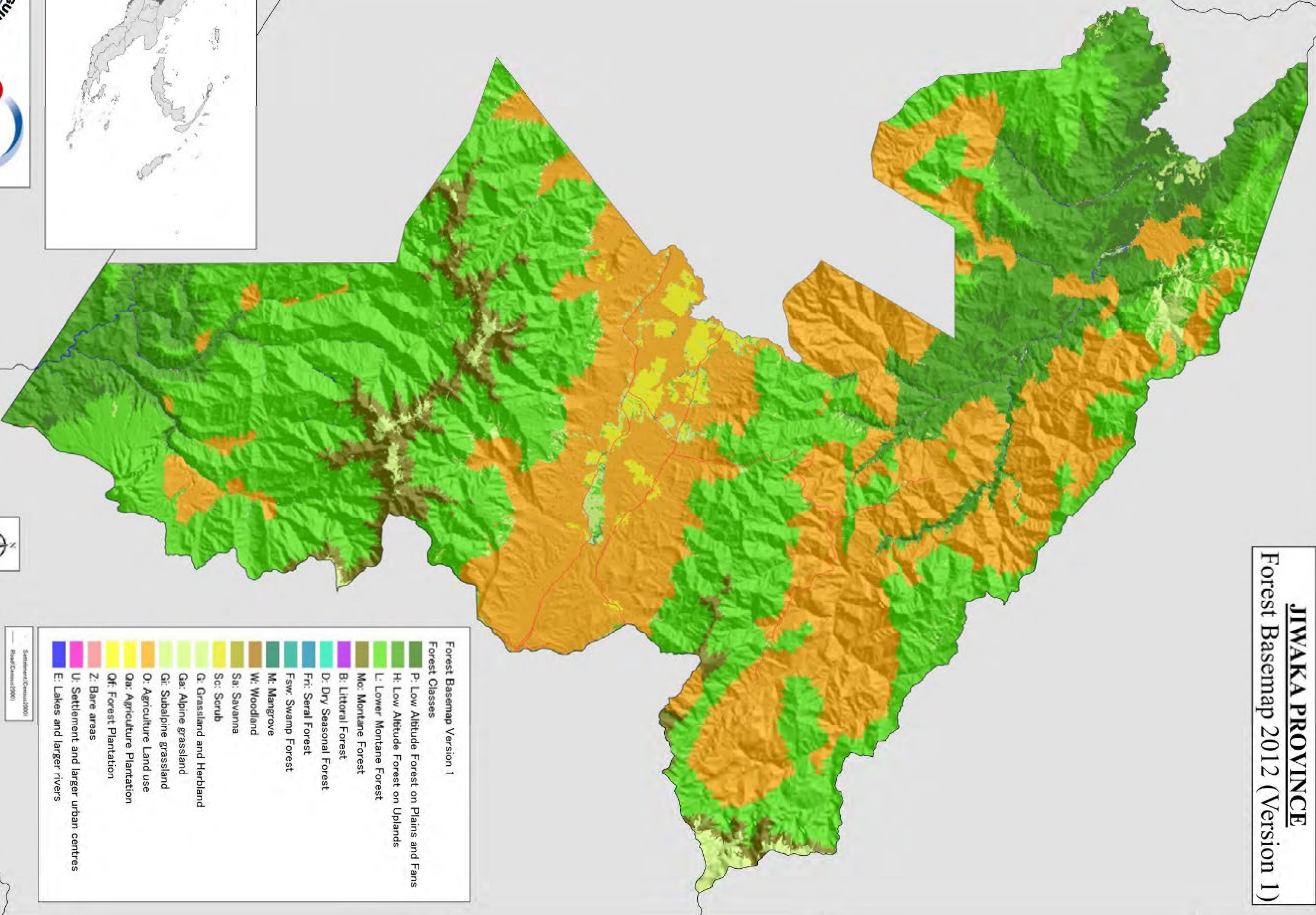
Settlement (Census2000)  
Road (Census2000)



FEBRUARY 2014

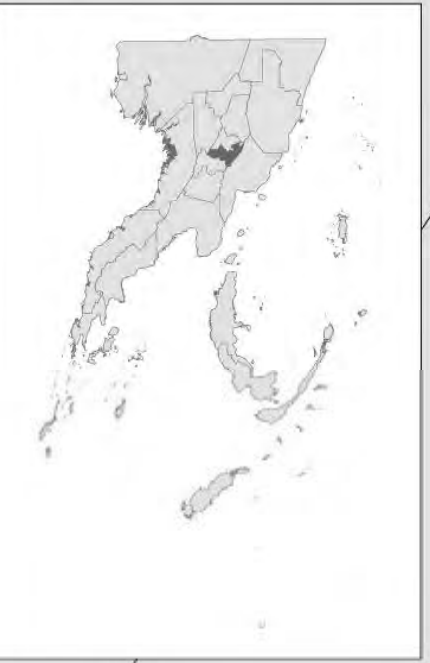
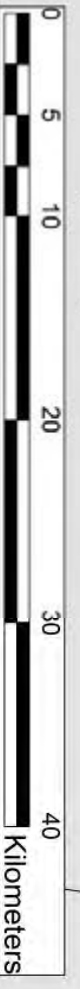


**JIWAKA PROVINCE**  
**Forest Basemap 2012 (Version 1)**



- Forest Basemap Version 1**
- Forest Classes**
- P: Low Altitude Forest on Plains and Fans
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Satellite/Census/2000  
 Road/Census/2000

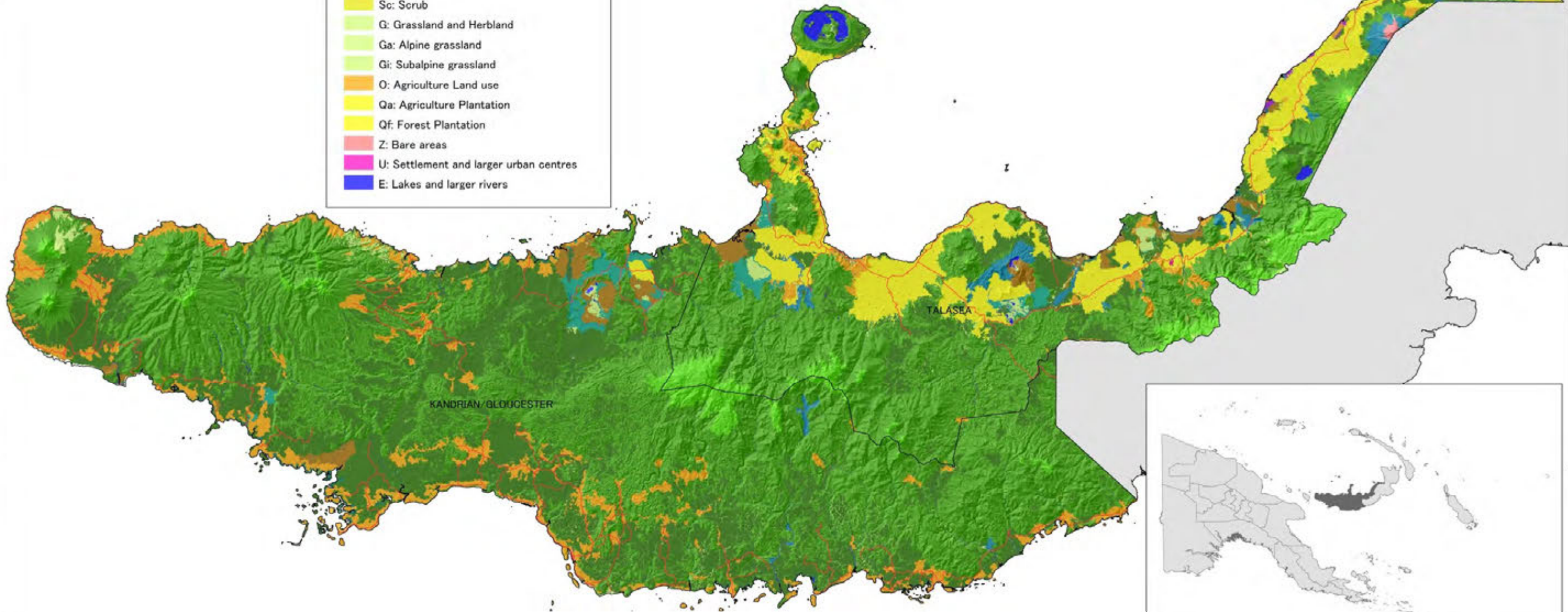


FILED: APRIL 2014

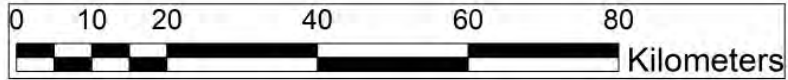


# WEST NEW BRITAIN PROVINCE Forest Basemap 2012 (Version 1)

- Forest Basemap Version 1  
Forest Classes
- P: Low Altitude Forest on Plains and Fans
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Settlement(Census2000)  
Road(Census2000)



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# EAST NEW BRITAIN PROVINCE

## Forest Basemap 2012 (Version 1)

Forest Basemap Version 1

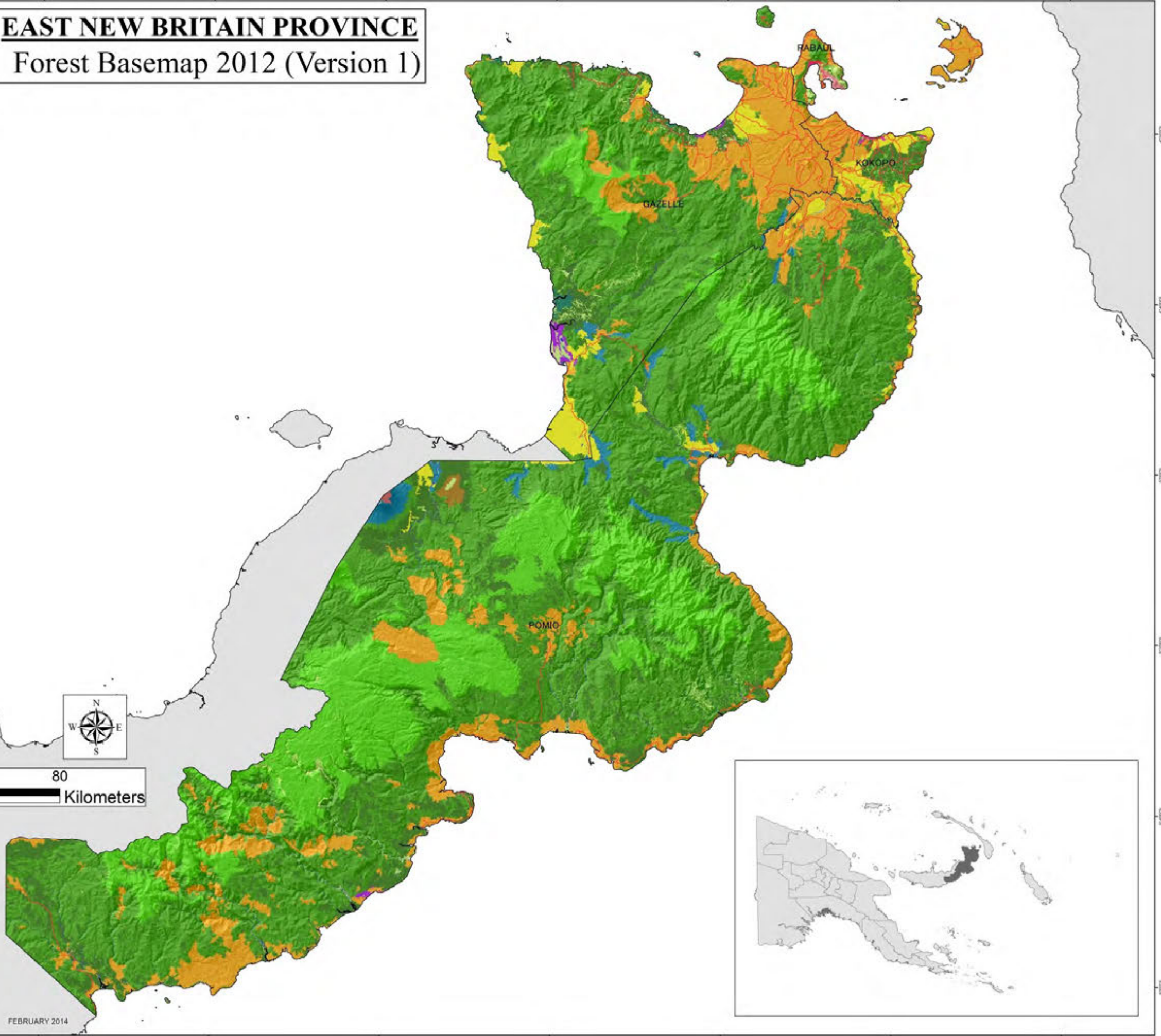
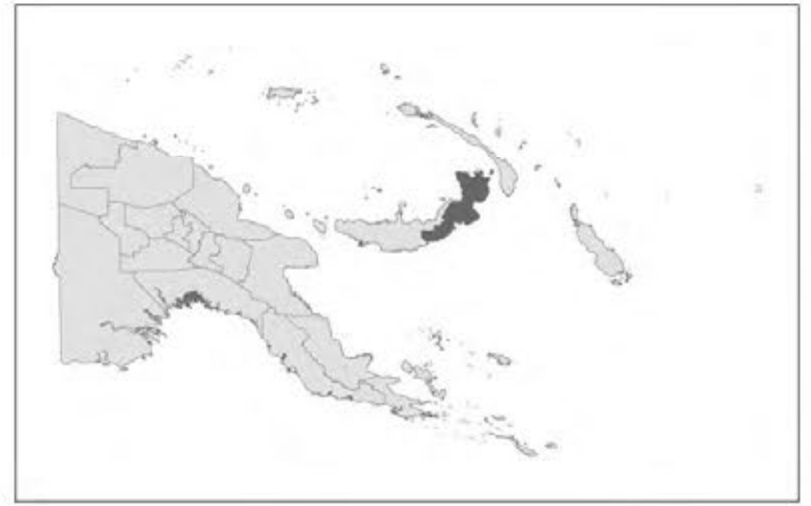
Forest Classes

- P: Low Altitude Forest on Plains and Fans
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- Qf: Forest Plantation
- Z: Bare areas
- U: Settlement and larger urban centres
- E: Lakes and larger rivers

- Settlement(Census2000)
- Road(Census2000)

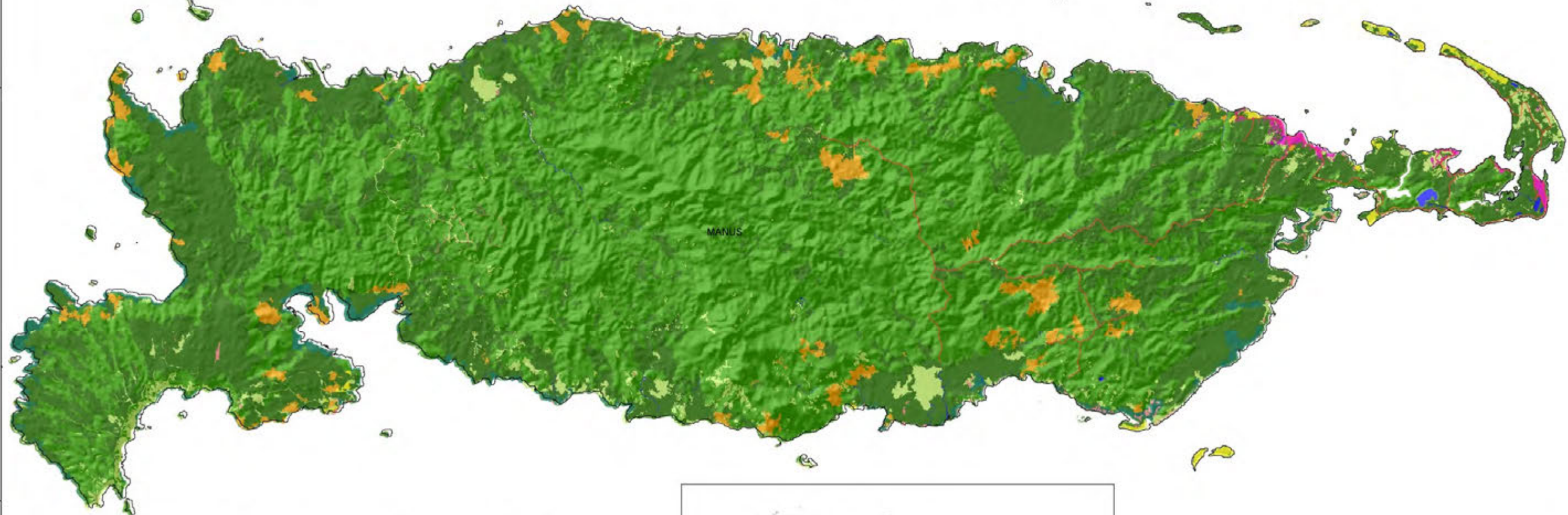


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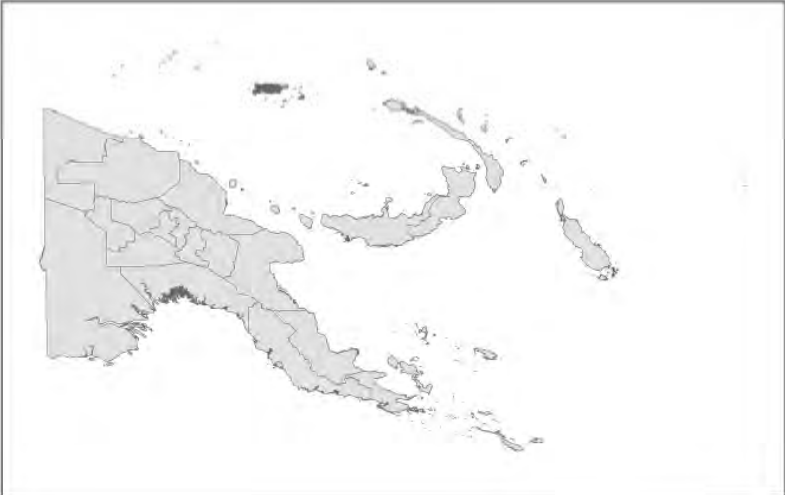




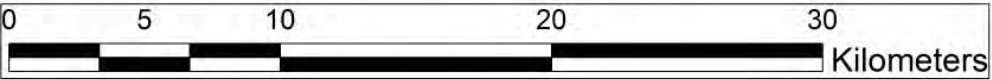
# MANUS PROVINCE Forest Basemap 2012 (Version 1)



- Forest Basemap Version 1**  
**Forest Classes**
- P: Low Altitude Forest on Plains and Fans
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  - Qf: Forest Plantation
  - Z: Bare areas
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  - E: Lakes and larger rivers

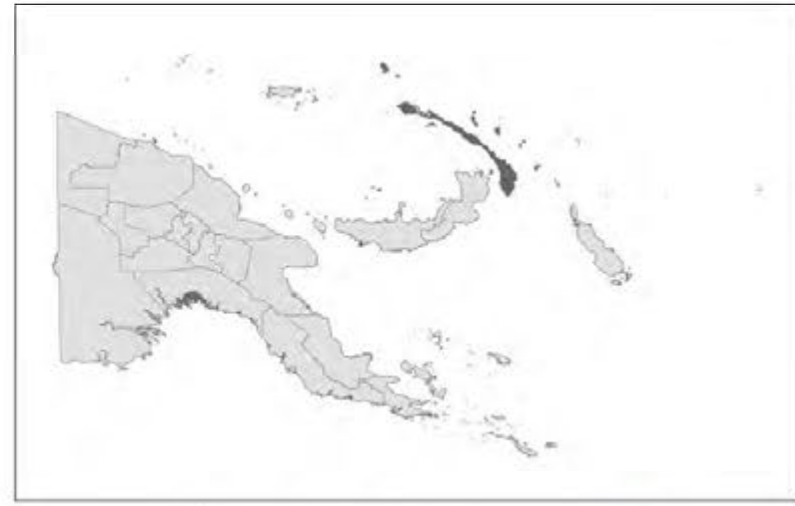
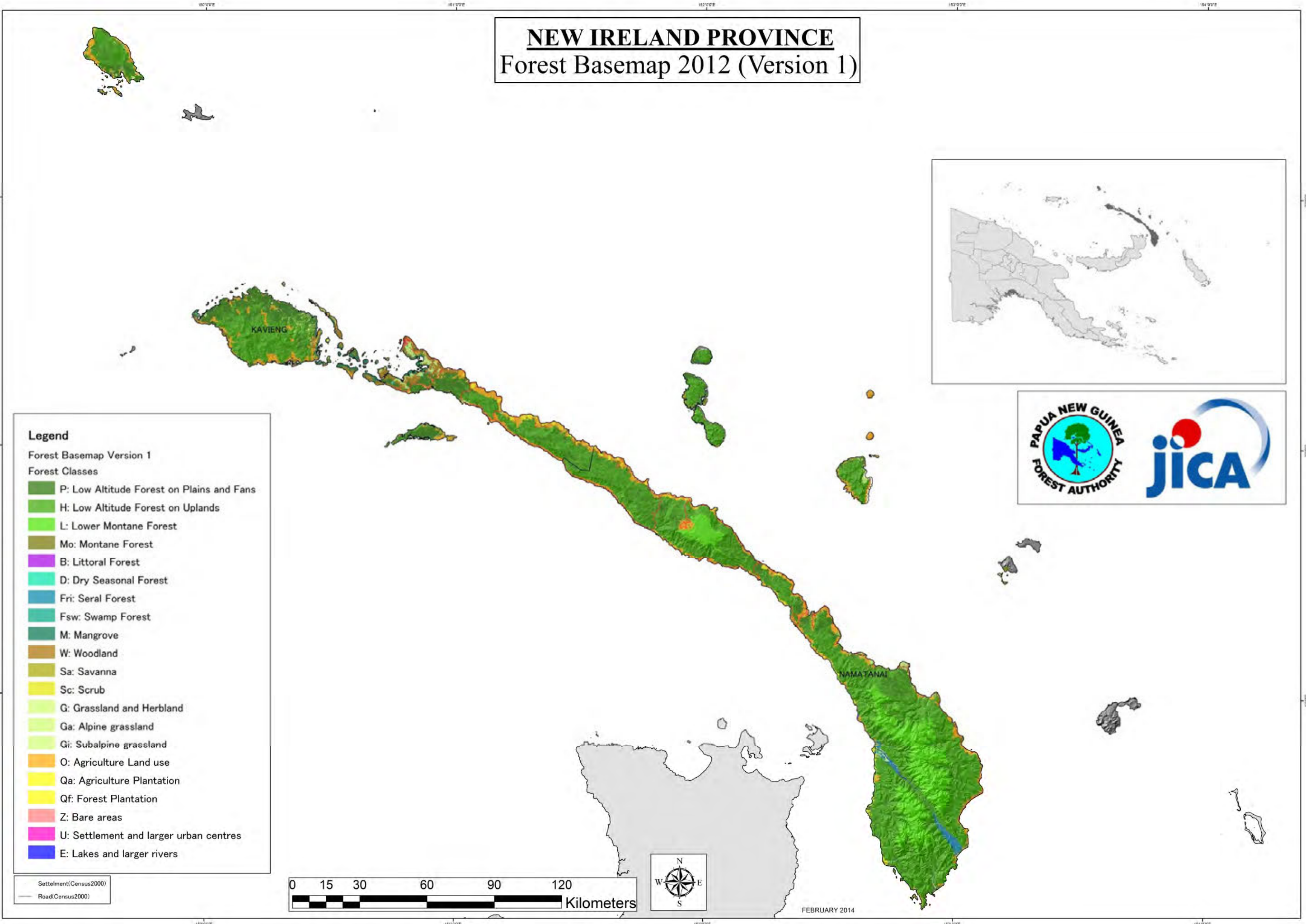


Settlement(Census2000)  
Road(Census2000)



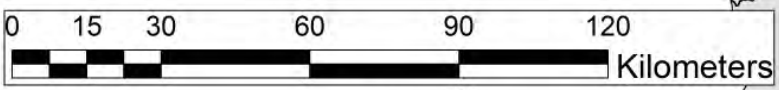


# NEW IRELAND PROVINCE Forest Basemap 2012 (Version 1)



- Legend**  
Forest Basemap Version 1  
Forest Classes
- P: Low Altitude Forest on Plains and Fans
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Settlement(Census2000)  
Road(Census2000)



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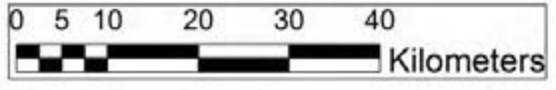
# AUTONOMOUS REGION OF BOUGAINVILLE PROVINCE

## Forest Basemap 2012 (Version 1)



- Forest Basemap Version 1**  
**Forest Classes**
- P: Low Altitude Forest on Plains and Fans
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  - E: Lakes and larger rivers

Settlement(Census2000)  
 Road(Census2000)



FEBRUARY 2014



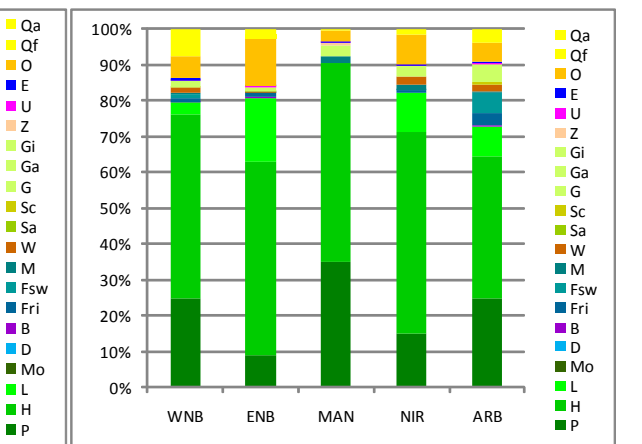
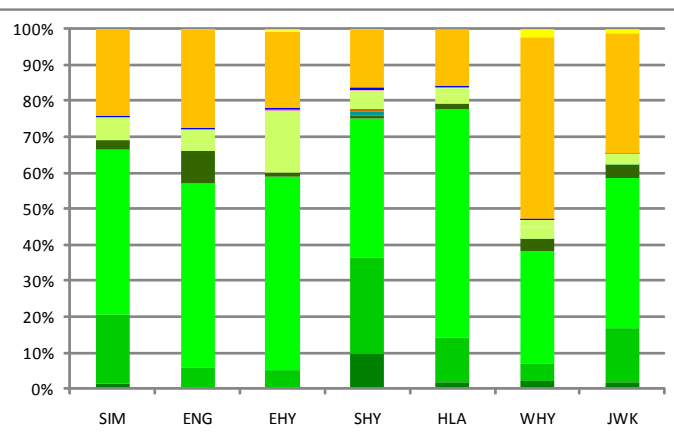
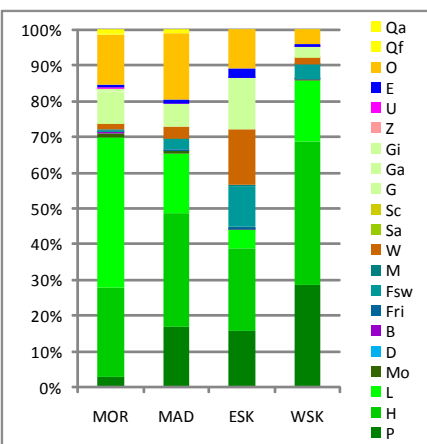
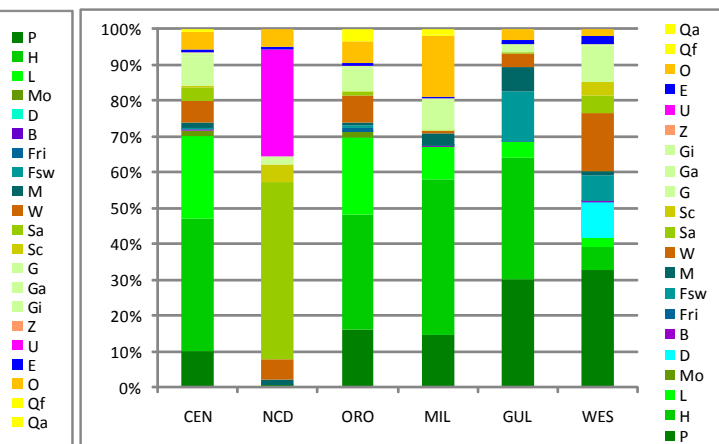
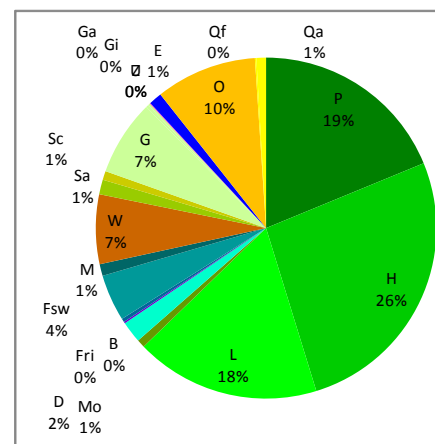
# Vegetation Type Area calculated from Forest Basemap 2012 (Version 1)

Forest BaseMap(ver.1: Landcover + Draft Cropland/Agriculture landuse): Vegetation Type Area (ha) x Province

VEG	VEGNAME	SUM	CEN	NCD	ORO	MIL	GUL	WES	MOR	MAD	ESK	WSK	SIM	ENG	EHY	SHY	HLA	WHY	JWK	WNB	ENB	MAN	NIR	ARB
P	Low Altitude Forest on Plains & Fans	8,807,748	293,750	94	366,161	221,194	1,075,639	3,220,005	91,822	487,003	707,761	1,033,140	8,351	2,737	2,098	153,930	22,430	9,478	9,270	523,167	135,528	67,885	141,382	234,924
H	Low Altitude Forest on Uplands	12,404,244	1,100,041	46	727,773	652,785	1,215,112	629,402	843,806	920,004	1,025,687	1,433,010	116,969	69,566	56,309	436,558	145,102	21,918	70,655	1,095,925	829,389	106,676	529,731	377,781
L	Lower Montane Forest	8,221,846	679,811		485,631	135,618	154,309	290,116	1,420,922	481,891	230,304	610,991	283,143	624,163	596,689	626,502	740,816	141,218	201,264	68,328	269,522		102,982	77,625
Mo	Montane Forest	358,050	39,092		30,140	645		2,679	39,274	21,832	649	18,044	15,856	110,171	13,339	12,042	19,521	16,103	18,664					
D	Dry Seasonal Forest	957,387						957,387																
B	Littoral Forest	69,994	11,989		681	4,318	1,011	37,485	1,091	1,056	2,040	2,237								1,110	2,447			4,530
Fri	Seral Forest	158,783	6,736		26,425	1,144	353	9,825	3,658	5,780	24,339	2,975								21,096	18,296		6,857	31,300
Fsw	Swamp Forest	2,070,809	9,067		18,206	1,122	498,173	684,835	20,438	95,092	510,195	137,546		373		15,444	241	88	47	25,802	60		642	53,439
M	Mangrove Forest	524,582	48,508	296	14,027	49,993	240,787	117,673	2,914	173	17,789	657								8,307	2,565	3,617	14,612	2,662
W	Woodland	3,091,027	173,332	1,096	177,449	11,913	138,596	1,596,062	51,913	97,841	685,667	66,725				14,341	380			33,786	2,306		20,241	19,379
Sa	Savanna	651,825	113,965	9,919	23,591	76	14,455	489,695						124										
Sc	Scrub	394,340	6,738	982	1,628	1,329	376,410		13			276					114			112	30			6,708
G	Grassland and Herbland	3,357,766	249,049	430	143,755	132,610	79,463	1,026,961	301,373	168,836	637,169	111,323	30,652	26,276	194,267	62,960	31,533	13,136	9,125	37,525	21,367	6,243	28,038	45,676
Ga	Grassland (Alpine)	113,383	19,591		8,392	2,161	1	923	10,968	2,313	508	1,794	792	41,535	853	3,363	17,863	2,200	111					15
Gi	Grassland (Subalpine)	88,624	11,523		6,503	427		338	18,136	6,816	189	2,540	6,168	8,046	663	13,717	753	8,714	4,091					
Z	Bare areas	21,950	95		397			22	8,701	2,786		1,501		19	169	1,459	200	320	233	1,069	1,229	999		2,752
U	Larger Urban Centres	21,484	387	5,918	239	517	188	648	7,211	1,415	704	256	592		819	319		0		172	595	497	332	672
E	Lake & Larger Rivers	579,052	17,749	149	19,328	4,768	40,357	248,378	22,471	28,490	116,120	26,647	3,234	2,149	3,888	11,718	3,988	755	1,177	13,805	5,346	399	2,760	5,377
O	Cropland/Agriculture land	4,504,510	149,657	1,011	134,574	256,982	107,839	186,173	469,892	540,728	484,334	141,658	147,416	338,452	236,155	265,017	187,467	228,565	159,974	130,701	201,458	6,106	78,779	51,571
Qf	Forest Plantation	66,380	18,083			1,208			17,686	4,850				25	4,887	315		1,464						
Qa	Plantation other than Qf	427,005	6,413		78,392	25,647	1,061		34,970	23,397	1,335	1,280	168	122	4,539	23		9,578	5,910	161,009	21,471	719	16,165	34,805
	SUM	46,890,788	2,955,577	19,941	2,263,290	1,504,458	3,567,345	9,875,015	3,367,258	2,890,302	4,444,790	3,592,598	613,341	1,223,758	1,114,676	1,617,708	1,170,407	453,535	480,521	2,121,916	1,529,472	193,140	942,521	949,218

	Forest Cover Area	(ha)																						
	Forest	33,639,823	2,207,077	436	1,669,044	1,068,027	3,185,385	5,949,406	2,441,611	2,017,681	2,518,764	3,238,600	424,319	807,035	673,322	1,244,791	928,110	190,268	299,900	1,743,735	1,275,670	178,177	796,206	782,261
	Forest&Woodland	36,730,851	2,380,409	1,532	1,846,492	1,079,940	3,323,980	7,545,468	2,493,524	2,115,522	3,204,431	3,305,324	424,319	807,035	673,322	1,259,132	928,490	190,268	299,900	1,777,521	1,277,976	178,177	816,448	801,641
*	Forest&Woodland&Scrub&Savanna	37,777,015	2,501,112	12,434	1,871,710	1,081,346	3,338,435	8,411,573	2,493,536	2,115,522	3,204,431	3,305,600	424,319	807,159	673,322	1,259,132	928,604	190,268	299,900	1,777,633	1,278,006	178,177	816,448	808,348

	Forest Cover Rate	(%)																						
	Forest	71.7%	74.7%	2.2%	73.7%	71.0%	89.3%	60.2%	72.5%	69.8%	56.7%	90.1%	69.2%	65.9%	60.4%	76.9%	79.3%	42.0%	62.4%	82.2%	83.4%	92.3%	84.5%	82.4%
	Forest&Woodland	78.3%	80.5%	7.7%	81.6%	71.8%	93.2%	76.4%	74.1%	73.2%	72.1%	92.0%	69.2%	65.9%	60.4%	77.8%	79.3%	42.0%	62.4%	83.8%	83.6%	92.3%	86.6%	84.5%
*	Forest&Woodland&Scrub&Savanna	80.6%	84.6%	62.4%	82.7%	71.9%	93.6%	85.2%	74.1%	73.2%	72.1%	92.0%	69.2%	66.0%	60.4%	77.8%	79.3%	42.0%	62.4%	83.8%	83.6%	92.3%	86.6%	85.2%



# Above Ground Living Biomass

Forest BaseMap(ver.1: Landcover + Draft Cropland/Agriculture landuse): Biomass (above ground living) x Province

VEG	VEGNAME	SUM	CEN	NCD	ORO	MIL	GUL	WES	MOR	MAD	ESK	WSK	SIM	ENG	EHY	SHY	HLA	WHY	JWK	WNB	ENB	MAN	NIR	ARB	
P	Low Altitude Forest on Plains & Fans	2,642.32	88.13	0.03	109.85	66.36	322.69	966.00	27.55	146.10	212.33	309.94	2.51	0.82	0.63	46.18	6.73	2.84	2.78	156.95	40.66	20.37	42.41	70.48	
H	Low Altitude Forest on Uplands	3,721.27	330.01	0.01	218.33	195.84	364.53	188.82	253.14	276.00	307.71	429.90	35.09	20.87	16.89	130.97	43.53	6.58	21.20	328.78	248.82	32.00	158.92	113.33	
L	Lower Montane Forest	1,151.06	95.17		67.99	18.99	21.60	40.62	198.93	67.46	32.24	85.54	39.64	87.38	83.54	87.71	103.71	19.77	28.18	9.57	37.73		14.42	10.87	
Mo	Montane Forest	50.13	5.47		4.22	0.09		0.38	5.50	3.06	0.09	2.53	2.22	15.42	1.87	1.69	2.73	2.25	2.61						
D	Dry Seasonal Forest	172.33						172.33																	
B	Littoral Forest	12.60	2.16		0.12	0.78	0.18	6.75	0.20	0.19	0.37	0.40								0.20	0.44			0.82	
Fri	Seral Forest	47.63	2.02		7.93	0.34	0.11	2.95	1.10	1.73	7.30	0.89								6.33	5.49		2.06	9.39	
Fsw	Swamp Forest	621.24	2.72		5.46	0.34	149.45	205.45	6.13	28.53	153.06	41.26		0.11		4.63	0.07	0.03	0.01	7.74	0.02		0.19	16.03	
M	Mangrove Forest	100.72	9.31	0.06	2.69	9.60	46.23	22.59	0.56	0.03	3.42	0.13								1.59	0.49	0.69	2.81	0.51	
W	Woodland	401.83	22.53	0.14	23.07	1.55	18.02	207.49	6.75	12.72	89.14	8.67				1.86	0.05			4.39	0.30		2.63	2.52	
Sa	Savanna	45.63	7.98	0.69	1.65	0.01	1.01	34.28						0.01											
Sc	Scrub	27.60	0.47	0.07	0.11	0.09		26.35	0.00			0.02					0.01			0.01	0.00			0.47	
G	Grassland and Herbland																								
Ga	Grassland (Alpine)																								
Gi	Grassland (Subalpine)																								
Z	Bare areas																								
U	Larger Urban Centres																								
E	Lake & Larger Rivers																								
O	Cropland/ Agriculture land																								
Qf	Forest Plantation																								
Qa	Plantation other than Qf																								
	SUM	8,994.37	565.98	1.00	441.43	293.97	923.83	1874.00	499.85	535.83	805.65	879.29	79.46	124.62	102.93	273.04	156.84	31.47	54.78	515.56	333.95	53.06	223.44	224.42	

	Biomass(above ground living)	(Mt)																						
	Forest	8,519.31	535.00	0.10	416.59	292.33	904.80	1,605.88	493.10	523.11	716.51	870.59	79.46	124.61	102.93	271.18	156.78	31.47	54.78	511.16	333.65	53.06	220.81	221.43
	Forest&Woodland	8,921.14	557.53	0.24	439.66	293.88	922.82	1,813.37	499.85	535.83	805.65	879.27	79.46	124.61	102.93	273.04	156.83	31.47	54.78	515.55	333.95	53.06	223.44	223.95
*	Forest&Woodland&Scrub&Savanna	8,994.37	565.98	1.00	441.43	293.97	923.83	1,874.00	499.85	535.83	805.65	879.29	79.46	124.62	102.93	273.04	156.84	31.47	54.78	515.56	333.95	53.06	223.44	224.42

# Above Ground Living Carbon Stock

Forest BaseMap(ver.1: Landcover + Draft Cropland/Agriculture landuse): Carbon Stock (above ground living) x Province

VEG	VEGNAME	SUM	CEN	NCD	ORO	MIL	GUL	WES	MOR	MAD	ESK	WSK	SIM	ENG	EHY	SHY	HLA	WHY	JWK	WNB	ENB	MAN	NIR	ARB	
P	Low Altitude Forest on Plains & Fans	1,241.89	41.42	0.01	51.63	31.19	151.67	454.02	12.95	68.67	99.79	145.67	1.18	0.39	0.30	21.70	3.16	1.34	1.31	73.77	19.11	9.57	19.93	33.12	
H	Low Altitude Forest on Uplands	1,749.00	155.11	0.01	102.62	92.04	171.33	88.75	118.98	129.72	144.62	202.05	16.49	9.81	7.94	61.55	20.46	3.09	9.96	154.53	116.94	15.04	74.69	53.27	
L	Lower Montane Forest	541.00	44.73		31.95	8.92	10.15	19.09	93.50	31.71	15.15	40.20	18.63	41.07	39.26	41.22	48.75	9.29	13.24	4.50	17.73		6.78	5.11	
Mo	Montane Forest	23.56	2.57		1.98	0.04		0.18	2.58	1.44	0.04	1.19	1.04	7.25	0.88	0.79	1.28	1.06	1.23						
D	Dry Seasonal Forest	80.99						80.99																	
B	Littoral Forest	5.92	1.01		0.06	0.37	0.09	3.17	0.09	0.09	0.17	0.19								0.09	0.21			0.38	
Fri	Seral Forest	22.39	0.95		3.73	0.16	0.05	1.39	0.52	0.81	3.43	0.42								2.97	2.58		0.97	4.41	
Fsw	Swamp Forest	291.98	1.28		2.57	0.16	70.24	96.56	2.88	13.41	71.94	19.39		0.05		2.18	0.03	0.01	0.01	3.64	0.01		0.09	7.53	
M	Mangrove Forest	45.42	4.20	0.03	1.21	4.33	20.85	10.19	0.25	0.01	1.54	0.06								0.72	0.22	0.31	1.27	0.23	
W	Woodland	188.86	10.59	0.07	10.84	0.73	8.47	97.52	3.17	5.98	41.89	4.08				0.88	0.02			2.06	0.14		1.24	1.18	
Sa	Savanna	21.45	3.75	0.33	0.78	0.00	0.48	16.11						0.00											
Sc	Scrub	12.97	0.22	0.03	0.05	0.04		12.38	0.00			0.01					0.00			0.00	0.00			0.22	
G	Grassland and Herbland																								
Ga	Grassland (Alpine)																								
Gi	Grassland (Subalpine)																								
Z	Bare areas																								
U	Larger Urban Centres																								
E	Lake & Larger Rivers																								
O	Cropland/ Agriculture land																								
Qf	Forest Plantation																								
Qa	Plantation other than Qf																								
	SUM	4,225.44	265.83	0.47	207.42	137.99	433.32	880.35	234.92	251.84	378.59	413.26	37.34	58.57	48.38	128.33	73.71	14.79	25.75	242.28	156.95	24.93	104.96	105.47	

	Carbon Stock (above ground living)	(Mt)																						
	Forest	4,002.16	251.27	0.05	195.75	137.21	424.38	754.33	231.75	245.86	336.70	409.18	37.34	58.57	48.38	127.45	73.69	14.79	25.75	240.21	156.81	24.93	103.73	104.06
	Forest&Woodland	4,191.02	261.86	0.11	206.59	137.94	432.85	851.85	234.92	251.84	378.59	413.25	37.34	58.57	48.38	128.33	73.71	14.79	25.75	242.28	156.95	24.93	104.96	105.25
*	Forest&Woodland&Scrub&Savanna	4,225.44	265.83	0.47	207.42	137.99	433.32	880.35	234.92	251.84	378.59	413.26	37.34	58.57	48.38	128.33	73.71	14.79	25.75	242.28	156.95	24.93	104.96	105.47



# Below Ground Living Biomass

Forest BaseMap(ver.1: Landcover + Draft Cropland/Agriculture landuse): Biomass (below ground living) x Province

VEG	VEGNAME	SUM	CEN	NCD	ORO	MIL	GUL	WES	MOR	MAD	ESK	WSK	SIM	ENG	EHY	SHY	HLA	WHY	JWK	WNB	ENB	MAN	NIR	ARB	
P	Low Altitude Forest on Plains & Fans	977.66	32.61	0.01	40.64	24.55	119.40	357.42	10.19	54.06	78.56	114.68	0.93	0.30	0.23	17.09	2.49	1.05	1.03	58.07	15.04	7.54	15.69	26.08	
H	Low Altitude Forest on Uplands	1,376.87	122.10	0.01	80.78	72.46	134.88	69.86	93.66	102.12	113.85	159.06	12.98	7.72	6.25	48.46	16.11	2.43	7.84	121.65	92.06	11.84	58.80	41.93	
L	Lower Montane Forest	310.79	25.70		18.36	5.13	5.83	10.97	53.71	18.22	8.71	23.10	10.70	23.59	22.55	23.68	28.00	5.34	7.61	2.58	10.19		3.89	2.93	
Mo	Montane Forest	13.53	1.48		1.14	0.02		0.10	1.48	0.83	0.02	0.68	0.60	4.16	0.50	0.46	0.74	0.61	0.71						
D	Dry Seasonal Forest	41.36						41.36																	
B	Littoral Forest	3.02	0.52		0.03	0.19	0.04	1.62	0.05	0.05	0.09	0.10								0.05	0.11			0.20	
Fri	Seral Forest	17.62	0.75		2.93	0.13	0.04	1.09	0.41	0.64	2.70	0.33								2.34	2.03		0.76	3.47	
Fsw	Swamp Forest	229.86	1.01		2.02	0.12	55.30	76.02	2.27	10.56	56.63	15.27		0.04		1.71	0.03	0.01	0.01	2.86	0.01		0.07	5.93	
M	Mangrove Forest	49.35	4.56	0.03	1.32	4.70	22.65	11.07	0.27	0.02	1.67	0.06								0.78	0.24	0.34	1.37	0.25	
W	Woodland	112.51	6.31	0.04	6.46	0.43	5.04	58.10	1.89	3.56	24.96	2.43				0.52	0.01			1.23	0.08		0.74	0.71	
Sa	Savanna	18.25	3.19	0.28	0.66	0.00	0.40	13.71						0.00											
Sc	Scrub	11.04	0.19	0.03	0.05	0.04		10.54	0.00			0.01					0.00			0.00	0.00			0.19	
G	Grassland and Herbland																								
Ga	Grassland (Alpine)																								
Gi	Grassland (Subalpine)																								
Z	Bare areas																								
U	Larger Urban Centres																								
E	Lake & Larger Rivers																								
O	Cropland/ Agriculture land																								
Qf	Forest Plantation																								
Qa	Plantation other than Qf																								
	SUM	3,161.88	198.41	0.39	154.39	107.78	343.59	651.86	163.94	190.04	287.20	315.71	25.21	35.83	29.54	91.92	47.38	9.44	17.19	189.57	119.76	19.72	81.33	81.69	

	Biomass (below ground living)	(Mt)																						
	Forest	3,020.07	188.72	0.04	147.23	107.30	338.14	569.51	162.05	186.48	262.24	313.28	25.21	35.82	29.54	91.40	47.36	9.44	17.19	188.34	119.68	19.72	80.59	80.80
	Forest&Woodland	3,132.58	195.03	0.08	153.68	107.74	343.18	627.60	163.94	190.04	287.20	315.71	25.21	35.82	29.54	91.92	47.38	9.44	17.19	189.57	119.76	19.72	81.33	81.50
*	Forest&Woodland&Scrub&Savanna	3,161.88	198.41	0.39	154.39	107.78	343.59	651.86	163.94	190.04	287.20	315.71	25.21	35.83	29.54	91.92	47.38	9.44	17.19	189.57	119.76	19.72	81.33	81.69

# Below Ground Living Carbon Stock

Forest BaseMap(ver.1: Landcover + Draft Cropland/Agriculture landuse): Carbon Stock (below ground living) x Province

VEG	VEGNAME	SUM	CEN	NCD	ORO	MIL	GUL	WES	MOR	MAD	ESK	WSK	SIM	ENG	EHY	SHY	HLA	WHY	JWK	WNB	ENB	MAN	NIR	ARB	
P	Low Altitude Forest on Plains & Fans	459.50	15.32	0.00	19.10	11.54	56.12	167.99	4.79	25.41	36.92	53.90	0.44	0.14	0.11	8.03	1.17	0.49	0.48	27.29	7.07	3.54	7.38	12.26	
H	Low Altitude Forest on Uplands	647.13	57.39	0.00	37.97	34.06	63.39	32.84	44.02	48.00	53.51	74.76	6.10	3.63	2.94	22.78	7.57	1.14	3.69	57.17	43.27	5.57	27.64	19.71	
L	Lower Montane Forest	146.07	12.08		8.63	2.41	2.74	5.15	25.24	8.56	4.09	10.85	5.03	11.09	10.60	11.13	13.16	2.51	3.58	1.21	4.79		1.83	1.38	
Mo	Montane Forest	6.36	0.69		0.54	0.01		0.05	0.70	0.39	0.01	0.32	0.28	1.96	0.24	0.21	0.35	0.29	0.33						
D	Dry Seasonal Forest	19.44						19.44																	
B	Littoral Forest	1.42	0.24		0.01	0.09	0.02	0.76	0.02	0.02	0.04	0.05								0.02	0.05			0.09	
Fri	Seral Forest	8.28	0.35		1.38	0.06	0.02	0.51	0.19	0.30	1.27	0.16								1.10	0.95		0.36	1.63	
Fsw	Swamp Forest	108.03	0.47		0.95	0.06	25.99	35.73	1.07	4.96	26.62	7.18		0.02		0.81	0.01	0.00	0.00	1.35	0.00		0.03	2.79	
M	Mangrove Forest	22.26	2.06	0.01	0.60	2.12	10.22	4.99	0.12	0.01	0.75	0.03								0.35	0.11	0.15	0.62	0.11	
W	Woodland	52.88	2.97	0.02	3.04	0.20	2.37	27.31	0.89	1.67	11.73	1.14				0.25	0.01			0.58	0.04		0.35	0.33	
Sa	Savanna	8.58	1.50	0.13	0.31	0.00	0.19	6.44						0.00											
Sc	Scrub	5.19	0.09	0.01	0.02	0.02		4.95	0.00			0.00					0.00			0.00	0.00			0.09	
G	Grassland and Herbland																								
Ga	Grassland (Alpine)																								
Gi	Grassland (Subalpine)																								
Z	Bare areas																								
U	Larger Urban Centres																								
E	Lake & Larger Rivers																								
O	Cropland/ Agriculture land																								
Qf	Forest Plantation																								
Qa	Plantation other than Qf																								
	SUM	1,485.14	93.17	0.18	72.54	50.57	161.06	306.16	77.04	89.32	134.95	148.38	11.85	16.84	13.88	43.20	22.27	4.44	8.08	89.08	56.28	9.26	38.20	38.39	

	Carbon Stock (below ground living)	(Mt)																						
	Forest	1418.50	88.61	0.02	69.17	50.34	158.50	267.46	76.16	87.64	123.22	147.24	11.85	16.84	13.88	42.96	22.26	4.44	8.08	88.50	56.24	9.26	37.85	37.97
	Forest&Woodland	1471.38	91.58	0.04	72.21	50.55	160.87	294.76	77.04	89.32	134.95	148.38	11.85	16.84	13.88	43.20	22.27	4.44	8.08	89.08	56.28	9.26	38.20	38.30
*	Forest&Woodland&Scrub&Savanna	1485.14	93.17	0.18	72.54	50.57	161.06	306.16	77.04	89.32	134.95	148.38	11.85	16.84	13.88	43.20	22.27	4.44	8.08	89.08	56.28	9.26	38.20	38.39

# Above and Below Ground Living Biomass

Forest BaseMap(ver.1: Landcover + Draft Cropland/Agriculture landuse): Biomass (above and below ground living) x Province

VEG	VEGNAME	SUM	CEN	NCD	ORO	MIL	GUL	WES	MOR	MAD	ESK	WSK	SIM	ENG	EHY	SHY	HLA	WHY	JWK	WNB	ENB	MAN	NIR	ARB	
P	Low Altitude Forest on Plains & Fans	3,619.98	120.73	0.04	150.49	90.91	442.09	1323.42	37.74	200.16	290.89	424.62	3.43	1.12	0.86	63.27	9.22	3.90	3.81	215.02	55.70	27.90	58.11	96.55	
H	Low Altitude Forest on Uplands	5,098.14	452.12	0.02	299.11	268.29	499.41	258.68	346.80	378.12	421.56	588.97	48.07	28.59	23.14	179.43	59.64	9.01	29.04	450.43	340.88	43.84	217.72	155.27	
L	Lower Montane Forest	1,461.84	120.87		86.35	24.11	27.44	51.58	252.64	85.68	40.95	108.63	50.34	110.98	106.09	111.39	131.72	25.11	35.78	12.15	47.92		18.31	13.80	
Mo	Montane Forest	63.66	6.95		5.36	0.11			6.98	3.88	0.12	3.21	2.82	19.59	2.37	2.14	3.47	2.86	3.32						
D	Dry Seasonal Forest	213.69						213.69																	
B	Littoral Forest	15.62	2.68		0.15	0.96	0.23	8.37	0.24	0.24	0.46	0.50								0.25	0.55			1.01	
Fri	Seral Forest	65.26	2.77		10.86	0.47	0.15	4.04	1.50	2.38	10.00	1.22								8.67	7.52		2.82	12.86	
Fsw	Swamp Forest	851.10	3.73		7.48	0.46	204.75	281.47	8.40	39.08	209.69	56.53		0.15		6.35	0.10	0.04	0.02	10.60	0.02		0.26	21.96	
M	Mangrove Forest	150.07	13.88	0.08	4.01	14.30	68.88	33.66	0.83	0.05	5.09	0.19								2.38	0.73	1.03	4.18	0.76	
W	Woodland	514.35	28.84	0.18	29.53	1.98	23.06	265.58	8.64	16.28	114.10	11.10				2.39	0.06			5.62	0.38		3.37	3.22	
Sa	Savanna	63.88	11.17	0.97	2.31	0.01	1.42	47.99						0.01											
Sc	Scrub	38.65	0.66	0.10	0.16	0.13		36.89	0.00			0.03					0.01			0.01	0.00			0.66	
G	Grassland and Herbland																								
Ga	Grassland (Alpine)																								
Gi	Grassland (Subalpine)																								
Z	Bare areas																								
U	Larger Urban Centres																								
E	Lake & Larger Rivers																								
O	Cropland/ Agriculture land																								
Qf	Forest Plantation																								
Qa	Plantation other than Qf																								
	SUM	12,156.25	764.39	1.39	595.82	401.75	1,267.42	2,525.85	663.79	725.87	1,092.84	1,195.00	104.67	160.45	132.47	364.96	204.22	40.91	71.97	705.13	453.71	72.78	304.77	306.11	
	Biomass(above & below ground living)	(Mt)																							
	Forest	11,539.38	723.72	0.14	563.82	399.63	1,242.94	2,175.39	655.15	709.59	978.75	1,183.87	104.67	160.43	132.47	362.57	204.14	40.91	71.97	699.49	453.33	72.78	301.40	302.22	
	Forest&Woodland	12,053.73	752.56	0.32	593.35	401.61	1,266.00	2,440.97	663.78	725.87	1,092.84	1,194.97	104.67	160.43	132.47	364.96	204.21	40.91	71.97	705.12	453.71	72.78	304.77	305.45	
*	Forest&Woodland&Scrub&Savanna	12,156.25	764.39	1.39	595.82	401.75	1,267.42	2,525.85	663.79	725.87	1,092.84	1,195.00	104.67	160.45	132.47	364.96	204.22	40.91	71.97	705.13	453.71	72.78	304.77	306.11	

# Above and Below Ground Living Carbon Stock

Forest BaseMap(ver.1: Landcover + Draft Cropland/Agriculture landuse): Carbon Stock (above & below ground living) x Province

VEG	VEGNAME	SUM	CEN	NCD	ORO	MIL	GUL	WES	MOR	MAD	ESK	WSK	SIM	ENG	EHY	SHY	HLA	WHY	JWK	WNB	ENB	MAN	NIR	ARB	
P	Low Altitude Forest on Plains & Fans	1,701.39	56.74	0.02	70.73	42.73	207.78	622.01	17.74	94.07	136.72	199.57	1.61	0.53	0.41	29.73	4.33	1.83	1.79	101.06	26.18	13.11	27.31	45.38	
H	Low Altitude Forest on Uplands	2,396.13	212.49	0.01	140.58	126.10	234.72	121.58	163.00	177.72	198.13	276.81	22.59	13.44	10.88	84.33	28.03	4.23	13.65	211.70	160.21	20.61	102.33	72.98	
L	Lower Montane Forest	687.07	56.81		40.58	11.33	12.90	24.24	118.74	40.27	19.25	51.06	23.66	52.16	49.86	52.35	61.91	11.80	16.82	5.71	22.52		8.61	6.49	
Mo	Montane Forest	29.92	3.27		2.52	0.05		0.22	3.28	1.82	0.05	1.51	1.33	9.21	1.11	1.01	1.63	1.35	1.56						
D	Dry Seasonal Forest	100.43						100.43																	
B	Littoral Forest	7.34	1.26		0.07	0.45	0.11	3.93	0.11	0.11	0.21	0.23								0.12	0.26			0.48	
Fri	Seral Forest	30.67	1.30		5.10	0.22	0.07	1.90	0.71	1.12	4.70	0.57								4.08	3.53		1.32	6.05	
Fsw	Swamp Forest	400.02	1.75		3.52	0.22	96.23	132.29	3.95	18.37	98.55	26.57		0.07		2.98	0.05	0.02	0.01	4.98	0.01		0.12	10.32	
M	Mangrove Forest	67.68	6.26	0.04	1.81	6.45	31.07	15.18	0.38	0.02	2.30	0.08								1.07	0.33	0.47	1.89	0.34	
W	Woodland	241.74	13.56	0.09	13.88	0.93	10.84	124.82	4.06	7.65	53.62	5.22				1.12	0.03			2.64	0.18		1.58	1.52	
Sa	Savanna	30.02	5.25	0.46	1.09	0.00	0.67	22.56						0.01											
Sc	Scrub	18.16	0.31	0.05	0.07	0.06		17.34	0.00			0.01					0.01			0.01	0.00			0.31	
G	Grassland and Herbland																								
Ga	Grassland (Alpine)																								
Gi	Grassland (Subalpine)																								
Z	Bare areas																								
U	Larger Urban Centres																								
E	Lake & Larger Rivers																								
O	Cropland/ Agriculture land																								
Qf	Forest Plantation																								
Qa	Plantation other than Qf																								
	SUM	5,710.59	359.00	0.65	279.96	188.55	594.38	1,186.51	311.96	341.16	513.54	561.65	49.19	75.41	62.26	171.53	95.98	19.23	33.83	331.36	213.23	34.19	143.16	143.86	
	Carbon (above & below ground living)	(Mt)																							
	Forest	5,420.66	339.88	0.07	264.92	187.55	582.87	1,021.79	307.90	333.50	459.92	556.42	49.19	75.40	62.26	170.41	95.95	19.23	33.83	328.72	213.05	34.19	141.58	142.03	
	Forest&Woodland	5,662.40	353.44	0.15	278.80	188.49	593.71	1,146.62	311.96	341.16	513.54	561.63	49.19	75.40	62.26	171.53	95.98	19.23	33.83	331.36	213.23	34.19	143.16	143.55	
*	Forest&Woodland&Scrub&Savanna	5,710.59	359.00	0.65	279.96	188.55	594.38	1,186.51	311.96	341.16	513.54	561.65	49.19	75.41	62.26	171.53	95.98	19.23	33.83	331.36	213.23	34.19	143.16	143.86	