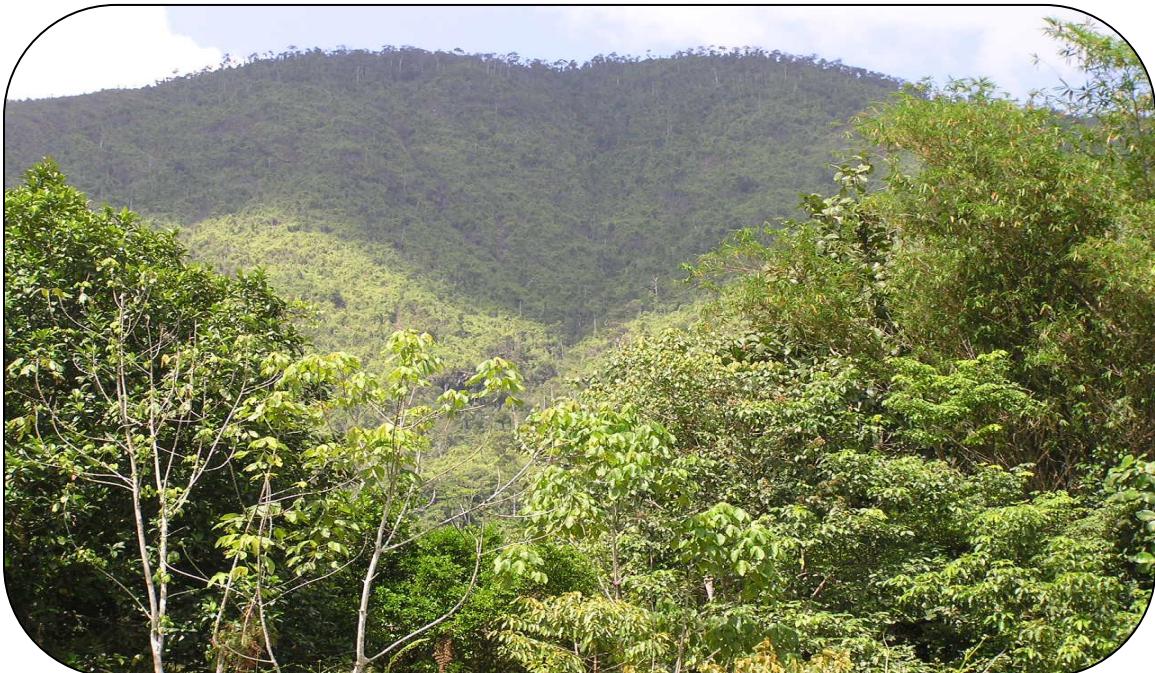


HIGH CONSERVATION VALUE FOREST (HCVF) IN FMU17A



**SFM DIVISION
SABAH FORESTRY DEPARTMENT**

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By
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1.0 INTRODUCTION

1.1 FMU17A & Forest Certification

One of the ultimate aim of the The Tangkulap-Pinangah Forest Development Project is to certify two adjoining forest reserves located in FMU17A namely Sg Pinangah FR (north of Karamuak River) and Tangkulap FR. According to Principle 9 of the FSC Certification criteria, a thorough research on the HCVF of this area is a pre-requisite for Forest Certification.

Therefore, the Sabah Forestry Department and with the assistance of a number of environmental NGOs has conducted several field studies related to HCVF in order to determine its presence and importance, and subsequently recommends appropriate mitigating measures to be incorporated into the management of this FMU.

1.2 Why HCVF?

HCVF assessment is required for FSC certification. Under FSC certification, there are four requirements under Principle 9, covering identification, consultation, management planning and monitoring of HCVFs.

- **Criterion 9.1. Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.**

The purpose of this criterion is to ensure that any outstanding or critical values (i.e., HCVs) that occur within a forest management unit are identified. This will entail (involve) the demarcation of the forest necessary to maintain and enhance the value (i.e., the HCVF) on operational planning maps.

- **Criterion 9.2. The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof.**

This criterion requires forest managers to consult with stakeholders on the options for the maintenance of any High Conservation Values that are identified. This requirement places a safeguard on the management of HCVFs as it allows stakeholders to raise significant and credible points that may be important in maintaining or enhancing the identified HCV.

- **Criterion 9.3. The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.**

This criterion specifies the general goal of management of HCVF – to maintain or enhance the HCV – as well as ensuring that stakeholders are informed about the proposed management regime for the HCVF.

- **Criterion 9.4. Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain or enhance the applicable conservation attributes.**

Where values are of such importance that they have been designated as HCVs, there is clearly a need to ensure that the management of them is effectively maintaining them. Therefore, monitoring should be conducted to assess this.

HCVF features can be used for forest management in addressing forest conservation priorities. Designating a forest (or part of a forest) as HCVF does not automatically prevent management operations such as for timber harvesting. However, it does mean that management activities must be planned and implemented in a way that ensures that the values are maintained or enhanced.

1.3 HCVF Values

HCVFs are those that possess one or more of the following attributes:

- a) **HCV 1**
Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values.
 - 1.1 Protected areas
 - 1.2 Concentration of threatened or endangered species.
 - 1.3 Concentrations of endemic species
 - 1.4 Seasonal concentrations of species

- b) HCV 2
Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.
- c) HCV 3
Forest areas that are in or contain rare, threatened or endangered ecosystems.
- d) HCV 4
Forest areas that provide basic services of nature in critically situations (e.g. watershed protection, erosion control)
4.1 Forests critical to water catchments.
4.2 Forests critical to erosion control.
4.3 Natural barriers to destructive fire.
- e) HCV 5
Forests areas fundamental to meeting the basic needs of local communities (e.g. subsistence, health).
- f) HCV 6
Forests areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

2.0 METHODOLOGY

The concept and methodology of the WWF-SFD's conducted HCVF assessment of Ulu Segama-Malua Forest Development Project (USM) are utilised to assess the HCVF attributes of FMU17A. The presence of any High Conservation Value element were determined using several methods as listed below

- ❖ Using available information in SFD (forest reserves map, satellite photo, topographic map, stratum map, etc.)
- ❖ EIA report (Sept 2005).
- ❖ Inventory of Timber Resources (April 2003-March 2004) covering all production compartments in FMU 17.
- ❖ Wildlife Study by Wildlife Department and several NGOs in Tangkulap FR and adjoining Deramakot FR.
- ❖ Camera trapping (SFD & Center for Ecological Research Kyoto University Japan research programme).

- ❖ Intellectual discussion with several ecologist and forest managers regarding vegetation and wildlife.
- ❖ Social Baseline Study conducted by SFD on villages located adjacent to FMU17A.
- ❖ Field survey to verify the presence of all HCVF elements. Gathering fact data wherever possible.

3.0 ASSESSMENT OF HCVF ATTRIBUTES

3.1 HCV 1

Description: Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values.

Map: Refer to Appendix 1.

3.1.1 Protected areas

3.1.1.1 Protection Forest Reserve

There is no Protection FR within FMU17A.

3.1.1.2 Virgin Jungle Reserve

VJR Timbah (292ha) is a small virgin jungle reserve located west of Tangkulap FR (Cpt.53), by the roadside of the Telupid-Imbak main road. The lowland mixed-dipterocarp forest it contains is well conserved. No detailed faunal study was conducted in this area.

3.1.1.3 Land Above 25° Slope

A total of 7,960ha of land was identified as above 25° slope at the north-western part of Sg Pinangah FR, between Sg karamuak and Sg Tangkulap Besar. Major forest fires in recent years had reduced the forest quality into broken mix-dipterocarp forest.

3.1.1.4 Riparian Reserve

FMU17A is drained by 2 major rivers, Sg Karamuak and Sg Tangkulap Besar. Along these rivers and their major tributaries, 30 meters riparian reserve must be protected to improve the water quality.

3.1.1.5 Stratum 1 & 2

Especially for FMU17A, intact ecosystems may only be found in Stratum 1 and to some extent Stratum 2. Therefore, protection of these remaining ecologically superior areas are necessary whether for germplasm conservation or refugia. There are 234 ha Stratum 1 and 3,510 ha Stratum 2 in this FMU.

3.1.2 Concentration of threatened or endangered species.

3.1.2.1 Large Mammals

3.1.2.1.1 Bornean Orang Utan

Orang utan (*Pongo pygmaeus*) was found to be fairly widespread in the southern part of Tangkulap FR but significantly lower in numbers if compared to Deramakot FR. Areas with considerably high numbers of Laran and Binuang trees are good indicator for its presence due to abundance of food and shelter.

3.1.2.1.2 Elephant

The elephants (*Elephas maximus*) appear to use the generally flatter parts of FMU 17A, those with mildly undulating terrain below 200m a.s.l. Most of this terrain exists in Tangkulap FR, that shares the common boundary with DFR. The ranges are considered to be within the Sg Tangkulap Besar in the north and Sg Karamuak river in the south.

3.1.2.1.3 Banteng / Tembadau

Tembadau (*Bos javanicus*) together with large populations of other large mammals also occurs in the flatter areas (logged-over part) of Tangkulap FR where shelter and food are aplenty. Roaming area is regarded as similar to the elephants, i.e. the mildly undulating terrain below 200m a.s.l.

3.1.2.1.4 Natural Mineral Resources

Saltlicks are common in this FMU however their exact location need to be determined. Further research in this aspect is needed.

3.1.2.2 Plants

The entire FMU17A area was generally logged-over, however the presence of threatened and endangered species is regarded as not significant.

3.1.3 Concentrations of endemic species

None known in FMU17A, require further study, but early discussion with several ecologist and scientist who knows FMU17A resulted that the possibility of endemic species, whether fauna and flora, in this area is highly unlikely.

3.1.4 Seasonal concentrations of species

Ground information (through sightings and frequency) gathered reveals that large mammals such as the elephant, banteng and orang utan shows seasonal movement within FMU17A. However, further scientific research need to be carried out to positively determine all the exact and potential roaming route of the elephants and banteng. Seasonal roaming of orang utan can be detected by scheduled nest count using helicopter.

3.2 HCV 2

Description: Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.

Map: No HCV Map needed.

There is no contiguous area of forest more than 20,000 ha in FMU17A that can be categorized into this HCV.

3.3 HCV 3

Description: Forest areas that are in or contain rare, threatened or endangered ecosystems.

Map: Refer Appendix 2.

3.3.1 Previously widespread forest type

The intact ecosystem of FMU17A lowland mixed-dipterocarp forest below 200 m asl has been lost through conventional logging and some through conversion to plantations and settlement. Therefore, all forest area below 200m in this FMU fit to be classified into this HCV.

3.3.2 Localised forest types

Sg Pinangah FR contains several sensitive and localised forest types. This include the Kerapah Forest (1,128 ha), Lowland Ultramafic Forest (5,896 ha), Lowland Ultramafic Forest-Alluvial (819 ha), Upland Ultramafic Forest (6,574 ha) and Lower Montane Ultramafic Forest (114 ha); all located at the north-western part of Sg Pinangah FR and south of Tawai FR.

There are also 149 ha of Lowland Seasonal Freshwater Swamp Forest at the south of Tangkulap FR near Kg Kenang Kenangan. All these areas are sensitive to vegetation changes and therefore need to be conserved.

3.4 HCV 4

Description: Forest areas that provide basic services of nature in critically situations (e.g. watershed protection, erosion control)

Map: Refer Appendix 3 for HCV4, 5 & 6.

3.4.1 Forests critical to water catchments.

Classifying this area in FMU17A is conceptually ambiguous, because all land where rain falls represents part of a larger water catchment area.

However, for the immediate purpose of the community living adjacent to FMU17A, some compartments which may provide watershed for their gravity-water can be identified. In Sg Pinangah FR – Cpt 90-91 adjacent to Kg Entilibon Asal, and in Tangkulap FR - Cpt 22-23 near Kg Tamoi/Kenang Kenangan.

Kg Karamuak get their good quality water from Gunung Tingkar FR. Additionally, this HCV overlaps with HCV 1.1(c) – land above 25° slope.

3.4.2 Forests critical to erosion control.

Logically, this element applies primarily to areas where widespread forest harvesting operations will have significant adverse impacts downstream. Overlaps with elements 1.1 (c), 3.2 and 4.1 and above.

3.4.3 Natural barriers to destructive fire.

This include all forest edges that are adjacent to human settlement and plantations, and also major roads that criss-crosses through this FMU. With this definition, all compartments bordering with villages and plantation estates may function as natural fire barrier, whilst all major roads such as Maxland Road, Tangkulap-Deramakot Road, Waja Kaya Road, Bountiful Return Road, Borneo Glow Road as artificial fire barriers.

3.5 HCV 5

Description: Forests areas fundamental to meeting the basic needs of local communities (e.g. subsistence, health).

As in element 4.1, the watershed areas of Cpt 90-91 adjacent to Kg Entilibon Asal and Cpt 22-23 near Kg Tamoi/Kenang Kenangan are important to provide the riverine communities with a good quality water.

3.6 HCV 6

Description: Forests areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

As so far, no important cultural sites were identified inside FMU17A. However, there are some caves with burial sites located along Sg Millian river but outside the boundary of this FMU.

Table 1: Summary of HCV in FMU17A and the mitigation measures.

Value	Element	Definition	Location / Remarks	Measures to maintain HCVs.
1 Biodiversity	1.1 Protected Areas	(a) Protection Forest Reserve	❖ NIL in FMU17A.	NIL
		(b) Virgin Jungle Reserve	❖ VJR Timbah (292ha)	Forest Protection (boundary patrol, etc.).
		(c) Land above 25° slope as required for all forest land under SFMLAs ¹	❖ 7,960ha at the north-western part of Sg Pinangah FR, between Sg karamuak and Sg Tangkulap Besar.	Enrichment planting and silviculture tending.
		(d) Land within 30 metres of both sides of all permanent rivers and streams as required for all forest land under SFMLAs	❖ 2 major rivers, Sg Karamuak and Sg Tangkulap Besar and their major tributaries.	No logging activities within the 30 m zone.
		(e) Land classified under Stratum 1 and 2.	❖ Stratum 1 (234 ha) and ❖ Stratum 2 (3,510 ha).	No logging at all in Stratum 1 (future seed source), but for Stratum 2, forest harvesting should strictly follow RIL Techniques. Forest rehabilitation and silviculture are necessary.
"	1.2 .1 Threatened & endangered species (large mammals)	(a) Bornean Orang-utan	❖ Area below 200m a.s.l.	Timber production with RIL methods, and/or rehabilitation where appropriate
		(b) Asian Elephant	❖ Area below 200m a.s.l.	None, as elephants can utilise any forest condition

		(c) Banteng (wild cattle)	❖ Area below 200m a.s.l.	None, as banteng can utilise any forest condition
		(d) Natural mineral sources (salt licks, kaolin clay) : mark a zone of about 5 hectares around all known locations	❖ Area below 200m a.s.l.	No logging activities within the 5 ha area.
"	1.2.2 Threatened & endangered species (plants)	The entire FMU17A area, which consists mainly of lowland mixed-dipterocarp forest.	❖ Not significant.	Timber production with RIL methods, and/or rehabilitation/silviculture where appropriate.
"	1.3 Endemic species	Species confined to FMU17A.	❖ None known in FMU17A, but future study may reveal such species.	Case-by-case
"	1.4 Critical temporal concentrations	Assumed not applicable in FMU17A.	❖ None known in FMU17A.	Case-by-case
2 Large landscape forests	2 Extensive undisturbed forests	Any contiguous area of forest more than 20,000 ha in extent which is either known to have never been logged and/or is predominantly Stratum I.	❖ There is no large landscape level in FMU17A that can be categorized into this HCV.	NIL
3 Rare, threatened & endangered ecosystems	3.1 Previously widespread forest type which has been significantly depleted by conversion and unsustainable	Forests below 200 metres above sea level	❖ All forest area below 200m in this FMU fit to be classified into this HCV.	All forest harvesting must comply to RIL Procedure. Forest Rehabilitation need to be carried out where appropriate using timber species formally existed there. Silvicultural tending throughout the FMU is very necessary to enable regeneration and/or growth of Potential Crop Trees.

	harvesting			
"	3.2 Localised forest types	Heath forest, forest on ultramafic soils, forest on freshwater swamps, etc.	<ul style="list-style-type: none"> ❖ Kerapah Forest (1,128 ha), ❖ Lowland Ultramafic Forest (5,896 ha), ❖ Lowland Ultramafic Forest-Alluvial (819 ha), ❖ Upland Ultramafic Forest (6,574 ha) ❖ Lower Montane Ultramafic Forest (114 ha) ❖ Lowland Seasonal Freshwater Swamp Forest (149 ha) 	Case-by-case
4 Environmental services	4.1 Water catchments	Areas identified by law or forest licence-agreements or comprehensive harvesting plans as "important water catchments", plus all land above 25° slope.	<ul style="list-style-type: none"> ❖ Sg Pinangah FR – Cpt 91 adjacent to Kg Entilibon Asal, and ❖ Tangkulap FR - Cpt 22 near Kg Tamoi/Kenang Kenangan. ❖ Additionally, this HCV overlaps with HCV 1.1(c) – land above 25° slope. 	No logging and no roads except existing roads where no reasonable alternative route is possible
"	4.2 Soil erosion control	Areas identified by law or forest licence-agreements (if any) as with high erosion risk, plus all land above 25° slope, plus other specific areas where strict control of land use is necessary to minimise soil erosion	<ul style="list-style-type: none"> ❖ Overlaps with elements 1.1 (c), 3.2 and 4.1 and above. 	No logging or low intensity of harvesting following RIL methods
"	4.3 Fire barriers	Areas where there is believed to be a high risk of fire spreading during dry periods	<ul style="list-style-type: none"> ❖ All compartments bordering with villages and plantation estates. ❖ Roads such as Maxland Road, Tangkulap-Deramakot Road, Waja Kaya Road, Bountiful Return Road, Borneo Glow Road may function as artificial fire barrier. 	Case-by-case

5 Local people needs	5.1 Forest areas used by local people	Forest areas used by natives for legally sanctioned purposes.	<ul style="list-style-type: none"> ❖ Cpt 91 adjacent to Kg Entilibon Asal and ❖ Cpt 22 near Kg Tamoi/Kenang Kenangan 	No logging, but enrichment planting and silviculture tending are encouraged, together with the village peoples.
6 Cultural identity	6.1 Sites “critical” to cultural identity	Sites is critical when change to a forest can potentially cause an irreversible impacts to local culture.	<ul style="list-style-type: none"> ❖ As so far, no important cultural sites were identified within FMU17A. 	Case-by-case

Appendices

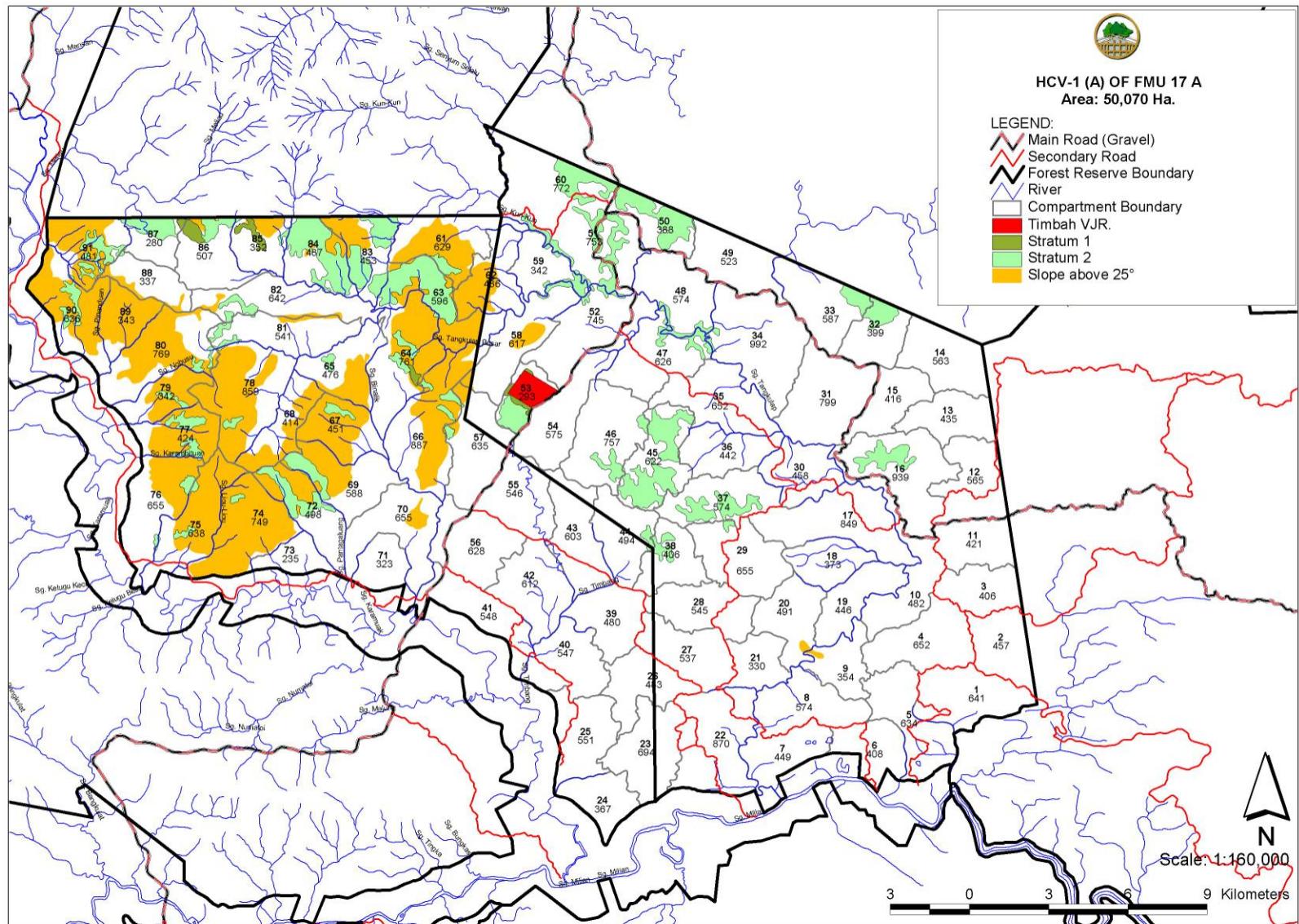
Appendix 1: Map of HCV 1 (Biodiversity)

Appendix 2: Map of HCV 3 (RTE Ecosystems)

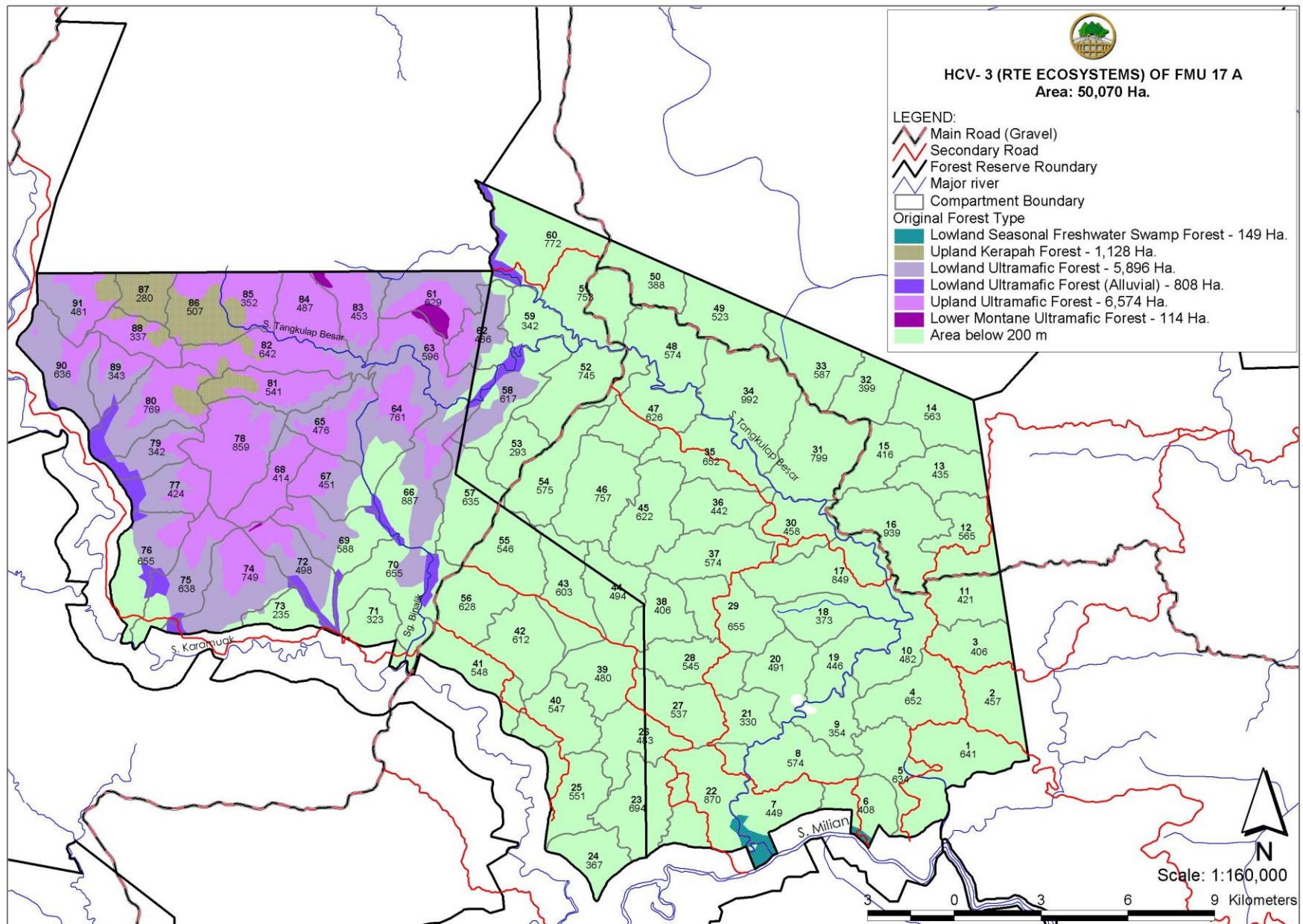
Appendix 3: Map of HCV-4-6 (Environmental and Community)

Appendix 4: Map of HCVF in FMU17A

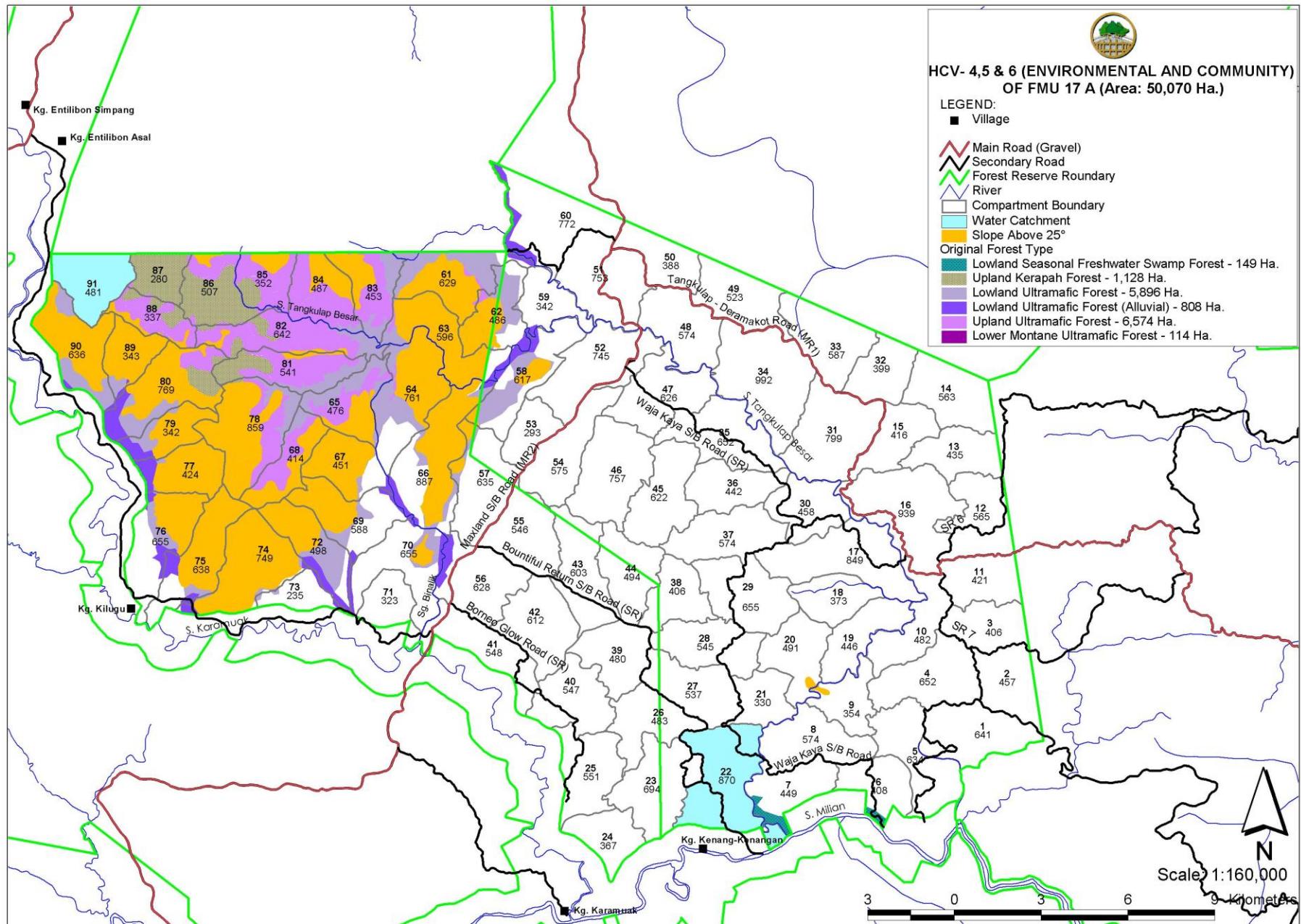
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