

The existence of High Conservation Value Forest (HCVF) in Perum Perhutani KPH Kendal to support Implementation of FSC Certification

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Abstract. High Conservation Value Forest (HCVF) is the identification of High Conservation Values that are important and need to be protected. Under FSC certification mechanism, HCVF becomes one of Principles and Criteria to attain certification. In this study, we identify the existence of HCVF in Perum Perhutani KPH Kendal to support implementation process of FSC certification. Qualitative method was conducted through observation and secondary data from Perum Perhutani KPH Kendal. Data analysis showed through ecolabel certification, Perum Perhutani KPH Kendal has been identified HCVF area covering 2,715.5 hectares consists of HCV 1 until 6. Secondary Natural Forest (HAS) Subah and Kaliwungu for Ulo lanang and Pagerwungung Nature Reserve buffer zone include as HCV 1.1, conservation area of leopard (*Panthera pardus melas*) and Pangolin (*Manis javanica*) for HCV 1.2, conservation area of lutung (*Trachypithecus auratus*) as endemic species for CITES App I and Critically Endangered species include as HCV 1.3, Goa kiskendo for bats species habitat include as HCV 1.4, regions of interest species for Deer (*Cervus timorensis*) and Kepodang (*Oriolus chinensis*) as HCV 2.3, Germplasm Protection Region/ KPPN area with high biodiversity include as HCV 3, river border area and water springs for HCV 4. While, utilization of firewood, grass for cattle fodder include as HCV 5 and 14 cultural sites include as HCV 6. From monitoring and evaluation of HCVF data, showed that in 2011-2015 the level of diversity for flora and fauna were increased.

1 Background

Indonesia's forests are the third largest tropical forest in the world after Brazil and Congo covering forest area of 1,860,359.67 km² and second ranks for biodiversity after Brazil. Sustainable forest management in tropical countries using mandatory command and control approaches are seen as unsuccessful project by green consumers, proving that the environment of tropical forests is getting decrease, including forest in Indonesia. Forest degradation in Indonesia has occurred with a very large scale area. According to the analysis of Forest Watch Indonesia in 2011, rate of deforestation in Indonesia during these three periods decreased due to the depletion of Indonesia's forest area of 1.8 million ha / year within the period of 1985-1997, about 2.84 million ha / year in the period of 1997-2000 and approximately 1.51 million ha / year during 2000-2009 [1].

Perum Perhutani as a state owned company that manage forest products area in Java and Madura Island, take a responsibility to create a sustainable forest. Ecolabel certification is a forest management instrument with the aim to maintain the sustainability of forest resources and their functions. The implementation of ecolabel certification in Perum Perhutani KPH Kendal

uses Forest Stewardship Council (FSC) scheme. This study aims to determine the existence of High Conservation Value Forest (HCVF) in Perum Perhutani KPH Kendal and management forms undertaken to maintain environmental protection. HCVF is an area that has one or more High Conservation Values (HCVs). HCV is something that has high conservation value at the local, regional or global level that includes ecological values, environmental, social and cultural values [2].

2 Research method

This research was conducted at Perum Perhutani KPH Kendal, Regional Division of Central Java. Overall research method used qualitative method. Data collection was obtained through field observation and literature review analysis using Perum Perhutani KPH Kendal documents. Data analysis was conducted using descriptive qualitative method.

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3 Result and discussion

3.1 HCVF (High Conservation Value Forest) Identification result

HCVF was introduced by FSC in 1999 based on FSC principle number 9. The concept of HCVF is intended to identify the existence of high conservation values existing in an area (forest) and the establishment of its management and monitoring plan to maintain and / or enhance the conservation value.

HCVF is an area that has one or more High Conservation Values (HCV). HCV is something that has high conservation value at the local, regional or global level that includes ecological values, environmental, social and cultural services. In the HCVF concept, high conservation values (HCV) classified into six HCV values. Forest areas could be classified to be of high conservation value if they possess one or more of the following characteristics [2]:

HCV1: Forest areas that has a globally, regionally and locally important concentrations of biodiversity values (e.g. endemic species, endangered species, refugia).

HCV2: Forest areas that has locally important in global, regional and local landscape area, within or with a management unit, in which most species populations, or all species naturally present in the region, in distribution patterns and natural abundance.

HCV3: Forest areas within or rare, threatened or endangered ecosystems.

HCV4: Forest areas that act as natural regulators in critical situations (e.g. watershed protection, erosion control).

HCV5: Forest areas that is importance to meet the basic needs of local communities (e.g. fulfillment of basic needs, health).

HCV6: Forest areas that are critical to the traditional cultural identity of local communities (important cultural, ecological, economic, religious areas identified with local communities).

According to the HCV identification in Kendal forest area of 2,715.5 Ha consist of HCV 1, HCV 2, HCV 3, HCV 4, HCV 5 and HCV 6.

3.1.1 HCV 1

HCV 1.1 In the form of Secondary Natural Forest (HAS) Subah (Bufferzone CA Ulolanang) of 362.9 ha and Kaliwungu HAS (bufferzone CA Pagerwunung) covering 254.4 Ha.

HCV 1.2 is leopard (*Phantera pardus melas*) and Pangolin (*Manis javanica*).

HCV 1.3 in the form of Germ Plasm Protected Area compartment 9 RPH Besokor area of 70.6 ha which is the habitat of leopard (*Panthera pardus melas*) habitat and HAS Subah area of 362.9 Ha as Lutung habitat (*Trachypithecus Auratus*)

HCV 1.4 in the form of Kiskendo Cave of 6.5 Ha as the habitat of temporary animals (bats).

3.1.2 HCV 2

HCV 2 identified in KPH Kendal known as HAS Kaliwungu area of 254.4 Ha, HAS Curam area of 405.2 Ha and compartment 9 RPH Besokor (KPPN) of 70.6 Ha. This area is habitat for interest species like Leopard, Kepodang and Deer.

3.1.3 HCV 3

HCV 3 is a high diversity area located in Kendal KPH, compartment 9 (KPPN) of 70.6 Ha, compartment 44 of 49.5 Ha, compartment 61a of 57,2 Ha and compartment 39 f of 12 Ha at BKPH Sojomerto.

3.1.4 HCV 4

HCV 4.1 in KPH Kendal identified as springs, located in 13 sites covering 6.1 Ha and River border area of 1.443, 4 Ha. Another HCV 4.2 is identified as Steep Secondary Natural Forest area of 405.2 Ha scattered in the forest area of KPH Kendal.

Table 1. HCVF areas in Perum Perhutani KPH Kendal

No	HCV Target	HCV Category	Information
1	HAS (Secondary Natural Forest) Subah	1.1 ; 1.3	Bufferzone Cagar Alam Ulo lanang; Lutung (<i>Trachypithecus Auratus</i>) Habitat
2	HAS Kaliwungu	1.1 ; 2.3	Bufferzone Cagar Alam Pagerwunung; Deer Habitat
3	Compartment 98 (KPPN)	1.3; 2.3; 3	Leopard (<i>Panthera pardus melas</i>) habitat; RTE Ecosystem
4	Copartment 44a	3; 4.2	RTE Ecosystem; steep area
5	HAS Curam (Steep)	2.3; 4.2	Kepodang habitat; erosion control area,
6	Compartment 61a (Curug sewu)	1.3; 3; 4.2	Lutung & Kepodang habitat; RTE Ecosystem; Steep area
7	Compartment 39	2.3; 3; 4.2	Kepodang habitat; RTE Ecosystem; Steep area
8	Compartment 67j (Kiskendo cave)	1.4; 2.3; 4.2	Bats & Kepodang habitat, HAS Curam (Steep)
9	Spring (13 location)	4.1; 5	Clean water resources
10	Riparian zone	4.2	Water reservoir
11	Agro forestry location, Livestock forage, Tree branch (rencek)	5	Food resources
12	Cultural sites (14 location)	6	Tomb cultural sites

Source: Monitoring and Evaluation of HCVF Document in KPH Kendal 2015

3.1.5 HCV 5

HCV 5 is related with the fulfillment of basic human needs. Some of these activities, contributed by Perum Perhutani KPH Kendal to fulfill the basic needs such as intercropping system, utilization of firewood by the community from the forest, the fulfillment of forage needs and the source of clean water from the spring.

3.1.6 HCV 6

Perum Perhutani KPH Kendal identified 14 cultural sites which used by the community for the fulfillment of religious and cultural needs. Cultural sites located in KPH Kendal such as cultural tombs. These cultural sites usually used by local communities and outside areas to perform rituals such as alms earth, religious tourism, certain rituals (ascetic).

Detail identification of HCVF areas can be seen in the Table 1.

3.2 Management of HCVF areas

In order to maintain and enhance the existence and function of HCV Areas, Perum Perhutani KPH Kendal undertakes some management such as:

- Maintenance of HCVF boundary.

- Counseling /socialization of illegal activities on HCVF areas

Counseling of illegal activities on HCVF areas in KPH Kendal such as illegal cutting prohibition, illegal forest fire prohibiton, wildlife hunting prohibition and wild cultivation and HCVF areas management to the stakeholders and communities who lives near forest areas.



Fig. 1. Socialization activities on HCV areas

- Collaborative management (joint patrol) with BKSDA Central Java especially in HCVF area near Nature Reserve location.

- Prohibition and information boards establishment on HCVF protection at strategic HCVF locations.



Fig. 2. Information boards near HCVF areas

-Maintenance of cultural sites

Perum Perhutani KPH Kendal has conducted maintenance in some cultural sites such as road improvement to site, information board establishment.

-Enrichment program conducted in protection areas in order to increase the diversity of vegetation by using local species. Enrichment is carried out in the area of Local Protection (KPS) and Secondary Natural Forest (HAS) which is in open area condition (open plek).

Table 2. Enrichment program in protected area

No	Year	Total Area	Species
1.	2011	124.9 ha	Rbc
2.	2012	69.8 ha	Kepuh, Trengguli, Salam, Beringin, Johar, Duwet, Bendo, Wungu
3.	2013	360.8 ha	Kepuh, Trengguli, Salam, Beringin, Johar, Bambu, Duwet, Bendo, Wungu
4.	2014	105.8 ha	Kepuh, Trengguli, Salam, Beringin, Johar, Bambu, Duwet, Bendo, Wungu
5.	2015	130.6 ha	Kepuh, Trengguli, Salam, Beringin, Johar, Bambu, Duwet, Bendo, Wungu

Source: Annually planning Document in KPH Kendal 2011-2015

3.3 HCV conditions

3.3.1 Diversity of Flora in HAS Subah, HAS Kaliwungu and HAS Curam, Local Protection (KPS) (HCV 1.1 ; 1.3 ; 2.3 ; 4.2)

Table 3. Diversity of vegetation

No	Parameter	HAS (Secondary Natural Forest) Subah				
		2011	2012	2013	2014	2015
1	Aboveground vegetation	1,945	1,920	2,031	2,366	2,121
2	Seedling	1,358	1,589	1,593	2,221	2,598
3	Sapling	0,941	0,958	0,982	1,433	2,700
4	Pole	0,340	0,854	1,026	1,424	1,065
5	Tree	0,216	0,941	0,998	1,195	1,337

No	Parameter	HAS (Secondary Natural Forest) Kaliwungu				
		2011	2012	2013	2014	2015
1	Aboveground vegetation	3,003	2,351	2,688	2,664	2,818
2	Seedling	1,826	2,011	2,183	2,480	2,578
3	Sapling	2,389	2,385	2,402	2,373	2,461
4	Pole	0,000	0,566	0,637	1,303	1,695
5	Tree	0,142	0,189	0,247	0,266	0,337

No	Parameter	steep > 40% (HAS Curam, Pt 9, Pt 61, pt 67j, pt.39f, pt 44)				
		2011	2012	2013	2014	2015
1	Aboveground vegetation	2,206	2,596	2,662	2,288	2,288
2	Seedling	3,584	3,215	3,429	3,446	3,492
3	Sapling	3,213	3,244	3,245	3,129	3,052
4	Pole	2,197	2,238	2,319	2,441	2,466
5	Tree	2,396	2,432	2,436	2,467	2,472

No	Parameter	Riparian zone				
		2011	2012	2013	2014	2015
1	Aboveground vegetation	2,796	3,023	2,570	2,788	2,788
2	Seedling	2,795	2,820	2,068	2,456	2,490
3	Sapling	2,384	2,539	2,560	2,533	2,084
4	Pole	2,341	2,447	1,647	2,374	2,383
5	Tree	1,663	1,735	1,737	1,450	1,460

Source : Monitoring and Evaluation of Biodiversity Document in KPH Kendal 2016

3.3.2 Biodiversity of fauna in HAS Subah, HAS Kaliwungu and HAS Curam, Local Protection (KPS) (HCV 1.1 ; 1.3 ; 1.4 ; 2.3 ; 4.2)

Table 4. Diversity of fauna

No	Tahun	HAS Subah			HAS Kaliwungu		
		aves	mamalia	herpet	aves	mamalia	herpet
1	2011	2.300	0.000	0.598	3.150	1.369	1.630
2	2012	2.490	0.000	1.471	3.118	2.480	1.427
3	2013	2.604	0.000	1.101	3.122	2.533	1.810
4	2014	2.920	0.474	1.600	3.507	1.593	1.992
5	2015	2.675	1.265	1.838	3.002	1.110	2.041

No	Tahun	steep > 40% (HAS Curam, Pt 9, Pt 61, pt 67j, pt.39f, pt 44)			riparian zone		
		aves	mamalia	herpet	aves	mamalia	herpet
1	2011	3,142	1,504	2,332	3,093	1,310	1,346
2	2012	3,143	1,721	2,572	3,126	1,740	1,555
3	2013	3,452	1,811	2,575	2,922	1,659	1,824
4	2014	3,060	2,335	2,579	2,813	1,659	1,763
5	2015	2,864	2,074	2,530	2,642	1,647	1,195

Source : Monitoring and Evaluation of Biodiversity Document in KPH Kendal 2016

In areas which identified as HCV 1 to 4 above, HCV with good conditions are characterized by the increasing levels of different types of flora and fauna in some of these areas.

3.3.3 Springs debit (HCV 4.1 ; 5)

Table 5. Springs debit data

No	Spring name	debit (m ³ /second)				
		2011	2012	2013	2014	2015
1	Cokro tulung	0,00025	0,00009	0,0001	0,0005	0,0003
2	Kali alang	0,00046	0,0005	0,003	0,09	0,003
3	Kuthung muno	0,00022	0,0002	0,004	0,02	0,01
4	Tuk cabe	0,00002	0,00004	0,0004	0,0004	0,0001
5	Tuk kalibathang	0,00012	0,08	0,07	0,006	0,0002
6	Tuk pancuran	0,0016	0,003	0,008	0,0002	0,0001
7	Ngasinan	0,004	0,005	0,0005	0,002	0,004
8	Petak (compartment) 27 a	0,00058	0,004	0,003	0,009	0,0009
9	petak 56 a	0,00023	0,0003	0,001	0,0001	0,0003
10	Sekenyes	0,00023	0,0002	0,001	0,004	0,0004
11	Tuk dandang	0,00014	4,9	0,007	0,0005	0,004
12	Tuk tumpang	0,0000033	0,00002	0,0006	0,001	0,002
13	Si rendeng	0,000018	0,0001	0,005	0,004	0,02

Source: Monitoring and Evaluation of HCVF Document in KPH Kendal 2015

3.3.4 Tumpangsari (agroforestry), forage animal feed (HMT) and Rencek/ branches (HCV 5)

From monitoring and evaluation result of HCVF KPH Kendal in 2015, showed that the community near forest can fulfill their life needs from intercropping, forage animal feed (HMT) and reneck. Annual data shows an increasing income, which can be seen in the following table:

Table 6. Data of Income from Tumpangsari (agroforestry)

Year	Comodity					
	Rice		Com		Others	
	Total (TON)	Price (X1000)	Total (TON)	Price (X1000)	Total (TON)	Price (X1000)
2011	90,3	270.900	3.475	6.950.256	152	5.390.543
2012	132	396.000	3.357	7.384.647	569	3.368.059
2013	44	202.200	2.434	6.298.138	169	7.384.866
2014	81	328.850	784	7.329.509	584	785.255
2015	-	304.500	2.926	8.341.475	1.155	8.687.820
2016	53	157.500	2.788	8.687.820	645	2.597.091

Source : Annual report of social management in 2011-2016

Table 7. Data of Income from branches

No	Year	Volume (bundle)	Total (IDR)
1	2011	244.477	1.222.385
2	2012	279.922	1.804.977
3	2013	87.189	828.295.500
4	2014	84.237	768.170.000
5	2015	129.681	1.695.075.000

Table 8. Data of Income from forage animal feed (HMT)

No	Year	Forage animal feed	
		Volume (bundle)	Total (IDR)
1	2011	44.671	53.604.720
2	2012	489.663	587.645.000
3	2013	60.528	565.659.875
4	2014	82.234	764.182.500
5	2015	72.848	828.311.500

Source : Annual report of social management in 2011-2016

3.3.5 Cultural sites

The cultural sites identified in the KPH Kendal are still exists and used by the community for several activities such as alms, hermits and traditions of local communities known as khoul activities at the Mbah Demang Sulang site compartment 105e, Ds. Kutosari Kec. Gringsing, Batang regency, the path to the onion bone site has been done. This shows that the cultural sites managed by KPH Kendal are still used by the community.

4 Conclusions and suggestions

4.1 Conclusions

1. HCVF areas were identified in Perum Perhutani KPH Kendal are HCV 1.1 for HAS Subah and HAS Kaliwungu as bufferzone of Ulolanang and Pagerwunung Nature Reserves, HCV 1.2 is leopard (*Panthera pardus melas*) and Pangolin (*Manis javanica*). HCV 1.3 for HAS Subah, pt 9 KPPN RPH Besokor, Pt 61a as lutung (*Trachypithecus auratus*) habitat and Pt 9 KPPN RPH Besokor as Macan tutul (*Panthera pardus*) habitat and HCV 1.4 for Kiskendo cave as temporary habitat for some animals. HCV 2 for HAS Kaliwungu, HAS Curam (steep) Pt 9 RPH Besokor (KPPN) as spesies intereset habitat

(Macan Tutul, Kepodang and Rusa), HCV 3 for Pt 9 (KPPN), Pt 44, Pt 61a and Pt 39 f with total area of 12 Ha BKPH Sojomerto, HCV 4 for springs in 13 locations, Local protected area (KPS) and HAS Curam (steep) which spread in the forest area of KPH Kendal, HCV 5 for tumpangsari (agroforestry), forage animal feed (HMT) and rencek/branches for firewood and HCV 6 for cultural sites which identified about 14 sites.

2. HCV area management activities conducted by Perum Perhutani KPH Kendal showed that the management could maintain and even improve the function and condition of HCVF area.

4.2 SUGGESTIONS

1. Maintaining and controlling the existence of HCVF area of *Perum Perhutani KPH Kendal*.
2. In order to protect HCVF areas, it is necessary needed to involve the participation from community around forest area.

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