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Banten Plants and their Mapping in the Taman Gumi Banten Forest, Wanagiri Village, Sukasada-Buleleng

[1]Nyoman Wijana, [2]Sanusi Mulyadiharja, [3]I Made Oka Riawan

[1]*Department of Biology Fisheries and Marine Sciences, Faculty of Mathematics and Natural Sciences, Ganesha University of Education*
[2]*Department of Biology Fisheries and Marine Sciences, Faculty of Mathematics and Natural Sciences, Ganesha University of Education*
[3]*Department of Biology Fisheries and Marine Sciences, Faculty of Mathematics and Natural Sciences, Ganesha University of Education*

e-mail: {nyoman.wijana, sanusi.mulyadiharja, made.oka}@undiksha.ac.id

Abstract

The objectives of this study were: (1) to determine the benefits of plant species in the Taman Gumi Banten area based on local village wisdom. (2) produce maps of vegetation, general distribution of plants and offerings in their natural nature. This research is included in exploratory research. The locations of this research all took place in the forests of Taman Gumi Banten and the villages of Wanagiri, Sukasada, Buleleng. The population of this research is (a) Vegetation Mapping: the entire forest area of Taman Gumi Banten. (b) Social: The entire Wanagiri village community. Research samples: (a) Vegetation mapping: forest boundaries of Taman Gumi Banten. Social: Service Village 5 people, Traditional Village 5 people, Balian 2 people, Banten Tukang 5 people, Community Leaders 10 people, General public 50 people. Total 77 people. Sampling methods: (a) Vegetation mapping: total sampling. Social: Systematic sampling. Data collection methods: (a) Vegetation Mapping: Simple measurement technique. Useful Plants / Plants of Banten: quadratic method. Social: interviews, observations, and questionnaires. The results showed: (1) The plant species that make up the ecosystem in Taman Gumi Banten, Wanagiri Village consist of 67 species. The composition of the species of offerings in the forest of Taman Gumi Banten, Wanagiri village, consists of 25 species of plants that can be used as for making traditional offerings. Of the 25 species of banten plants, the body parts or plant organs used were 1 species (4.35%) of roots, 3 species of stems (13.04%), 9 species of leaves (39.13%), 4 species (17.39%), fruit as many as 8 species (34.78%), and 1 species used tuber parts (4.35%). Thus, the most widely used parts of the existing plants in the Gumi Banten forest to be used as infrastructure for offering materials are the leaves and fruits. (2) General plant vegetation map and Banten plant map have been produced.

Keywords: Banten Plants, Vegetation Maps, Useful Plants, Taman Gumi Banten, Wanagiri Village

INTRODUCTION

The results of research conducted by Wijana and Setiawan (2017 and 2018a) have produced a map of the distribution of rare plant species in the Monkey Forest, Penglipuran, and Alas Kedaton Tourism Forests. The results of the second year research show that the conservation pattern based on local wisdom is oriented towards awig-awig, myth, religion, tenget (haunted), tonya (resident creatures), and the awareness of the local community. The results of research conducted by Wijana and Setiawan (2018b) on body symbol plants show that traditionally the Tenganan Pegringsingan village does not use body symbol plants in the pengabenan ceremony (corpse cremation ceremony). Research conducted in 2019 has produced a map of the distribution of useful plant species in Kangin Hill, Tenganan Pegringsingan village. Utilization of plant species in this village does not affect the destruction of customary forests in the village, customary forests

are still sustainable. Heyne (1987) states that plants in general can be used for clothing, food, shelter, medicine, household, and religious purposes. Useful plants in the forest of Tenganan Pegringsingan village are not only useful in terms of economic value, but also from a cultural, social and religious perspective. From the results of this study, in the future, it is very interesting to make a new tourist attraction concerning the types of useful plants based on the socio-culture of the village of Tenganan Pegringsingan.

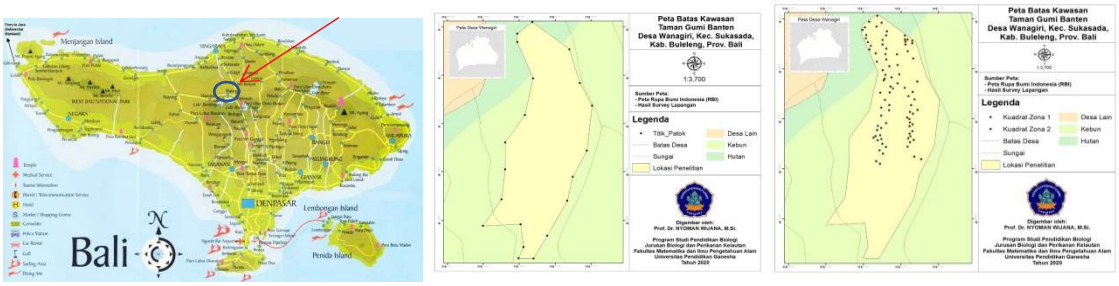
Based on the Decree of the Governor of Bali No. 2017/03-L / HK / 2005 dated 30 October 2015 Wanagiri village was granted Village Forest Management Rights (HPHD). With reference to the Governor's Decree, Wanagiri village manages a forest area of 250 ha. On the other hand, based on the Decree of the Buleleng Regent Number 430/405 / HK / 2017, concerning the Tourism Village in Buleleng Regency, Wanagiri Village was designated as a tourist village. By using these two decrees, Wanagiri village then designed a program to utilize the forest as supporting tourism objects. One of the forest areas in Wanagiri village, designed to be used as a tourist attraction for a collection of ceremonial plants, is called Taman Gumi Banten. By using data from research results related to the use of the environment as a tourism object, many environments have experienced degradation and degradation of environmental quality. Based on this, in order to avoid undesirable environmental conditions, especially forest ecosystems, it is deemed necessary to conduct research in the aspects of mapping useful plant vegetation, ecological studies, ethnobotany in the composition of useful plant species, utilization and products, and conservation. Environment (Wijana and Sanusi, 2020).

Some of the research results that the author has done, and used as a basic reference for developing research in the Taman Gumi Banten forest are Wijana and Setiawan (2017a, b, c; 2018; 2019a, b; 2020); Wijana and Rahmawati (2020); Wijana, et al, (2020); Wijana et al, (2020); Wijana et al, (2020). The results of this latest research are in the form of mapping, specific plant species such as rare plants, medicinal plants, body symbol plants, useful plants and others.

Based on the results of the research conducted above and the Governor's Decree and the Regent's Decree, an analogous study was carried out in Taman Gumi Banten, Wanagiri village, Sukasada, Buleleng. This is related to the useful plants in Taman Gumi Banten, which are currently being designed to be developed into alternative tourist objects. In order for the "contents" of the forest in Taman Gumi Banten to be scientifically recorded and can be accounted for, this research is needed. In order to avoid negative impacts on the existing ecosystem, because it is used as a tourist attraction, it is deemed necessary to further study the existing local wisdom, to be used as a reference in environmental management. Environmental components that also need to be studied are the mapping of vegetation from plant species that exist in their native nature, and banten plants which are often used by Balinese people in general and the community of Wanagiri village in particular. The banten plant species is a plant species used as a material for making offerings which are traditionally used by Balinese Hindus. The objectives of this study were: (1) to determine the benefits of plant species in the Taman Gumi Banten area based on local village wisdom. (2) to produce vegetation maps, general distribution of plants and offerings in their natural nature.

RESEARCH METHODS

This research includes exploratory research (mapping and ecological studies), descriptive (ethnobotany), and development research (encyclopedia preparation). The location of this research all took place in Taman Gumi Banten, Wanagiri village, Sukasada, Buleleng.



A B C

Figure 1.1. Sampling Location for Taman Gumi Banten. A. Map of Bali Island. B. Location Map of the Taman Gumi Banten Forest. C. Laying the Squares in the Field (Source: Wijana, 2016, Wijana and Sanusi, 2020)

For the population, samples, sampling techniques, and data collection methods are presented in Table 1.1

Table 1.1. Parameters, Population, Sample, and Research Methods

NO	RESEARCH PARAMETERS	POPULATION	SAMPLE	SAMPLING TECHNIQUES	METHOD OF COLLECTING DATA	INFORMATION
1	Vegetation Mapping	The entire forest area of Taman Gumi Banten	The boundaries of the Taman Gumi Banten area	Total Sampling (boundaries)	Simple measurement technique refers to Soenaryanto (1976) on the note of simple mapping maps and boundary layout)	The boundaries of the area are referenced from the forestry service and local communities
2	Ecological	Study of all plant species in Taman Gumi Banten	All plant species are covered by square	Systematic sampling	Quadratic method as proposed by Barbour et al, (1987); Mueller-Dombois & Ellenberg (1974); Cox (1976) and Ludwig and Reynold (1988).	Squared size 10x10m, 5x5m, 1x1m with a total of 100 squares each or according to field conditions

3	Ethnobotany/Social.	The entire Wanagiri village community	Service Village 5 people, Traditional Village 5 people, Balian 2 people, Tukang Banten 5 people, Community leaders 10 people, the general public 50 people. Total 77 people	Random sampling	Interviews, Observations, and Questionnaires (Best, 1980; Cotton, 1990., Albuquerque et al., 2005)	Equipped with instruments

The mapping method is carried out using a simple measurement technique referring to Soenaryanto (1976) on a simple mapping note of maps and boundary layouts. Mapping work steps.

1. Doing temporary point erection by determining the measuring point (stakes).

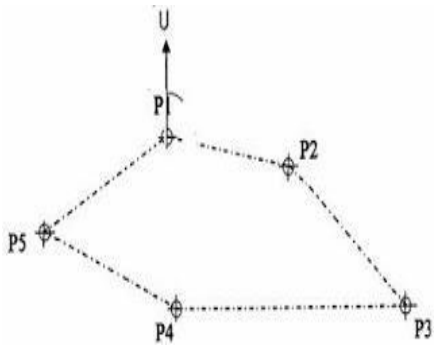


Figure 1.2. Benchmarking Point (Source: Soenaryanto, 1976)

The points made in the field must be easily found, these points are marked with wood (stakes) with a size of 15 x 15 cm2 which is planted in the ground, then the wood must be given a dot number and nailed on top. . The distance of the stake is adjusted to the location in the field.

2. Measuring the distance directly through the distance between wooden stakes using a length measuring device equipped with lines along with the number of meters. When doing distance measurement, the tool is placed horizontally so that the distance is measured accurately.
3. Calculating the difference in ground level with helling at each distance between wooden pegs.
4. Perform simple definitive measurements using the compass polygon method of the shove system according to Teten, et al. (1999).
   a. Measurement of angles or azimuths is carried out on each wooden stake that has been placed at the location points to form a closed polygon
   b. Calculating the coordinates of the compass polygon point by knowing the coordinates of the starting and ending points, then determining the geographic azimuth. The

scattering of plant species is useful to be carried out by the exploratory method by collecting plant species data by using the Global Positioning System (GPS) to determine the location of the plants presented in the useful plant distribution map.

Observation of useful plant species in Taman Gumi Banten, using the quadratic method with a systematic sampling technique. The collected data is entered into a work table. From these data, the number of individual species and plant dominance is the main important data, to be used in the analysis of ecological studies (species composition). Data were analyzed statistically by ecology (Mueller-Dombois & Ellenberg (1978), Barbour et al, (1987), Cox (1978), Wijana (2014). Albuquerque et al (2015), Catton (1997), Ludwi and Reynolds (1988). Squares are placed in the field as shown in Figure 1.3

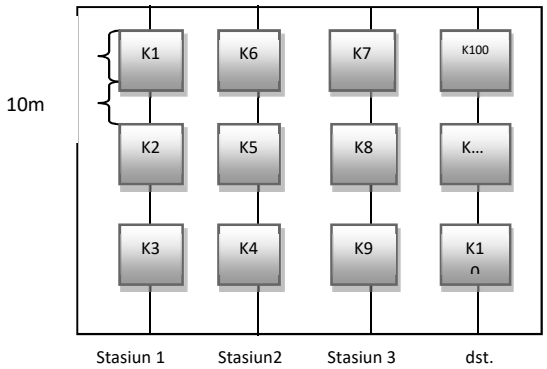


Figure 1.3. Laying Scheme of Squares in the Field (For details, see Fig
(Source: Wijana, 2018)

RESULT AND DISCUSSION

Composition of Plant Species

It should be stated that the study area is divided into 2 zones, namely zone I and zone II. The number of squares in zone I is 36 squared, while in zone II the squares are stretched as much as 50 squares. Zone I is in the eastern part of the forest area of Taman Gumi Banten, while zone II is in the western part. The difference in the number of squares stretched in each zone is based on the field position of the study area, which is not shaped like a rectangle, but is oval in shape (see Figure 1.1). With a different number of squares in each zone, temporarily the divider of each zone in finding the density will be different. For example, for zone I, in finding the density of plant species belonging to the tree category, the divider of the number of individuals is 20x20x36 = 14,400 m2 and for zone II the divider is 20x20x50 = 20,000 m2. If you look for the entire study area, the divider is 20x20x86 = 34,400 m2. Likewise for plant species that are included in the sapling and seedling categories. In this presentation, the composition of species in Zone I and II with habitus tree, sapling, and seedling is presented. Table 1.2.

Table 1.2. General Plant Species in Zone I and II in the Taman Gumi Banten Forest Area: 20 x 20, 10 x 10. 1 x 1

No	Family	Scientific Name	Local name	No	Family	Scientific Name	Local name
1	Ulmaceae	*Trema orientalis*	Lenggung	35	Myristicaceae	*Krema laurina wrab*	Kayu Jeleme

2	Fabaceae	*Erythrina variegata L*	Kayu Sakti	36			Badung
3	Asteraceae	*Blumea balsamifera*	Sembung	37	Oxalidaceae	*Averrhoa carambola*	Belimbing
4	Euphorbiaceae	*Homolanthus giganteus*	Belantih	38	Lauraceae	*Persea americana*	Alpukat
5	Meliaceae	*Dysoxylum densiflorum*	Majegau	39	Myrtaceae	*Syzygium aromaticum*	Cengkeh
6	Lauraceae	*Eusideroxylon zwageri*	Kayu Besi	40	Rubiales	*Coffea arabica*	Kopi Arabika
7	Moraceae	*Artocarpus heterophyllus*	Nangka	41	Rubiales	*Coffea canephora*	Kopi Robusta
8	Meliaceae	*Toona sureni*	Suren	42	Solanaceae	*Capsicum frutescens*	Cabai
9	Lauraceae	*Cinnamomum verum*	Kayu Manis	43	Bombacaceae	*Durio zibethinus*	Durian
10	Malvaceae	*Hibiscus* sp.	Lemasih	44	Clusiaceae	*Garcinia mangostana*	Manggis
11	Malvaceae	*Aquilaria malaccensis*	Gaharu	45	Euphorbiaceae	*Codiaeum variegatum*	Talas / Keladi
12	Meliaceae	*Swietenia mahagoni*	Mahoni	46	Arecaceae	*Calamus caesius*	Penyalin
13	Moraceae	*Ficus rasemosa*	Ae	47	Arecaceae	*Salacca edulis*	Salak
14	Myrtaceae	*Eugenia operculata*	Kayu Batu	48	Symplocaceae	*Symplocos thelfolia*	Pamor
15	Euphorbiaceae	*Bischofia javanica*	Gintungan	49	Euphorbiaceae	*Baccaurea racemosa*	Kepundung
16	Myrtaceae	*Eugenia densiflora*	Kaliampuak	50	Moraceae	*Ficus carica*	Ara
17	Actinidiaceae	Savravia nudifora	Yeh-yeh	51	Apocynaceae	*Alstonia Scholaris*	Pule
18	Lecythidaceae	*Planchonia valida*	Kutat	52	Myrtaceae	*Syzygium polyanthum*	Janggar Ulam
19	Asteraceae	*Chromolaena odorata*	Kirinyuh	53	Anacardiaceae	*Toxicodendron vernicifluum*	Laka
20	Urticaceae	*Dendrocnide stimulasns*	Lateng Kidang	54	Combretaceae	*Terminalia sumatrana* Miq.	Kayu Kunyit
21	Fabaceae	*Spatholobus littoralis hassk*	Bajakah	55	Liliaceae	*Cordyline frucitosa*	Andong Hijau
22	Moraceae	*Ficus glabela*	Bunut	56	Liliaceae	*Cordyline terminalis*	Andong Merah
23	Streculiaceae	*Pterospermum javanicum*	Bayur	57	Zingiberaceae	*Etlingera elatior*	Bongkot

24	Lauraceae	*Litsea velutina*	Udu	58	Myrtaceae	*Syzygium cumini*	Juwet
25	Magnoliaceae	*Michelia alba*	Cempaka Putih	59	Anacardiaceae	*Mangifera indica*	Mangga
26	Flacourtiaceae	*Pangium edule*	Tangi	60	Myrsinaceae	*Ardisia elliptica*	Lampeni
27	Moraceae	*Ficus rumphii*	Kresek	61	Solanaceae	*Solanum quitoebse*	Terong Bangkung
28	Moraceae	*Artocarpus elastica*	Taep	62	Dennstaedtiaceae	*Pteridium aquilinun*	Pakis
29	Sterculiaceae	*Guazuma ulmifolia*	Jati Belanda	63	Anacardiaceae	*Solanum torvum*	Terong Pokak
30	Moraceae	*Ficus benjamina*	Beringin	64	Nymphaeaceae	*Nymphaea sp.*	Teratai Darat
31	Clusiaceae	*Gracinia celebica*	Paradah	65	Euphorbiaceae	*Codiaeum variegatum*	Puring
32	Annonaceae	*Stelechocarpus burahol*	Kepelan	66	Euphorbiaceae	*Manihot esculenta*	Singkong
33	Moraceae	*Ficus fistulosa*	Dadem	67	Arecaceae	*Cocos nucifera*	Kelapa
34	Musaceae	*Musa paradisiaca*	Pisang			**Jumlah**	**67**

The number of individual plant species in the forest of Taman Gumi Banten, for the categories of trees, sapling and seedling is presented in Table 1.2. Referring to the data presented in Table 5.2, it is presented that the number of individual plant species belonging to the tree, sapling and seedling categories for the study of the entire forest area of Taman Gumi Banten was obtained as many as 1,501 individuals. The area squared used is (20x20x86) + (10x10x86) + (1x1x86) = 43.086 m^2. So the sampling area is 43,086 m2. Based on the number of existing individuals with a certain unit area, one square meter is 0.034837302 / m2. Furthermore, counted the number of individuals in one hectare and obtained 348.373 / ha. Thus, the number of individual species in the tree, sapling, and seedling categories was 348 individuals / ha.

According to Table 5.12 above, there are 67 plant species found in the Taman Gumi Banten Tourism Forest. Furthermore, based on the number of existing individuals, a recapitulation can be made as presented in Table 1.3.

Table 1.3. Recapitulation of the number of individual species in the Taman Gumi Banten forest in units of hectares

ZONE	TREE	SAPLING	SEEDLING	TOTAL
I	110	961	49.722	383
II	82	616	80.800	345
I DAN II	85	731	65.581	348

Based on existing data, especially in Table 1.3 which is a recapitulation of the number of individuals in units of area per hectare. It appears that in zone I the number of individual plant species in the tree category is 110 individuals / ha. Based on the existing provisions, that the

minimum number of individual plant species in one hectare is 1,000 trees / Ha or according to the results of an interview with one of the officers from the Forestry Service and Environmental Service of Bali Province is 700 / Ha Based on these provisions, the forest condition, seen from the point of view of the number of individual tree categories, is in a very low condition. There are 961 trees / ha of plant species included in the sapling category. By looking at this number, the condition of the plant species included in the sapling category is in the good or very good category (961> 700). In terms of the number of individual seedling categories, in the forest of Taman Gumi Banten, 49,722 trees / ha were obtained. This is an indication that the plant species in the seedling category are in very good or very good conditions (49,722> 1000> 700).

In zone II, the number of individual plant species included in the tree category is 82 / ha. This means that the condition of the forest is very low or very less than the ideal arrangement. Furthermore, the number of individual species included in the sapling category was 616 trees / ha. This indicates that the forest condition, seen from the sapling side, is close to normal (616 <700). On the other hand, for the seedling category, the number of individuals in one hectare is 80,800 trees. This falls into the very good forest condition category.

The total number of individual species for the tree category is 85 trees / ha. This number is under existing provisions, and is categorized as very low (85 <700). The number of individual plant species included in the sapling category in the entire study area in the Taman Gumi Banten forest was 731 trees / ha. Sapling conditions from this forest are in good condition or in accordance with existing regulations (731> 700). In terms of the number of seedlings in the forest area of Taman Gumi Banten, there are as many as 65,581 / ha. In terms of seedling, forest conditions are in very good condition (65,581> 700> 1,000). To see the condition of the forest as a whole, or the condition of the forest in Taman Gumi Banten, where this research was conducted, it can be seen from the results of the analysis of the combined number of individuals, namely the number of individuals for plant species in the tree, sapling and seedling categories in zone I and zone II. Based on the combined analysis, it was found that the number of individuals was 346 / ha. Based on this number, it appears that the forest condition of Taman Gumi Banten is in the medium category (346 <700 <1,000).

Banten Plants/Traditional Ceremony

Based on the results of interviews with local villagers, the number of useful plant species in the Taman Gumi Banten Forest, Wanagiri Village is presented in Table 1.4

Table 1.4. List of Useful Plant Species in Taman Gumi Banten Forest Square area of research area: (20x20)+(10x10+(1x1)x86 m^2

NO	SPECIES		TYPE OF UTILIZATION					
			Sd	Pg	Pp	Ob	Up	In
1.	Lenggung	*Trema orientalis*			√			
2.	Kayu Sakti	*Erythrina variegata L*					√	
3.	Kayu Sembung	*Blumea balsamifera*				√		
4.	Belantih	*Homolanthus giganteus*			√			
5.	Majegau	*Dysoxylum densiflorum*					√	
6.	Kayu Besi	*Eusideroxylon zwageri*			√			
7.	Nangka	*Artocarpus heterophyllus*		√				

8.	Suren	*Toona sureni*			√			
9.	Kayu Manis	*Cinnamomum verum*				√		
10.	Lemasih							
11.	Gaharu	*Aquilaria malaccensis*					√	
12.	Mahoni	*Swietenia mahagoni*			√			
13.	Ae	*Ficus sp.*						
14.	Kayu Batu	*Eugenia operculata*			√			
15.	Gintungan	*Bischofia javanica*			√			
16.	Kaliampuak	*Eugenia densiflora*			√			
17.	Yeh-yeh							
18.	Kutat	*Planchonia valida*			√			
19.	Kirinyuh	*Chromolaena odorata*						
20.	Lateng Kidang						√	
21.	Bajakah	*Spatholobus littoralis hassk*				√		
22.	Bunut	*Ficus glabella*			√			
23.	Bayur	*Pterospermum javanicum*			√			
24.	Udu						√	
25.	Cempaka Putih	*Michelia alba*			√		√	
26.	Tangi	*Pangium edule*						
27.	Kresek							
28.	Taep	*Artocarpus elastica*			√			
29.	Jati Belanda	*Guazuma ulmifolia*			√			
30.	Beringin	*Ficus benjamina*				√	√	
31.	Paradah						√	
32.	Kepelan	*Stelechocarpus burahol*			√			
33.	Dadem	*Ficus fistulosa*						
34.	Pisang	*Musa paradisiaca*		√		√	√	
35.	Kayu Jeleme	*Krema laurina wrab*				√		
36.	Kebasih							
37.	Belimbing	*Averrhoa carambola*		√		√		
38.	Alpukat	*Persea americana*		√				
39.	Cengkeh	*Syzygium aromaticum*		√			√	√
40.	Kopi Arabika	*Coffea arabica*		√				
41.	Kopi Robusta	*Coffea canephora*		√				
42.	Cabai	*Capsicum frutescens*		√			√	
43.	Durian	*Durio zibethinus*		√	√		√	
44.	Manggis	*Garcinia mangostana*		√			√	
45.	Talas / Keladi	*Codiaeum variegatum*		√				
46.	Penyalin	*Salacca edulis*						√
47.	Salak	*Salacca edulis*		√			√	
48.	Pamor							
49.	Kepundung	*Baccaurea racemosa*		√			√	
50.	Ara	*Ficus carica*						
51.	Pule	*Alstonia Scholaris*				√		
52.	Janggar Ulam	*Syzygium polyanthum*		√				
53.	Laka	*Toxicodendron vernicifluum*						
54.	Kayu Kunyit						√	
55.	Andong Hijau	*Cordyline frucitosa*					√	
56.	Andong Merah	*Cordyline terminalis*					√	
57.	Bongkot	*Etlingera elatior*		√				
58.	Juwet	*Syzygium cumini*		√				
59.	Mangga	*Mangifera indica*		√	√		√	
60.	Lampeni	*Ardisia elliptica*		√	√			

61.	Terong Bangkung			√				
62.	Pakis	*Pteridium aquilinun*		√				
63.	Terong Pokak	*Toxicodendron vernicifluum*		√				
64.	Teratai Darat	*Nymphaea sp.*					√	
65.	Puring	*Codiaeum variegatum*					√	
66.	Singkong	*Manihot esculenta*		√			√	
67.	Kelapa	*Cocos nucifera*		√	√	√	√	
	TOTAL		0	23	20	9	23	1

Description: Sd = Clothing Pg = Food Pp = Board Ob = Medicine Up = Religious Ceremony In = Industry

Based on Table 1.4 it appears that there are 59 species of useful plants. As mentioned in Table 4.12, there are 67 plant species in the entire forest squared of Taman Gumi Banten. Meanwhile, the utilization of 9 species is unknown when viewed from their use for clothing, food, shelter, medicine, ceremonies and industry. When viewed, the percentage of useful plant species is 86.76% of useful plants and 13.24% of plant species whose benefits have not been identified. Based on Table 1.4, it can be seen that there are 23 plants that can be used for infrastructure for making offerings. Of the 23 species of banten plants, the body parts or plant organs used were 1 root (4.35%), 3 species of stems (13.04%), 9 species of leaves (39.13%), 4 flowers species (17.39%), fruit as many as 8 species (34.78%), and 1 species used tuber parts (4.35%). Thus, the most widely used parts of the existing plants in the Gumi Banten forest to be used as infrastructure for offering materials are the leaves and fruits.

General Distribution Map of Plant Species

Mapping of plant species as a whole is presented in Figure 1.4. The map in Figure 1.4 shows the distribution of all plant species in the Taman Gumi Banten Forest, Wanagiri village. The map image shows that the distribution of plants depicted is the plant species that are in the square, while the plant species that are outside the square are not depicted. There are 67 species of plants found and depicted on the map. The distribution of each species according to its coordinate points is depicted in different colors. Because the location of the growing points of each plant species is too close, it looks like they are overlapping on the map. To clarify the map Figure 5.5 is completed with a table of individual growth points of a species. Based on NP data, the plants in the forests of Taman Gumi Banten, Wanagiri Village are dominated by banyan, banana, *yeh-yeh*, arabica coffee, robusta coffee, and Ae plants. The NP index of the habitus in general of the species in the Taman Gumi Banten forest is banyan (16.3803), banana (6.376), Yeh-yeh (6.3432), Arabica coffee (4.9060), Robusta coffee (4,5074), and Ae (3,1890). From these data it can be stated that the vegetation that characterizes the forests of Taman Gumi Banten are banyan, banana, arabica coffee, robusta coffee, and Ae species. This plant has the widest distribution.

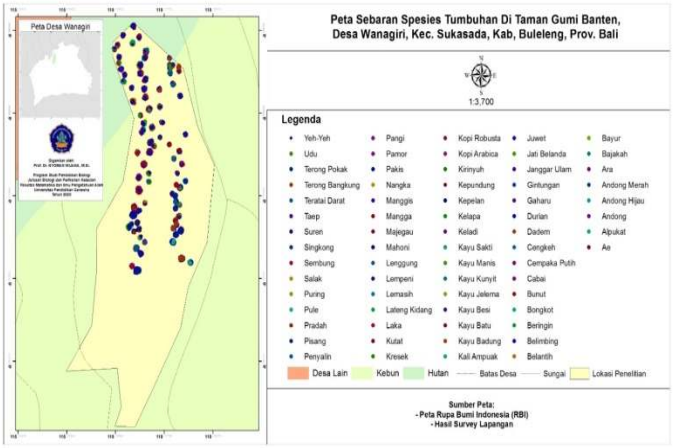


Figure 1.4. Map of General Plant Species in the Taman Gumi Banten Forest

The Taman Gumi Banten Forest, Wanagiri Village is indeed famous for its coffee forest because the coffee plant is a plant that is intentionally planted in the Taman Gumi Banten forest. As explained by the local forest manager, before the forest was managed by the Wanagiri traditional village, the forest was managed by the government, in this case the Forestry Service. In uncontrollable situations, there are many timber thefts, illegal logging, both by people from the local village or from outside the local village. Local people make use of the forest by planting coffee plants. Many trees in the forest have been cut down and only a few trees are small in diameter. With this open space, the community around the forest creates an opportunity to plant the forest with coffee plants. Thus the coffee plant has entered the forest area. After the HPHD was carried out it was agreed that in the empty open space in the forest of Taman Gumi Banten, it was still permissible to plant cultivated plants, but no longer allowed to cut down existing trees.

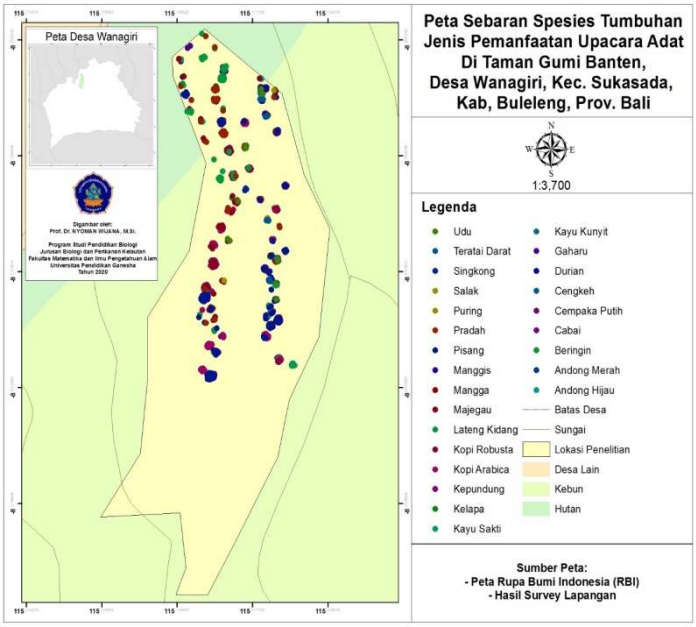


Figure 1.5. Map of Banten/Traditional Ceremony Plant Species in the Taman Gumi Banten Forest

As stated above, there are 57 species of plants used by the local community, drawn on a vegetation map as shown in Figure 1.10. The various existing plant species are depicted in different colors. The position of growing from plants is useful for traditional ceremonial purposes in each square occupying a very close position so that the depiction on the map looks like it is coinciding.

Discussion

Research on terrestrial vegetation has been carried out such as Onrizal (2010), Mirmanto (2010), Junaedi and Zaenal (2010), Arrijani, et al (2006). Research by Wijana and Setiawan (2017 and 2018a, b., 2019). Many studies related to terrestrial vegetation conservation have been carried out by Wijana, (2005; 2009) in Tenganan Pegringsingan Village, Manggis District, Karangasem Regency; Sarna, et al (1993) conducted in Penglipuran Village; Wijana (2013a) has conducted vegetation analysis research in customary forests in Bali Age Village, Buleleng; Wijana (2011) has conducted research on clusters and ordination of vegetation in the Penglipuran Traditional Village forest, Bangli-Bali. Wijana (2006) in Tenganan Pegringsingan (Karangasem) forest, 2007 in Penglipuran Forest (Bangli), Monkey Forest (Gianyar), and Alas Kedaton (Tabanan) on vegetation stratification. Wijana and Setiawan (2017) research on the distribution map of rare plant species in the forest in Alas Kedaton, Monkey Forest, and Penglipuran tours, Bali Province. Mapping of useful plants in the Bukit Kangin forest, Tanganan Pegringsingan village, Karangasem has been carried out by Wijana and Setiawan (2019, 2020). Examples of mapping results are presented in Figure 2.2.

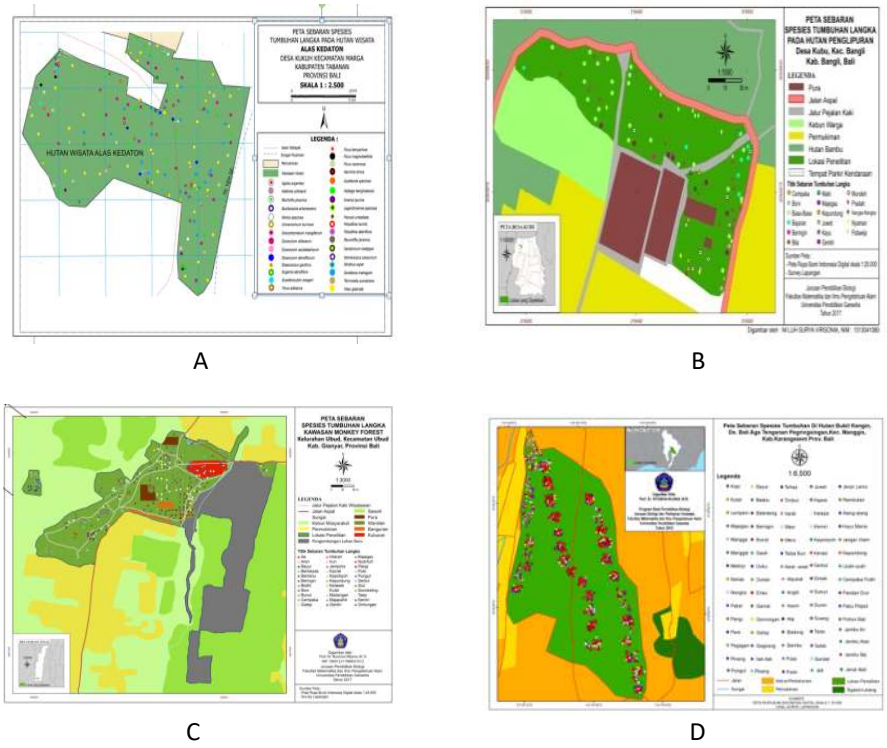


Figure 1.5. Endangered Plant Species Distribution in Alas Kedaton Forest (A), Penglipuran (B) and Monkey Forest (C). D. Kangin Hill, Tenganan Pegringsingan (Source: Wijana and Setiawan, 2017, 2019, 2020).

Research that is specifically related to the banten plant is still limited. According to Purwanto and Waluyo (1992) (in Hasanah, 2011) useful plants in Indonesia based on their use can be grouped into several forms of use, namely clothing, food, boards and household appliances, medicines, cosmetics, ropes and plaits, as well as for social and religious activities. In addition, useful plants in Indonesia are also often used as ornamental, aromatic, coloring agents and as feed for livestock. And according to Heyne (1987), the categories for the use of plants consist of clothing, shelter, food, medicines, household needs, and religious ceremonies. Parts of plants that are used include roots, stems, leaves, flowers and fruits. Among the various kinds of people's knowledge about plants that are owned by the community, there are those that are magical, spiritual and ritual. One of them is its use in the field of ceremonies. In various ethnicities, the plants used in different ceremonies according to the knowledge of each community. In traditional ceremonies that are carried out, especially those related to the life cycle ceremony.

Hazanah (2011) explains that plants used in traditional and religious rituals have characteristics: seen from the nature of certain plants, especially flowers are often interpreted as feminine and used in naming ceremonies. In Javanese traditional weddings, plants are often associated with words of good value. There are several plants often used as spices and preservatives for cadavers.

The banten plant species is a plant species used as a material for making offerings which are traditionally used by Balinese Hindus. Every tree on this earth grows and reproduces by the grace of Dewa Sangkara. Because of this understanding, the Balinese people treated the trees with such respect and sanctified them. Between upakara/banten/offerings and plants have a very close relationship. Because the main means of making offerings are plants (patram, puspam, phalam). Given the large meaning and meaning of offerings, of course the use of leaves, flowers and fruit used as a means of offering still pay attention to several aspects, such as holiness, the philosophical meaning of theologies (divine symbols), the mythology of these means and other aspects underlying the conviction of the people in carrying out the yadnya ceremony. The implementation of yadnya arises as a result of the existence of Tri Rna/Rnam or three debts, namely to the ancestors, to the Supreme Rsi and debt to God (Nala, 2004).

In Bali, generally Hindus, each in their daily behavior cannot be separated from the implementation of the ceremony. In carrying out this ceremony, it is always inseparable from the means of the ceremony, namely offerings. The ingredients for this offering have been provided by nature, humans process it in such a way that it becomes a beautiful, attractive, and full of philosophical and symbolic meaning. Having prayed and formed it was presented to him Ida Sang Hyang Widhi Wasa. After being processed and shaped in such a way, then the names of offerings are given which have their own meaning, philosophy and function. As has been stated earlier, that nature has provided resources for the manufacture of these offerings, both in the form of plants, animals, metals, and other materials, which people can obtain with indicators that are practical, efficient, meaningful, and acceptable to them. community according to village, kala, and patra. In general, the ingredients of the offerings are in the form of leaves, flowers, fruit, seeds, stems, roots, and other parts of plant organs. All the plant organs used have symbolic, philosophical meanings, certain functions and benefits for Hindus (Nala, 2007).

The Yadnya ceremony is not only treated as a vertical request to God, but also means to instill the yadnya values in humans themselves. This means that the use of plants as a means of

the yadnya ceremony aims to instill values of preserving nature in the souls of every people. With this value will grow real efforts to seriously maintain the welfare of nature (Wiana 2002, 2007).

Conclusion

From the results of this study, it can be concluded: (1) The plant species that make up the ecosystem in Taman Gumi Banten, Wanagiri Village consist of 67 species. The composition of the species of offerings in the forests of Taman Gumi Banten, in Wanagiri village, are 25 species of plants that can be used as infrastructure for making traditional offerings. Of the 25 species of banten plants, the body parts or plant organs used were 1 (4.35%) roots, 3 species of stems (13.04%), 9 species of leaves (39.13%), 4 flowers. species (17.39%), fruit as many as 8 species (34.78%), and 1 species used tuber parts (4.35%). Thus, the most widely used parts of the existing plants in the Gumi Banten forest to be used as infrastructure for offering materials are the leaves and fruits. (2) General plant vegetation map and Banten plant map have been produced. Based on these conclusions, it can be recommended that by knowing the various plant species in the Taman Gumi Banten forest, and having mapped them into a vegetation map, then in forest management and conservation it refers to the mapping of its vegetation as an in-situ growing site which is highly relevant with educational factors. and clomatics. Furthermore, it can be used as a forest tourism development.

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