SPECIES RICHNESS AND FEEDING GUILDS OF BIRDS IN NGESREPBALONG VILLAGE, MOUNT UNGARAN CENTRAL JAVA

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Abstract - Mount Ungaran on Central Java Indonesia was established as a Important Bird is Area (IBA), have a various bird habitat kind as an area of food resources provider, sheltering, and also for breeding. The objective of the study was to analysis the species richness and feeding guild of birds in Mount Ungaran. The study was conducted on Ngesrepbalong Village to determine the species richness and feeding guilds of bird especially in settlements, tea plantations and mixed forests. The study have been done on January to August 2018. The point count method was used for bird data and direct observation technique (by binoculars and camera) was used in documentation of bird species. The result showed a total of 77 bird species that belong to 37 families, 13 order were recorded. The feeding guild of birds result that most of birds species belong to Insectivore (51.94%) and followed by fruit-eating birds (22.07%).

Keywords - Feeding Guild, Mount Ungaran, Species Richness

I. INTRODUCTION

Mount Ungaran is one of the remaining protected forest areas in Central Java [1]. Mount Ungaran is administratively between two districts, Semarang Regency and Kendal Regency with an area of around 5500 ha. Most of the Mount Ungaran area is managed under the Perum Perhutani office , North Kedu KPH. Include protected forest (2670.25 ha), production forest (622.33 ha), and production forest (618.93 ha). While the conservation area, the Gebugan Nature Preserve, covers only 1.8 ha and is managed under the BKSDA (Natural Resources Conservation Center) of the Central Java. Mount Ungaran has a higher of biodiversity, including flora and fauna [2]. Mount Ungaran has been designated as an Important Bird Area (IBA), especially in Central Java. One of the status determinations is based on the records of bird species that are protected, such as Javanese Hawk Eagle (Nisaetus bartelsi), Black Hawk Eagle, bido, and Wreathed hornbill (Rhinoceros undulatus) [3]. The conditions of various types of ecosystems on Mount Ungaran also make this area as a suitable habitat for various birds species. The guild is a group of bird species that utilize the same resource and in the same way [4]. Observation of the composition of guilds in an area is very well used as an indicator. Ecological characteristics in birds such as the type of feed can be used as bioindicators of environmental disturbances by examining their responses to disturbances [5] [6]. An environment with a large number of guilds must be able to provide for the minimum needs of its constituent species. This is realized by providing opportunities to choose suitable habitats, or providing complex habitats that allow for the separation of niches [7]. All these habitats have different characteristics and landscape which sustain different food sources and thus attract different bird feeding guilds. Feeding guild is a useful tool for examining changes in bird communities because variations in feeding guilds are largely determined by the habitat structure and food availability [8]. Ngesrepbalong village is one of the entrance areas in the Mount Ungaran area. Ngesrepbalong village is used as one of the hiking trails to the summit of Mount Ungaran, tea plantation, Lawe waterfall attractions and even animal and plant hunters on Mount Ungaran. The transfer of functions of natural forest land in this area by planting coffee plants is likely to disrupt bird habitat so that it will affect the availability of bird feed. So that more studies are needed regarding to the diversity of birds based on feeding guilds in the area of Mount Ungaran, especially in Ngesrepbalong Village.

II. METHOD

A. Location and time

The research was carried out in the Gunung Ungaran area, Kendal regency, Central Java with an altitude of 900 - 1390 masl with three different habitat types namely settlement habitat in Gempol Sub village, Gunungsari Sub Village, and Medini Sub Village, Ngesrepbalong Village, Limbangan District Kendal District, Ngesrepbalong Village tea garden habitat , Limbangan Subdistrict, Kendal Regency and Watuondo hill mixed forest in Ngesrepbalong Village, Limbangan District, Kendal Regency. The study was conducted in January 2018 - August 2018 with four repetitions of bird observations in each habitat.

B. Procedure

Retrieval method of bird observation data in each type of observation habitat using the Count Point method. Next is identifying the guild category of bird feeding on Mount Ungaran based on its main of feed.

Classification of feeding guild soecies based on Field Guide of Bird in Sumatera, Java, and Kalimantan [9], and supported by knowledge about the ecology of bird species on Mount Ungaran. The next step is to compile a table of lists of each bird feeding guild on Mount Ungaran.

III. RESULT AND DISCUSSION

The result of bird species richness showed total of 77 species of birds was recorded in the Ngesrepbalong Village of Mount Ungaran, a species of bird belonging to 37 families of 13 orders. From 77 species of birds are grouped into 11 category of feeding guild (Table 1).

The bird species richness in Ngesrepbalong Village, Gunung Ungaran area is dominated by insectivorous birds as the main food (40 species or 51.94%). Based on feeding guild category (Table 2) , insectivorous birds are the most dominant group. Fly Catching Insectivore birds or insectivorous birds while floating with the most species (15 species or 19.48%). The next dominant category is fruit eaters or frugivore with the most dominant group namely frugivore-insectivores or fruit and insect eaters (14 species or 18.18%).

Table 1 Clasification of feeding guild category

No	*Guild category*
1	Aerial Insectivore (AEI)
2	Carnivore (CA)
3	Carnivore – Insectivore (CA IN)
4	Fly Catching Insectivore (FCI)
5	Seed Eater (SE)
6	Omnivore (OM)
7	Arboreal Frugivore (AF)
8	Shrub Foliage Gleaning Insectivore (SF GI)
9	Nectarivore – Insectivore (NE IN)
10	Frugivore – Insectivore (FRU IN)
11	Insectivore – Frugivore (IN FRU)

Tabel 2. Feeding Guild of Bird Species on Mount Ungaran

Guild category	Species		
AEI	Collocalia linchi	Aerodramus vulcanorum	
n = 7; 9,09%	Hirundo tahitica	Hirundapus caudacutus	
	Apus nipalensis	Hemiprocne longipennis	
	Aerodramus maximus		
CA	Elanus caeruleus	Pernis ruficollis	
n = 4; 5,19%	Nisaetus bartelsi	Myophonus caeruleus	
CA IN	Halcyon cyaniventris	Egretta garzetta	
n = 6; 7,79%	Todirhampus chloris	Hydrornis guajanus	
	Spilornis cheela	Bubulcus coromandus	
FCI	Surniculus lugubris	Eurystomus orientalis	Orthotomus ruficeps
n = 15; 19,48%	Phaenicophaeus curvirostris	Hemipus hirundinaceus	Phaenicophaeus javanicus
	Lanius schach	Muscicapa sibirica	Cacomantis sonneratti
	Psilopogon australis	Cacomantis sepulcralis	Pericrocotus flammeus
	Psaltria exilis	Orthotomus sepium	
SF GI	Enicurus leschenaultia	Turnix sylvaticus	
n = 10; 12,98%	Cyanoderma melanotorax	Orthotomus sutorius	
	Pellorneum capistratum	Napothera epilepidota	
	Brachypteryx leucophrys	Pnoepyga pusilla	
	Alcippe pyrrhoptera	Sitta azurea	
SE	Lonchura leucogastroides		
n = 3; 3,86%	Passer montanus		
	Streptopelia chinensis		
OM	Gallus varius		
n = 1; 1,29%			

AF n = 4; 5,19%	Loriculus pussilus	Treron vernans	
	Treron griseicauda	Macropygia unchall	
NE IN n = 3; 3,86%	Cinnyris ornatus		
	Anthreptes malacencis		
	Arachnothera affinis		
FRU IN n = 14; 18,18%	Pycnonotus aurigaster	Rhyticeros undulatus	Pycnonotus analis
	Prionochilus percussus	Psilopogon armillaris	Megalaima australis
	Dicaeum trigonostigma	Pycnonotus bimaculatus	Macropygia ruficeps
	Zosterops mountanus	Pycnonotus simplex	Ixos virescens
	Psilopogon javensis	Pycnonotus plumosus	
IN FRU n = 8; 10,36%	Zosterops melanurus	Turdinus sepiarus	
	Dicaeum trochileum	Alophoixus bres	
	Megalurus palustris	Aegithina tiphia	
	Chloropsis cochinchinensis	Picoides moluccencis	

Notes: n = Total Spesies

The existence of the Mount Ungaran area as a protected forest as a source of bird feed in its natural habitat. The variety of habitat types in a region within a certain period of time has the opportunity to have a high wealth of animal species in it. This is because habitat plays a role as a provider of sufficient resources, especially as a place to find food, breed, and take refuge [10]. With diverse vegetation, birds will get a greater choice of feeding type [11] that causes more diverse grouping of feed not only carnivore or insectivore but birds can play a dual role. So that it causes more diverse category of feeding not only carnivore or insectivore but birds can play a dual role as insectivore carnivore (invertebrate and vertebrate eater).

The most dominant group of insectivorous birds is 40 species or 51.94%. The high type of insectivorous can be caused by the high insect population in the area. The nature of insects that like to hide in some parts of a tree can be a selective factor in the process of speciation techniques looking for bird feed. Most bird species that inhabit forests are indeed insectivores, or make insects an alternative source of feed. This is because birds have specialized in choosing foods that contain high energy, fat or protein, such as grains, insects, nectar and fish [5].

The second dominant category is the frugivore with 15 species or 19.84%. This is due to the availability of fruit in the forest which is sufficient to cause the number of fruit-eating birds to dominate. The species of birds that have a low number are the nectar-eating groups, which are 3 species or 3.86%, this is due to the lack of flowering plants which causes less interest in nectar-eating birds. According to [9] to present nectar-eating birds it is necessary to select plants based on their flowering time in order to provide nectar throughout the year.

Eating grains or seed eater and carnivore have a small amount. Grain-eating birds are often found in open areas, such as settlements or rice fields. Meat-eating birds rely heavily on primary rainforests, large trees for nesting and nesting are important components for birds of prey [12]. This causes a small number of birds of prey.

The dominance of insectivorous birds was also recorded in bird communities on P. Java [13][14]. Most birds are insectivorous or make insects their main food.

CONCLUSION

Total of 77 species were found in the Ngesrepbalong Village of Mount Ungaran, Central Java, these species were grouped in 11 category of feeding guild and of the most dominant feeding guilds, which were insectivorous birds

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