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SHORT COMUNICATION

Fishes Diversity at the area of Gunung Ciremai National Park, West Java

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Gunung Ciremai National park is one of the conservation areas which has good hydrologic potential, as water sources of a number of streams that flow to Cirebon, Indramayu and the adjacent areas. This national park is located in Kuningan and Majalengka regency lying at the coordinat 108º-28-0ºE - 108º-21-35ºE and 6º50 -25" S - 6º58-26" S. The uniqueness of this park is that this park encompasses Ciremai Mountain, the highest mountain in West Java, which is isolated from other adjacent mountains.

The research of the fish diversity at the Gunung Ciremai National Park was conducted in April 2006 (the western part) and May/June 2007 (the eastern part) of the park. This research was aimed to inventory the fishes diversity and their habitat type. This research was conducted since the management of the park should be based on the zonation of the existing ecosystem.

In general, the collecting stations were located in the up stream of water catchment areas. In the western part of the park the research was conducted in altitude range between 600–1150 m asl. in three groups of collecting stations: Apuy, Argalingga and Kasturi water catchment areas. In the eastern part the research was conducted in altitude range between 517 – 1127 m asl , in 6 groups of collecting stations: Cisurian, Cigugur, Ciporang, Cisande, Cibatulayang/Cibulan, Wangon & Cihulu water catchment areas. Fishes specimens were caught by using electro fishing (12 V, 10 A) and cast net. Then, the fishes specimens were fixed by formalin 10 % and the specimens were preserved in alcohol 70 %.

It was found that Gunung Cirremai National Park had 20 fish species that belong to 17 genera, 12 family and 5 ordo. The most recorded species was Cyprinidae (4 species or 25 %), Cichlidae (3 species or 15 %), Cobitidae, Poecilidae, Belontiidae (each 2 species or 10 %). The others are Belontiidae, Sisoridae, Clariidae, Loricariidae, Hemirhamphidae, Synbranchiidae and Channidae (each 1 species or 5 %). Thirteen species of the fishes found were indegenous Indonesian fishes. They are *Osteochilus hasseltii, Puntius binotatus, Rasbora aprotaenia Tor* cf. *soro, Lepidocephalichthys hasseltii, Nemacheilus fasciatus, Homaloptera waasinkii, Glyptothorax platypogon, Clarias batrachus, Dermogenys pussilla, Monopterus albus*, *Channa gachua* and *Trichogaster trichopterus*.

The diversity in the western part as well as in the eastern part was low: 14

Tabel 1. Fishes species that were found at the area of Gunung Ciremai National Park

Species	At the spring 1100-1500 m asl.		Rice field & garden 1100 –800 m asl.		Settlement < 800 m asl.	
	West	East	West	East	West	East
*Osteochilus hasseltii***					√	√
*Puntius binotatus***			√	√	√	√
*Rasbora aprotaenia***						√
Tor cf. *soro*** [1)]						√
*Lepidocephalichthys hasseltii**					√	
*Nemacheilus fasciatus***					√	√
*Homaloptera waasinkii**						√
*Glyptothorax platypogon***			√	√	√	√
*Clarias batrachus***						√
*Liposarcus pardalis****					√	
*Dermogenys pussilla**						√
*Poecilia reticulata****					√	√
*Xiphophorus helleri****					√	√
*Monopterus albus***					√	√
*Aequidens pulcher****					√	√
Cichlasoma nigrofasciatum						√
*Oreochromis niloticus****					√	√
*Channa gachua***					√	√
*Trichogaster pectoralis****					√	
*Trichogaster trichopterus***					√	

Remarks:

[1)] specimen was not collected

* Indigenous Indonesian fishes

** Indigenous Indonesian fishes that have potency either as consummed fish and or as ornamental fishes

** *Introduced fishes

fish species were found in the western part and 16 fish species were found in the eastern part (Table 1). Diversity in every collecting stations was also low. In the western part collection station which had the most fish was S. Cilutung, it had 11 species, where 4 of them were introduced fishes. In the eastern part collecting stations which had the most fish was S. Cibatulayang, it had 10 species, where 3 of them are introduced fishes. This is in concordance with the report that Kuningan regency as well as Majalengka regency (these regencies

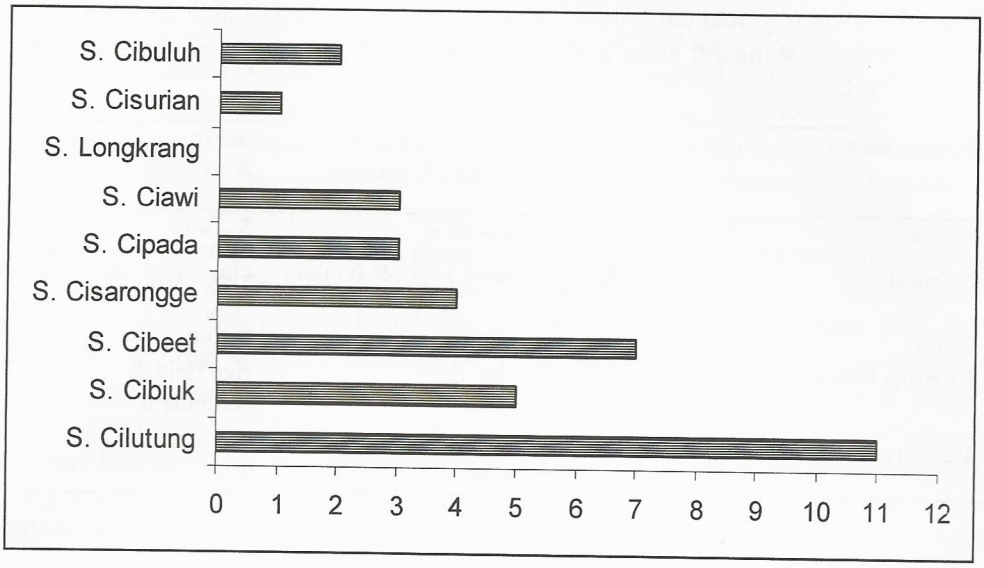

Figure 1. Total fish species found in collecting station at the western part of Gunung Ciremai National Park.

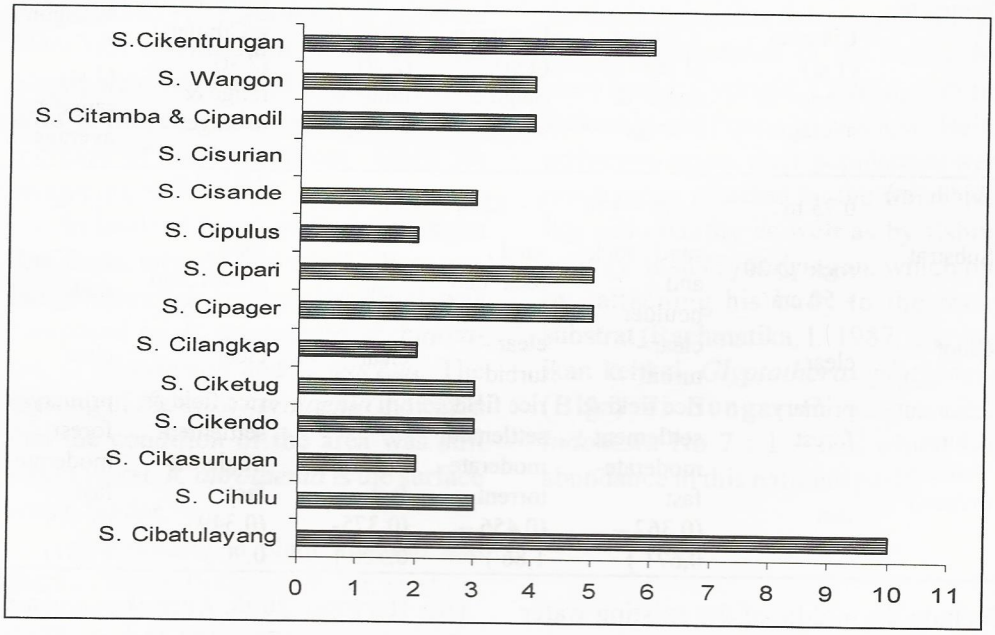

Figure 2. Total fish species found in collecting stations at the eastern part of Gunung Ciremai National Park.

Tabel 2. Some physical parameters of streams at Apuy, Argalingga and Kasturi water catchment areas at the western part of Gunung Ciremai National Park.

Parameters	Apuy (6 st) range & average	Argalingga (3 st) range & average	Kasturi (5 st) range & average
Width	2 – 10 m (5 st)	3 – 10 m	3 – 4 m
Substrat	sand, rock & boulder	sand, rock & boulder	clay, sand dan rock
Color	clear	clear	turbid
Riparian habitat	horticultura garden	rice field	rice field & settlement
Velocity (m/sec.)	fast	fast 0,97 – 1, 79; 1,40	fast 1,30 – 2,91; 1,95

Tabel 3. Some physical parameters of streams at the Cisurian, Cigugur, Ciporang, Cisande, Cibatulayang/ Cibulan, and Wangon & Cihulu water catchment areas, at the eastern part of Gunung Ciremai National Park

Parameter	Cisurian (1 st) range & average	Cigugur (3 st.) range & average	Ciporang (4 st) range & average	Cisande (2 st) range & average	Cibatulayang/Cibulan (2 st) range & average	Wangon & Cihulu (3 st) range & average
Width (m)	0,75 m	0,5m – 4 m	3 – 12 m	3m	1,2 – 2,5 m	1,5 m
Substrat	rock Ø 20 – 50 cm	sand , rock and boulder	sand , rock dan boulder	sand and rock	sand , gravel and small rock	sand and rock
Color	clear	clear - turbid	clear - turbid	clear	clear	clear
Riparian habitat	primary forest	rice field & settlement	rice field, settlement	rice filed	rice field & settlement	primary forest
Velocity (m/sec.)	fast	moderate-fast (0,362 – 0,671)	moderate–torrent (0,456 – 1,86)	moderate-fast (0,375-0,520)	moderate-fast (0,349 – 0,90)	moderate-fast (0,375-0,621)

include the middle of the existing water catchment areas), relatively had low fish diversity: each had 26 fish species, 6 of them are introduced fishes and 23 fish species, 6 of them are introduced fishes

(*see* Haryono 2006. *Keanekaragaman Jenis Ikan*. p. 175 – 181 Dalam *Flora dan Fauna Jawa Barat*. I. Maryanto & WA. Noerdjito (Eds.). Pusat Penelitian Biologi –LIPI Bogor)

The common habitat type, which was fast -flowing water, rockyboulders habitat and narrow streams (Table 2 & 3) might provide low niche for more fish species living at the area of the park The extreem case can be seen in Cisurian which located in national park, where no fishes found. Compared with collecting stations where the habitat were rice field and settlement, there were more fish species found. For example, in the western part.i.e in Cisarongge, Cibeet, Cibiuk and Cilutung there were 4,7,5,11 fish species (Figure 1) were found respectively. In the eastern part i.e in Citamba & Cipandil, Cibatulayang and Cipager there were 4, 10, 5 fish species found (Figure 2). This was caused by broader streams. Hence provided more allochthonous food for aquatic fauna. This is agree with Payne, A I (1986). *The ecology of tropical lakes and rivers.* John Wiley & Sons, Singapore) who stated that the species would increase downstream as the increase of food resources, space for swimming and hide.

In lowland forest of Seda (Wangon & Cihulu, altitude 600 m asl.) there was indigeneous fish community, which was composed by *R. aprotaenia*, *P. binotatus*, *G. platypogon* and *C. gachua.* The existing of *Rasbora aprotaenia* indicated that the condition of the area was still virgin forest. *R. aprotaenia* is the surface water feeder.

P. binotatus is plant material and detritus feeder (Sulastri & DI. Hartoto, 1985. Kebiasaan makan ikan *Rasbora lateristriata* dan *Puntius binotatus* di Citamanjaya dan Cibinua Kawasan Ujung Kulon. *Zoo Indonesia* No 4 : 1 – 7). *G. platypogon* was the benthic feeder in the bottom (Rachmatika, I. 1987 Ekologi ikan kehkel, *Glyptothorax platypogon* (Blgr) di Sungai Cisadane. *Zoo Indonesia* No 7 : 1 – 6); the member of *Channa* are predator (Ng, PKL & KKP. Lim, 1990. *Snakeheads (Pisces: Channidae); natural history, biology and economic importance*. p 127 – 152 In *Essay in zoology*. CL. Ming & PKL. Ng (Eds.), ES.L. Low & N. Sivasothi (Assistant Eds.). Papers commemorating the 40th Anniversary of Dept.of Zoology, National University of Singapore). This finding indicated that lowland forest provided suitable habitat for the indigeneous fishes community.

The abundance of the fishes that were found: Cyprinid, Cichlid, Cobitid, Belontiid and Poeciliid was low. Being active swimmers, their populations were much more affected by the water quality and quantity as well as by fishing activity than *G. platypogon*, which live by attaching his body to the rocky substrat (Rachmatika, I. 1987. Ekologi ikan kehkel, *Glyptothorax platypogon* (Blgr) di Sungai Cisadane. *Zoo Indonesia* No 7 : 1 – 6), which was abundance in this national park.