BIRDS OF THE BOTANICAL GARDENS OF INDONESIA AT BOGOR

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ABSTRAK

S. van BALEN, E.T. MARGAWATI & SUDARYANTI. 1986. Audi fauna Kebun Raya Bogor. *Berita Biologi* 3(4): 167- 172. Avifauna di Kebun Raya Bogor diamati dan disensus selama tahun 1980 - 1981 dalam rangka penelitian tentang perubahan populasi burung di Bogor dan sekitarnya. Beberapa jenis burung yang umum terdapat di Kebun Raya sebelumnya, ternyata jumlahnya sudah sangat berkurang bahkan ada yang sudah hilang. Dilihat dari keanekaragaman jenis, avifauna di Kebun Raya menurun. Pengamatan ditemskan selama bulan April - Mei 1984 dcngan kesimpulan yang sama.

INTRODUCTION

The first publication on birds of the Botanical Gardens date from 1901, when Koningsberger (1901 - 1909) mentioned six bird-species in this territory. Sody (1927) in his list of Bogor birds mentioned nine species found in the garden. Several papers on the Gardens[1] avifauna were published by Hoogerwerf (1948, 1949, 1953), enumerating 142 species. Somadikarta (unpublished) captured 41 bird-species in his nets during bird banding-activities in 1967 - 1971. three species, namely *Cuculus tnicropterus, Megalaima australis* and*Zootherasibirica* were added in the birdlist of the garden.

Hoogerwerf (1953) was alarmed by the decrease of the avifauna richness in the garden when intensive clearing was continued after years of neglection. At the same time the garden were opened for the public.

This report outlines the results of conducted in 1980 - 1981 and in 1984 in the garden. The decrease and increase of a certain number of species are discussed with referance to previous observations by others.

METHODS

The study area was situated at an elevation of about 265 m along both banks of the Ciliwung-river, they comprise heavily wooded area, alternating with lawns, ponds and sparse vegetation. Bird counts have been made at randomly selected, but representative sites. The built-up area within the garden have been omitted in the censuses.

The sites were surveyed during three periods in April - June 1984. Birds were counted from 5.45 — 7.45 a.m. on rainless mornings during which three to six standing counts of 15 minutes were made along 1 km transects. Birds were counted if heard or seen within a radius of approximately 50 m. Birds flying overhead have been included, if it likely concerned movements within the habitat. Every census period was closed if no or few species were tallied in a next survey.

This method provided the average densities per counting unit of each species. The Shannon-Weaver diversity measure (McArthur & McArthur 1961), split up into its components species richness and eveness or equitability (Kricher 1972), was used for comparing the present data with information from other places.

In addition to the censuses regular trips to all parts of the garden have been made during November 1980 - August 1981. and April - May 1984.

RESULTS AND DISCISSfON

The number of bird-species found during the two surveys totalled 56 (Appendix 1). of which 38 were covered by the censuses (Table 1). Seven of the 25 species mentioned by Hoogerwerf (1949) as being common in the garden were absent among the recent 25 most abundant species, as shown in Table 1. These species are *Haliastur indus, Geopelia striata, Megalaima hacmacephala. Criniger bres.*

Zoothera citrina, *Cyornis banyumas* and *Passer montanus* (only first mentioned species, and probably *Zoothera citrina* have never been observed by the authors; one specimen of *Criniger bres* was observed by Van Balen in September 1979). The seven species were replaced by *Nycticorax nycticorax,* ***Treron griseicauda,*** *Cypsiurus* ***batasiensis, Aegithina tiphia, Pants*** *major, Zosterops* ***palpebrosu*** and *Lonchura punctulata.* These species were also rather common during the surveys of Hoogerwerf, except for the first mentioned. A large breedling colony of *Nycticorax nycticorax* was found near the railway station of Bogor, not far from the garden (Groeneveldt 1939). The species was observed by Hoogerwerf only occasionally in the garden, but quite often seen flying over. Nowadays the breeding colony has disappeared, but a group of 20 — 30 birds is permanently present, passing the day in trees on and near the islet in the large pond of the garden. In addition to the above species the following seven, which were fairly common formerly, but which disappeared largely or even enti rely, have to be mentioned : *Turnix suscitator,* ***Hemiprocne*** *longipennis, Pitta guajana, Pellomeum capistratum, Pachycephala cinerea, Sturnus contra* and *Aethopyga mystacalis.* Furthermore the number at *Cacomantis variolosus* decreased in comparison with its congener *C. merulinus,* both have been more or less equally abundant according to Hoogerwerf. Species not observed during the survey in 1980 - 1981, but rather regularly seen and heard **in 1984,** were *Corvus macrorhynchos. Cyornis banyumas* and *Acridotheres javanicus.* In August **1981** a specimen of *Sturnus melanopterus* was observed, and could be added to the local species list. Another addition to the Bogor bird list was *Phylloscopus borealis,* observed in April 1984 in the garden.

Table 1. The bird censuses in the Botanical gardens of Bogor.

Species	Density		
	I	II	III
Collocalia esculenta	*5.50*	2.71	**3.40**
Pycnonotus aurigaster	3.67	3.93	2.40
Oriolus *chinensis*	2.63	**2.14**	2.33
Orthotomus ruflceps	2.08	2.71	1.80
Ireron griseicauda	2.75	0.86	1.93
Lonchura leucogastroides	1.50	2.21	1.47
Arachnothera longirostra	2.00	1.00	.87
Aegithina tiphia	1.25	1.43	.93
Zosterops palpebrosa	.67	1.93	.93
Prinia famittaris	1.42	.93	1.07
Dicaeum trochileum	1.58	.71	.87
Halcyon chloris	3-17	.86	.47
Nycticorax nycticorax	.83	–	1.60
Anthreptee malacensis	1.00	.79	.58
Streptopelia chinensis	.67	.79	.40
Padda oryzivora	1.50	.14	.07
Lonchura punctulata	1.00	.43	.52
Dicrurus leucophaeus	.42	.36	.67
Nectarinia jugularis	.83	.29	.13
Rhipidura javanica	.42	.50	.27
Ptilinopus melanospila	.58	.36	.20
Cypsiurus batasiensis	.17	.14	.67
Trichastoma sepiarium	.42	.36	.13
Parus major	.25	.43	.20
Copsychus saularis	.25	.50	.13
Passer montanus	-	.57	.20
Corvus anca	.08	.21	.40
Dicaeum concolor	—	.14	.33
Cacomantis merulinus	.17	.07	.13
Megalaima haemacephala	.17	.14	–
Picoides macai	.08	—	.20
Hirunco daurica	.08	–	.07
Hirundo tahitica	.08	–	–
Hemipus hirundinaceus	.08	-	-
Sturnus contra	*M*	–	–
Geopelia striata	-	.07	—
Psittacula alaxcndri	-	.07	–
Collocalia fucipnaca	-	-	.07
Number of counting stands	12	14	15
Bird species diversity ,(H')	2.98	2.91	3.04
Species richness	33	31	32
Evenness	.85	.85	.88

Note :

(Density •= average number of individuals per counting unit : I : 6 — 10 April; II : 12 - 18 May; III: 19 May - 1 June, 1981.

An average bird diversity (H') of 2.98, an average species richness (S) of 32 and an average evenness (J') of 0,86 have been calculated for the three censuses (Table 1). These values did not nearly

approach those mentioned by Tramer **(1969)** f<» tropical woodlands, which were H' : 5.23 +0.24; S : 55.14 ± 11.24; J': 0.921 ± D.012. They agreed more with the findings of Van Helvoort (1981) in 25 years old planted, secondary forest in West-Java (H' : 3.20; S : 41; J' : 0.86, average values of two morning census periods in February and November), and by Yorke (1984) in a poorly maintained 50 years old rubber plantation in Malaysia (H' : 2.80; S : 31; J' : 0.8R

Hoogerwerf (1949) mentioned maximum numbers of 34 - 45 species for Ih 45' to 3 h observations in the garden. Periods of less than two hours yielded a maximum number of 29 species in the first part of the present study (1980 - 1981) during a total of 28 observation days. In the second part (1984) a maximum number of 34 species during a three hours visit was obtained during a total of eight observation days (Table 2).

Although Hoogerwerf made his observations in 1931 - 1952, the larger part was done in 1942 - 1947 during the war when the garden was in a state of neglect. This fact explainn "the relatively many Heron and Raptor species seen by Hoogerwerf and partly the high numbers. Of the ground-dwelling species *Turnix suscitator, Pitta guajana, Pellorneum capistratum* and *Zoothera citrina,* only last mentioned was reported by Somadikarta in 1967 - 1971, whereas most recent records of the Thrush date from 1979 (Rozendaal & Scharringa *pen. comm.).* It is likely that the disappearance of these species is correlated with a decrease of quiet nesting and foraging site partly, due to the increased clearing intensity after 1947. Other unobserved species, i.e. *Criniger bres, Pachycephala cinerea and Aethopyga mystacalis* are also species needing quiet places.

Haliastur indus and *Hemiprocne longipennis* have not been observed, *Geopelia striata, Sturnus contra* and, to a lesser extent, *Megalaima haemacephala have* become rare in the garden. These species decreased seriously in numbers in the entire region of Bogoi Cfor possible causes see Van Balen 1984). *Paster montanus* disappeared from the list of 25 most common species, because tne ouilding area was not included during the censuses; the bird is still common in the garden. The number of *Cacomantis variolosus* decreased which was most likely due to the decrease of abudance of its host-birds. In the

Table 2. Maximal numbers of bird-species observed during single surveys in the Botanical Gardens of Bogor.

Duration survey	0-lh 40'	lh 40'-2h30'	2h 30'-3h 30'
Hoogerwerf 1949		38 (Ih45') 34 (Ih45')	45 (3h o') 39 (2h 30')
van Balen 1980/81	28 (lh 30') 27 (lh 30')	29 (lh40") 29 (lh 40") 29 (Ih55')	25 (2h 30')
1984	16 UhO')		34 (3h 0') 33 (2h 30') 29 (2h45')

garden *Cyomis banyumas* and *Rhipidura javanica,* of Which at least first mentioned species decreased in numbers, were potential host-birds of *C. variolosus,* whereas the still very common *Orthotomus ruficeps* was the usual host-bird of the still fairly common *C. memlinus.*

A number of exotic species, e.g. *Trichoglosus haematodus, Lorius lory* and an unidentified *Loridae* species, have been left out from the species list (Appendix 1). They, without doubt, escaped from the nearby bird or other places. As a number of protected bird species have been released by the Indonesian Nature and forest Conservation Service (PHPA) into the garden, a species like *Sturnus melanop terns* should probably also be reckoned among the escapes. They were included in the list, because of their natural occurence in the environs of Bogor.

The impoverished character of the gardens' avifauna is rather well expressed in the diversity index. The low value of its component species richness, caused by isolation and declining number of suitable habitats (e.g. ground layer vegetation, quiet places) resembled more that of the rubber plantation of Yorke (1984) than the secondary forest of Van helvoort (1981). J' was relatively high, which was probably caused by censusing in the breeding season of territorial birds, providing a more even distribution of the species (Tramer 1969). This contrasted with Yorke's lower J'-value, which was probably partly caused by his censusing during winter, when many temporary migrators were present. A bird species diversity index for the garden,

exactly between those of both other habitats is the final result.

Despite the disappearance of a number of vulnerable bird-species, the garden still play an important role as a refuge of several other species. Here *Nycticorax nycticorax* is passing the day in a considerable number; *heron griseicauda, Ptilinopus melanospila, Oriolus chinensis and Padda oryzivora* are much more abundant here than in the surrounding area; moreover, in the wet monsoon mogratory birds, e.g. *Cuculus micropterus, Phylloscopus borealis* and *Muscicapa latirostris,* have here their more temporary residence. Therefore the importance of the gardens' place in a network of patches of more or less undisturbed forest is not negligible.

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APPENDIX I

list of the bird species found in the Botanical Gardens of Bogor during November 1980 - August 1981, and March, April 1984.

Scientific name	Vernacular name	English name	1980/1981	1984
Nychcorax nycticorax	Kuak	Black-crowned night-heron	F F	
Treron griseicauda	Katik	Grey-cneeked pigeon	C	C
PtUinopus melanospila	Joan bondol	Black-naped fruit-dove	C	C
Streptopella chinensis	Tekukur	Spotted dove	C	C
Geopelia striata	Perukutut	Peacefull dove	OR	
Psittacula alexandrt	Betet	Red-breasted parakeet	OR	OR
Cuculus micropterus	Kangkut	Indian cuckoc	OR	–
Cacomantis merulinus	Wikwik abu	Plaintive cuckoo	F	F
Cacomantis variolosus	Wikwik lurik	Brush cuckoo	OR	–
Otus bakkamoena	Celepuk	Collared scops-owl	OR	–
Strix seloputo	Kukukbeluk	Spotted wood-owl	OR	—
Collocalia fuciphala	Burung sarang	Edible-nest swiftlet	OR	OR
Collocalia esculenta	Kusapi	White-bellied swiftlet	C	C
Cypsiunts batasienslis	Burung kendali	Asian palm-swift	C	C
Alceda meninting	Burung udang belau	Blue-eared kingfisher	OR	F
Halcyon chioris	Gesngek	Collared kingfisher	C	C
Megalaima haemacephala	Engkut-engkut	Coppersmith barbat	F	F
Dinopium javanense	Pelatuk kundang	Common goldenback	OR	–
Picoides macei	Pelatuk terasi	Fulvous-breasted woodpecker	F	F
Hirundo rustica	Kapinis gudang	Barn swallow	OR	—
Hirundo tanitica	Burung layang-layang	Pacific swallow	OR	–
Hirundo daurica	Sriti lurik	Red-rumped swallow	F	–
Hemipus Mrundinaceus	Jeungjing teureup	Black-winged flycatcher-shrike	F	F
Aegitnina tiphia	Cipeuw	Common iora	C	C
Pycnonotus aurigaster	Kutilang	Sooty-neaded bulbul	C	C
Dicrurus leucophaeus	Srigunting abu	Asny drongo	C	C
Oriolus chinensis	Kepodang	Black-naped oriolac	C	C
Corvus enca	Gagak	Slender-billed crow	F	OR
Corvus macrorhynchos	Gaok	Large-billed crow		OR
Parus major	Gelatik batu	Great tit	C	C
Trichastoma sepiarum	Beracet besar	Horsfield's babler	C	F
Copsychus saularis	Kucica	Magpie robin	C	C
Zoothera citrina	Anis	Orange-headed thrysh	?	–
Phylloscopus borealis	Prenjak kutub	Artie warbler	—	OR
Orthotomus sutorius	Ciang-ciang	Common tailorbird	OR	–
Orthotomus ruftceps	Cinenen	Ashy tailorbird	C	C
Prinia familiaris	Facikxak	Par-winged warbler	C	C
Muscicapa latirostris	Bubik	Asian brown flycatcher	OR	
Cyomis banyumas	Burung cacing kedl	Hill blue flycatcher	—	OR
Rhipidura javanica	Kipasan	Pied fantail	C	F
Aplonis panayensis	Cemperling	Philippine glossy starling	OR	–
Sturnus contra	Jalak suren	Asian pied starling	OR	OR
Sturnus mehmopterus	Jalak putih	Black-winged starling	OR	–
Aeridotheres javanicus	Kerak kerbau	White-vented myna	—	V

Appendix I continued

Scientific name	Vernacular 'name	English name	1980/1981	1984
Anthreptes malacensis	Burung madu kelapa	Brown-throated sunbird	C	C
Nectarinia jugularis	Burung madu kuning	Olive-backed sunbird	C	C
Arachnothera longirostra	Burung jantung	Little spiderhunter	C	C
Arachnothera affinis	Burung jantung gunung	Grey-breasted spiderhunter	OR	OR
Dicaeum concolor	Burung cabe hutan	Plain flowerpecker	F	F
Dicoeum trochileum	Burung cabe	Scarlet-headed flowerpecker	C	C
Zosterops palpebrosa	Burung kacamata	Oriental white-eye	C	C
Passer montanus	Burung gereja	Eurasian tree-sparrow	C	C
PloceUs manyar	Manyar	Streaked weaver	OR	—
Padda oryzivora	Gelatik	Java sparrow	F	F
Lonchura leucogasiroides	Pipit	Java munia	C	C
Lonchura punctulata	Peking	Scaly-breasted munia	C	C

Species nomenclature and English names are copied from King *atal.* (1975) and Delacour (1947); vernacular names are copied from Hoogerwerf (1949) and Martodiardjo (1980). C : common species (presumably) breeding in the Gardens; F : observed frequently, (probably) permanently present; OR : occasional/ rare visitor; N : migratory bird from the Northern Hemisphere.