

KESIMPULAN DAN SARAN

Kesimpulan

Dari hasil pembahasan dan perhitungan maka dapat ditarik beberapa kesimpulan :

1. Dalam jangka waktu yang lama Collembola mengalami suatu perubahan baik struktur komunitas maupun komposisi jenis sehingga memberikan tingkat adaptasi yang lebih mantap dan stabil.
2. Collembola tanah dapat mengalami rehabilitasi dengan baik selama jangka waktu yang cukup lama dan akan melakukan migrasi ke tempat yang lebih cocok dengan habitatnya.
3. Faktor temperatur dan kelembaban mempengaruhi struktur komunitas Collembola tanah dan Arthropoda lainnya. Collembola tanah yang paling melimpah di tebing bawah serta di dominasi oleh *Folsomides americanus*.

Saran

Penelitian tentang jenis Collembola di Indonesia sangat jarang sehingga perlu dilakukan penelitian lebih lanjut tentang pengenalan jenis. Dengan mengenal berbagai jenis maka dapat dipelajari lebih lanjut tentang habitat dan sebaran ekologi terutama pada daerah yang terkena bencana awan panas.

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LAMPIRAN



Tabel VIII. Jumlah hewan tanah di daerah pasir (P), tebing bawah (T) dan tebing atas (A) setiap pengambilan sampel tanggal 01 Oktober 1996.

Familia/Spesies	Habitat																	
	Pasir						Tebing bawah						Tebing atas					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
COLLEMBOLA :																		
Hypogastruridae :																		
<i>Ilypogastrura macrospinata</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
Isotomidae :																		
<i>Isotomides falsus</i>	0	0	0	0	0	0	0	0	4	0	0	2	0	0	0	2	0	0
<i>Proisotoma</i>	0	0	0	0	0	0	2	0	0	0	0	5	1	0	0	0	0	2
<i>Anurophorus sp.</i>	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
<i>Semicerura sp.</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
<i>Folsomia alfa</i>	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
<i>Folsomides americanus</i>	0	0	0	0	0	0	0	4	0	0	4	1	4	0	0	0	0	0
<i>Cryptogus similis</i>	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0
Entomobryidae :																		
<i>Tomocerus flavescen</i>	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
<i>Orchesella ainliens</i>	0	0	0	0	0	0	0	0	0	3	3	0	1	0	0	1	2	1
<i>Oncopodura sp.</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
Sminthuridae :																		
<i>Sminthurinus elegans</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
<i>Dicyrtoma marmorata</i>	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ORDO																		
NON COLLEMBOLA :																		
Acarina	0	0	0	0	0	0	4	13	28	26	20	21	32	40	23	0	43	67
Diptera	0	0	0	0	0	0	2	1	1	0	0	0	2	0	1	0	1	0
Psocoptera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
Symphyla	0	0	0	0	0	0	7	1	0	1	0	0	0	0	0	2	0	5
Hymenoptera	0	0	0	0	0	0	2	0	0	0	0	0	25	4	0	2	3	1
Pauropoda	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	1
Nematoda	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Diplura	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Coleoptera	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0
Protura	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

Tabel IX. Jumlah hewan tanah di daerah pasir (P), tebing bawah (T) dan tebing atas (A) setiap pengambilan sampel tanggal 28 Desember 1996.

Familia/Spesies	Habitat																	
	Pasir						Tebing bawah						Tebing atas					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
COLLEMBOLA :																		
Hypogastruridae :																		
<i>Hypogastrura macrospinata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Isotomidae :																		
<i>Isotoma sp.</i>	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
<i>Proisotoma</i>	0	0	0	0	0	0	0	2	0	0	2	4	1	2	1	0	0	0
<i>Polsomides americanus</i>	0	0	0	0	0	0	0	1	0	1	1	0	2	0	1	0	0	0
<i>Cryptogus similis</i>	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2	0
<i>Tetracanthella sp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Entomobryidae :																		
<i>Orchesella ainliens</i>	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	1	0
<i>Seira bipunctata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
ORDO																		
NON COLLEMBOLA:																		
Acarina	1	2	0	0	0	0	5	0	2	1	2	0	6	2	1	0	3	6
Symphyla	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	3
Hymenoptera	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	3	0	2
Protura	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Coleoptera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Diptera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Psocoptera	0	1	0	1	0	0	0	1	0	0	2	0	0	0	0	0	0	0

Tabel X. Jumlah hewan tanah di daerah pasir (P), tebing bawah (T) dan tebing atas (A) setiap pengambilan sampel tanggal 29 Januari 1997.

Familia/Spesies	Habitat																	
	Pasir						Tebing bawah						Tebing atas					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
COLLEMBOLA :																		
Onychiuridae :																		
<i>Tullbergia sp.</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
<i>Lophognathella sp.</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Hypogastruridae :																		
<i>Hypogastrura macrospinata</i>	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
<i>Odontella sp.</i>	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Isotomidac :																		
<i>Isotomides falsus</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
<i>Isotoma sp.</i>	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	2	0	0
<i>Proisotoma</i>	0	0	0	0	0	0	0	2	5	10	2	0	0	0	0	3	0	0
<i>Cryptogus similis</i>	0	0	0	0	0	0	1	0	5	6	1	1	0	2	0	0	0	0
<i>Folsomides americanus</i>	0	0	0	0	0	0	0	1	3	2	1	2	0	2	2	4	2	1
<i>Tetracanthella sp.</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	2
<i>Folsomia alfa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	0
Entomobryidae :																		
<i>Tomocerus flavescen</i>	0	0	0	0	0	0	0	0	0	2	0	3	2	0	0	0	0	0
<i>Seira bipunctata</i>	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
<i>Orchesella ainliens</i>	0	0	0	0	0	0	1	0	0	0	1	2	2	0	0	0	0	2
Sminthuridae :																		
<i>Sminthurinus elegans</i>	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0
ORDO																		
NON COLLEMBOLA																		
Acarina	1	1	0	5	1	0	8	2	24	29	13	9	26	1	15	14	16	29
Coleoptera	0	0	0	0	1	0	2	1	1	2	1	1	0	3	0	2	4	4
Hymenoptera	0	0	0	1	0	0	2	0	25	12	3	2	0	0	0	12	4	0
Scorpiones	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Symphyla	0	0	0	0	0	0	1	1	0	3	0	5	1	0	3	2	4	0
Diptera	0	0	0	1	0	0	2	1	1	2	0	0	0	0	0	0	1	1
Nematoda	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Protura	0	0	0	0	0	0	0	0	3	0	0	1	1	0	0	0	0	0

Tabel XI. Fluktuasi jumlah Collembola selama pengambilan sampel tanah.

No	Spesies	Periode pengambilan sampel			
		1	2	3	4
1	<i>Tullbergia sp.</i>	1	0	0	2
2	<i>Lophognatella sp.</i>	0	0	0	2
3	<i>Hypogastrura macrospinata</i>	6	2	1	2
4	<i>Odontella sp</i>	4	0	0	2
5	<i>Isotomurus tricolor</i>	3	0	0	0
6	<i>Isotoma sp.</i>	0	0	2	8
7	<i>Isotomides falsus</i>	1	8	0	3
8	<i>Proisotoma sp.</i>	16	10	12	22
9	<i>Folsomides americanus</i>	38	13	7	21
10	<i>Paramura colorata</i>	4	0	0	0
11	<i>Coloberella octogenata</i>	4	0	0	0
12	<i>Amurophorus sp.</i>	0	2	0	0
13	<i>Semicerura sp</i>	0	4	0	0
14	<i>Folsomia alfa</i>	0	4	0	5
15	<i>Cryptogus similis</i>	0	3	6	9
16	<i>Seira bipunctata</i>	0	0	2	2
17	<i>Tetracanthella sp.</i>	0	0	2	5
18	<i>Orchesella ainliens</i>	16	10	4	8
19	<i>Tomocerus flavescen</i>	12	3	0	7
20	<i>Oncopodura sp</i>	0	2	0	0
21	<i>Sminthurinus elegans</i>	0	1	0	3
22	<i>Dicyrtoma marmorata</i>	0	1	0	0

Tabel XII. Komposisi jumlah Collembola selama pengambilan sampel tanah.

No.	Spesies	Habitat		
		Pasir	Tebing bawah	Tebing atas
1	<i>Tullbergia sp.</i>	0	2	1
2	<i>Lophognatella sp.</i>	0	1	1
3	<i>Hypogastrura macrospinata</i>	0	5	4
4	<i>Odontella sp.</i>	1	5	0
5	<i>Isotomurus tricolor</i>	0	3	0
6	<i>Isotoma sp.</i>	0	8	0
7	<i>Isotomides falsus</i>	0	10	4
8	<i>Proisotoma sp.</i>	0	40	22
9	<i>Folsomides americanus</i>	0	31	52
10	<i>Paramura colorata</i>	0	4	0
11	<i>Coloberella octogenata</i>	0	4	0
12	<i>Amurophorus sp.</i>	0	2	0
13	<i>Semicerura sp</i>	0	1	0
14	<i>Folsomia alfa</i>	0	2	10
15	<i>Cryptogus similis</i>	0	14	5
16	<i>Seira bipunctata</i>	0	0	4
17	<i>Tetracanthella sp.</i>	0	1	7
18	<i>Orchesella ainliens</i>	1	25	13
19	<i>Tomocerus flavescen</i>	0	11	11
20	<i>Oncopodura sp</i>	0	1	1
21	<i>Sminthurinus elegans</i>	0	3	1
22	<i>Dicyrtoma marmorata</i>	1	0	0

Tabel XIII. Perhitungan indeks diversitas Collembola di daerah pasir (P), tebing bawah (T) dan tebing atas (A) tanggal 06 September 1996.

Species	ni			Pi = ni / N			Pi log pi		
	P	T	A	P	T	A	P	T	A
<i>Hypogastrura macrospinata</i>	0	3	3	0	0,06	0,06	0	-0,07	-0,07
<i>Odontella sp.</i>	0	4	0	0	0,08	0	0	-0,09	0
<i>Isotomurus tricolor</i>	0	3	0	0	0,06	0	0	-0,07	0
<i>Isotomides falsus</i>	0	1	0	0	0,02	0	0	-0,03	0
<i>Proisotoma sp.</i>	0	6	10	0	0,12	0,19	0	-0,11	-0,14
<i>Folsomides americanus</i>	0	10	28	0	0,19	0,54	0	-0,14	-0,14
<i>Paranura colorata</i>	0	4	0	0	0,08	0	0	-0,09	0
<i>Coloberella octogenata</i>	0	4	0	0	0,08	0	0	-0,09	0
<i>Tomocerus flavescen</i>	0	4	8	0	0,08	0,15	0	-0,09	-0,12
<i>Orchesella ainliens</i>	1	12	3	1	0,23	0,06	0	-0,15	-0,07
N=	1	52	52	H= - Σ			0	0,96	0,54

Tabel XIV. Perhitungan indeks diversitas Collembola di daerah pasir (P), tebing bawah (T) dan tebing atas (A) tanggal 01 Oktober 1996.

Species	ni			Pi = ni / N			Pi log pi		
	P	T	A	P	T	A	P	T	A
<i>Hypogastrura macrospinata</i>	0	6	2	0	0	0,09	0	0	-0,09
<i>Isotomides falsus</i>	0	7	2	0	0,15	0,09	0	-0,12	-0,09
<i>Proisotoma sp.</i>	0	2	3	0	0,18	0,13	0	-0,13	-0,12
<i>Anurophorus sp.</i>	0	1	0	0	0,05	0	0	-0,07	0
<i>Semicerura sp.</i>	0	2	3	0	0,03	0,13	0	-0,05	-0,12
<i>Folsomia alfa</i>	0	9	2	0	0,05	0,09	0	-0,07	-0,09
<i>Folsomides americanus</i>	0	3	4	0	0,23	0,17	0	-0,15	-0,13
<i>Cryptogus similis</i>	0	2	0	0	0,08	0	0	-0,09	0
<i>Tomocerus flavescen</i>	0	6	1	0	0,05	0,04	0	-0,07	-0,06
<i>Orchesella ainliens</i>	0	1	5	0	0,15	0,22	0	-0,12	-0,14
<i>Oncopodura sp.</i>	0	1	1	0	0,03	0,04	0	-0,05	-0,06
<i>Sminthurinus elegans</i>	0	0	0	0	0,03	0	0	-0,05	0
<i>Dicyrtoma marmorata</i>	1	0	0	1	0	0	0	0	0
N=	1	40	23	H= - Σ			0	0,97	0,90

Tabel XV. Perhitungan indeks diversitas Collembola di daerah pasir (P), tebing bawah (T) dan tebing atas (A) tanggal 28 Desember 1996.

Spesies	ni			Pi = ni / N			Pi log pi		
	P	T	A	P	T	A	P	T	A
<i>Hypogastrura macrospinata</i>	0	0	1	0	0	0,07	0	0	-0,08
<i>Isotoma sp.</i>	0	2	0	0	0,11	0	0	-0,11	0
<i>Proisotoma</i>	0	8	2	0	0,42	0,13	0	-0,16	-0,12
<i>Folsomides americanus</i>	0	3	4	0	0,16	0,27	0	-0,13	-0,15
<i>Cryptogus similis</i>	0	3	3	0	0,16	0,2	0	-0,13	-0,14
<i>Tetracanthella sp.</i>	0	0	2	0	0	0,13	0	0	-0,12
<i>Seira bipunctata</i>	0	0	2	0	0	0,13	0	0	-0,12
<i>Orchesella ainliens</i>	0	3	1	0	0,16	0,07	0	0,13	-0,08
N=	0	19	15	H= -Σ			0	0,66	0,81

Tabel XVI. Perhitungan indeks diversitas Collembola di daerah pasir (P), tebing bawah (T) dan tebing atas (A) tanggal 29 Januari 1997.

Spesies	ni			Pi = ni / N			Pi log pi		
	P	T	A	P	T	A	P	T	A
<i>Tullbergia sp.</i>	0	1	1	0	0,02	0,02	0	-0,03	-0,03
<i>Lophognatella sp.</i>	0	1	1	0	0,02	0,02	0	-0,03	-0,03
<i>Hypogastrura macrospinata</i>	0	2	0	0	0,03	0	0	-0,05	0
<i>Odontella sp.</i>	1	0	0	1	0,02	0	0	-0,03	0
<i>Isotomides falsus</i>	0	0	2	0	0,02	0,04	0	-0,03	-0,06
<i>Isotoma sp.</i>	0	6	2	0	0,09	0,04	0	-0,09	-0,06
<i>Proisotoma</i>	0	19	3	0	0,29	0,06	0	-0,16	-0,07
<i>Cryptogus similis</i>	0	14	2	0	0,21	0,04	0	-0,14	-0,06
<i>Folsomides americanus</i>	0	9	16	0	0,14	0,33	0	-0,12	-0,16
<i>Tetracanthella sp.</i>	0	1	5	0	0,02	0,10	0	-0,03	-0,1
<i>Folsomia alfa</i>	0	0	8	0	0	0,16	0	0	-0,13
<i>Seira bipunctata</i>	0	0	2	0	0	0,04	0	0	-0,06
<i>Tomocerus flavescen</i>	0	5	2	0	0,08	0,04	0	-0,09	-0,06
<i>Orchesella ainliens</i>	0	4	4	0	0,06	0,08	0	-0,07	-0,09
<i>Sminthurinus elegans</i>	0	2	1	0	0,03	0,02	0	-0,05	-0,03
N=	1	66	49	H= -Σ			0	0,92	0,94

Tabel XVII. pH tanah di daerah pasir (P), tebing bawah (T) dan tebing atas (A) setiap pengambilan sampel.

Stasiun	Periode pengambilan sampel			
	1	2	3	4
Tebing atas	6,8	6,8	6,8	6,7
Tebing bawah	7	6,9	7	6,8
Pasir	7	7	7	7

Tabel XVIII. Temperatur tanah (C) di daerah pasir (P), tebing bawah (T) dan tebing atas (A) setiap periode pengambilan sampel.

Stasiun	Periode pengambilan sampel			
	1	2	3	4
Tebing atas	19,9	21,9	20,9	21,4
Tebing bawah	21,3	22,6	22	21,3
Pasir	19,7	23,9	22,6	19,9

Tabel XIX. Kadar air tanah(%) di daerah pasir (P), tebing bawah (T) dan tebing atas (A) setiap pengambilan sampel.

Stasiun	Periode pengambilan sampel			
	1	2	3	4
Tebing atas	15,93	10,84	11,67	7,12
Tebing bawah	10,44	7,31	13,25	8,19
Pasir	3,85	3,35	3,34	4,49

Tabel XX. Indeks diversitas di daerah pasir (P), tebing bawah (T) dan tebing atas (A) selama pengambilan sampel tanah

Stasiun	Periode pengambilan sampel			
	1	2	3	4
Pasir	0	0	0	0
Tebing bawah	0,96	0,97	0,66	0,92
Tebing atas	0,54	0,90	0,81	0,94

Tabel XXI. Berat basah (gr) setiap periode pengambilan sampel tanah.

Tanggal pengambilan	Habitat								
	pasir			tebing bawah			tebing atas		
	1	2	3	1	2	3	1	2	3
06 September 1996	17,73	18,35	17,27	19,10	19,10	17,85	18,35	18,35	18,35
01 Oktober 1996	17,85	18,70	18,79	17,69	17,44	18,33	18,37	17,89	18,22
28 Desember 1996	20,71	22,42	17,08	23,96	24,25	24,42	20,81	25,14	24,84
29 Januari 1997	17,70	18,8	17,2	19,6	20,4	19,2	20,8	20,2	19,0

Tabel XXII. Berat kering tanah (gr) setiap periode pengambilan sampel tanah

Tanggal pengambilan	Habitat								
	pasir			tebing bawah			tebing atas		
	1	2	3	1	2	3	1	2	3
06 September 1996	17,93	18,03	18,44	16,94	16,30	15,92	15,16	15,64	14,50
01 Oktober 1996	16,32	18,17	18,25	16,04	15,33	17,15	16,12	15,25	16,18
28 Desember 1996	19,79	21,34	16,28	20,16	20,96	20,09	18,78	21,37	21,21
29 Januari 1997	16,8	17,5	16,2	17,6	18,3	17,4	18,5	18,2	17,9









