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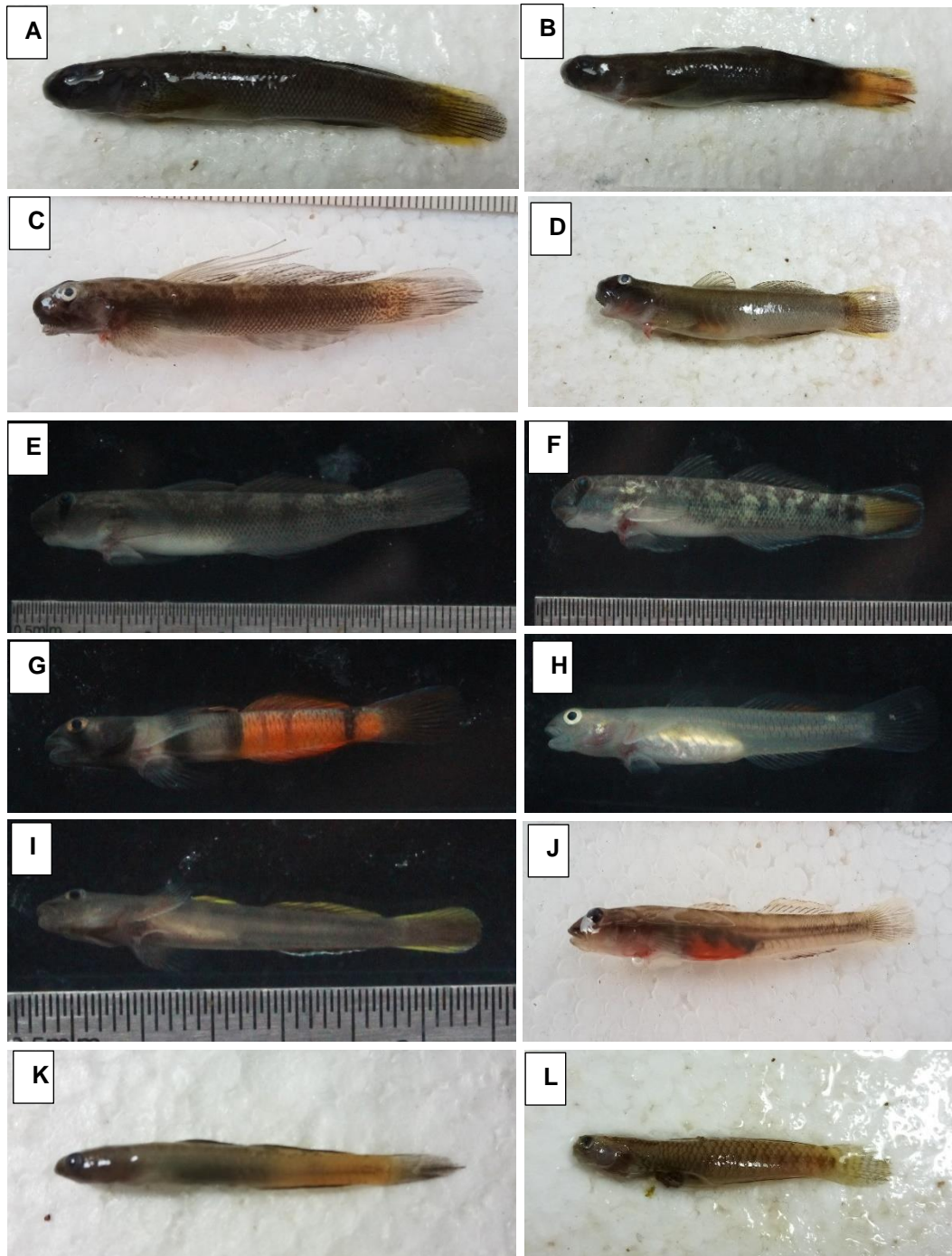
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## LAMPIRAN

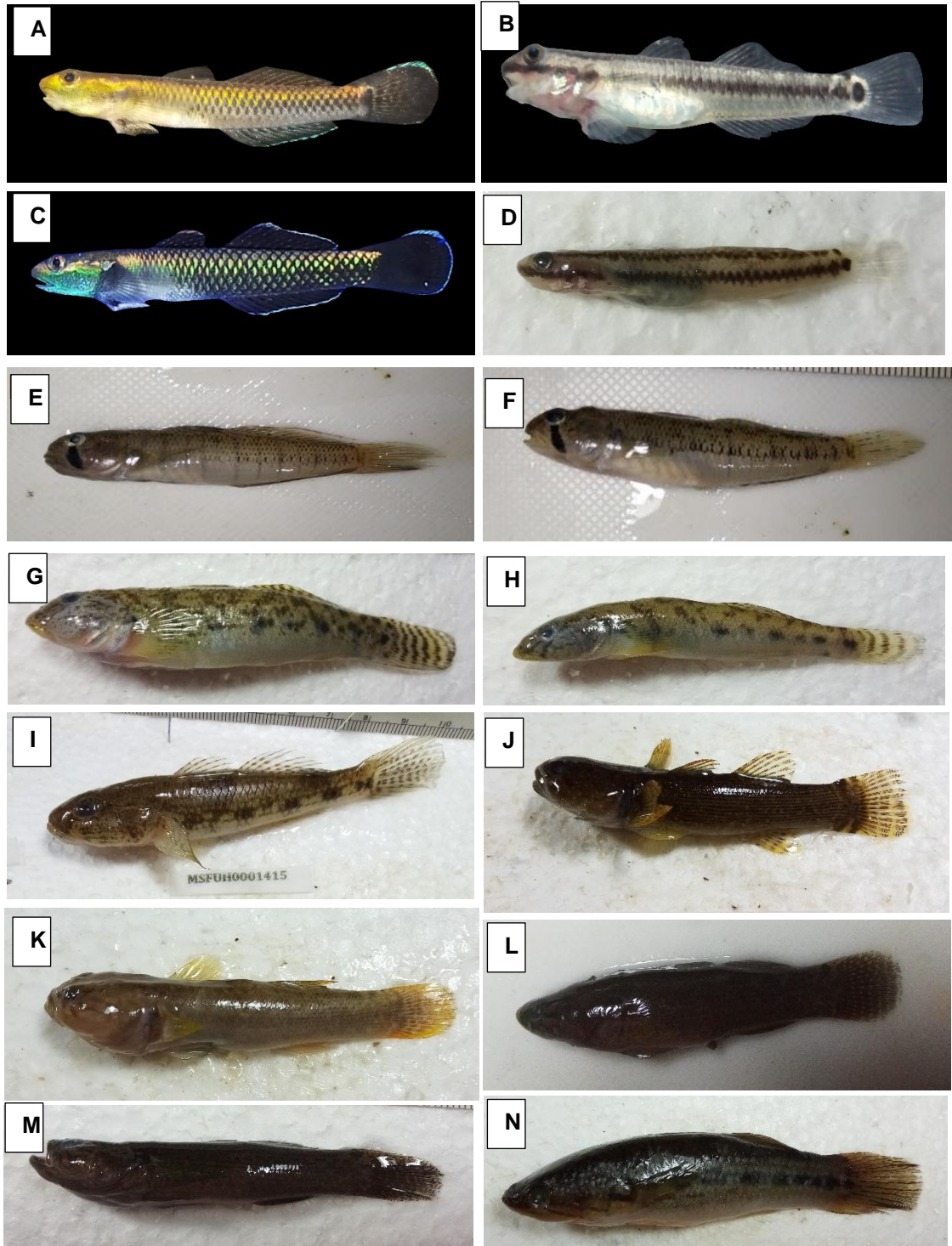


Lampiran 1. Jenis-jenis Ikan penja yang dikoleksi dari perairan Sulawesi Barat.



Ikan penja jenis A. *Sicyopterus microcephalus* jantan, B. *Sicyopterus microcephalus* betina, C. *Sicyopterus longifilis* jantan, D. *Sicyopterus longifilis* betina, E. *Sicyopterus cynocephalus* betina, F. *Sicyopterus cynocephalus* jantan, G. *Sicyopus zosterophorus* jantan, H. *Sicyopus zosterophorus* betina, I. *Smilosicyopus leprurus* jantan, J. *Smilosicyopus leprurus* jantan, K. *Sicyopus auxiliamentus* jantan, L. *Stiphodon pelewensis* jantan (didokumentasikan oleh Nurjirana).

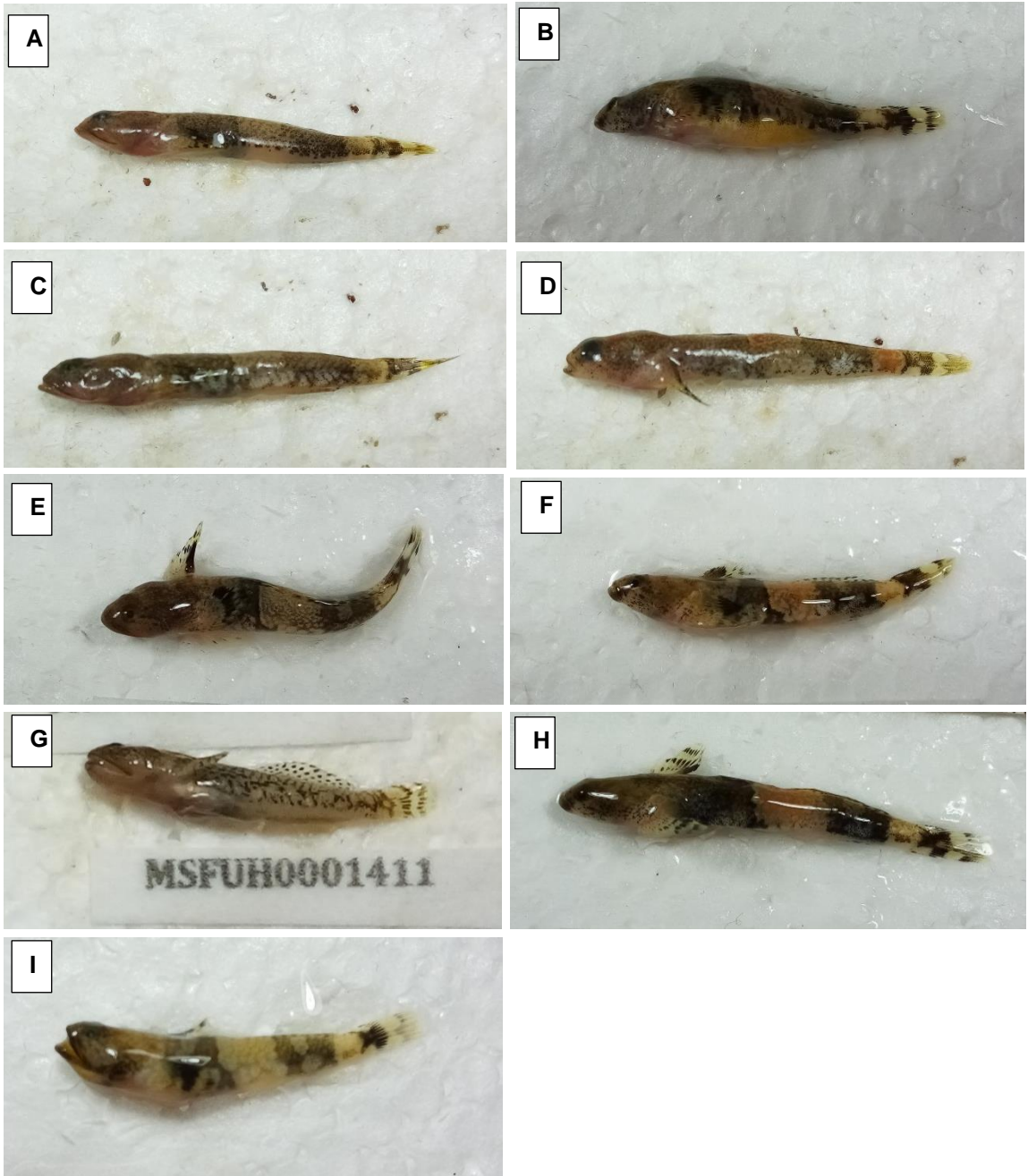
Lampiran 1. Lanjutan



Ikan penja jenis A. *Stiphodon semoni* jantan, B. *Stiphodon semoni* betina, C. *Stiphodon atropurpureus* jantan, D. *Stiphodon atropurpureus* betina, E. *Stenogobius genivittatus* jantan, F. *Stenogobius genivittatus* betina, G. *Awaous ocellaris* betina, H. *Awaous grammepomus* jantan, I. *Glossogobius giuris* betina, J. *Belobranchnus belobranchnus* betina, K. *Belobranchnus segura* betina, L. *Eleotris melanosoma* betina, M. *Eleotris fusca* jantan, N. *Giuris margaritacea* betina (didokumentasikan oleh Nurjirana).



Lampiran 1. Lanjutan



Ikan penja jenis A. *Schismatogobius bussoni* jantan, B. *Schismatogobius bussoni* betina, C. *Schismatogobius marmoratus* jantan, D. *Schismatogobius marmoratus* betina, E. *Schismatogobius bruynisi* jantan, F. *Schismatogobius bruynisi* betina, G. *Schismatogobius saurii* jantan, H. *Schismatogobius saurii* betina, I. *Schismatogobius risdawatiae* jantan (didokumentasikan oleh Nurjirana).

Lampiran 2. Jarak genetik ikan penja dari perairan Sulawesi Barat.

Jenis ikan penja	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
<i>Sicyopterus</i> <i>microcephalus</i> _MSFUH1310																								
<i>Sicyopterus</i> <i>longifilis</i> _MSFUH1352	0,055																							
<i>Sicyopus</i> <i>zosterophorus</i> _MSFUH866	0,134	0,148																						
<i>Sicyopus</i> <i>zosterophorus</i> _MSFUH1379	0,134	0,148	0,000																					
<i>Sicyopus</i> <i>auxilimentus</i> _MSFUH1217	0,112	0,114	0,097	0,097																				
<i>Sicyopus</i> <i>auxilimentus</i> _MSFUH1265	0,112	0,114	0,097	0,097	0,000																			
<i>Sicyopterus</i> <i>microcephalus</i> _MSFUH868	0,007	0,053	0,134	0,134	0,118	0,118																		
<i>Smilosicyopus</i> <i>leprurus</i> _MSFUH113	0,114	0,107	0,112	0,112	0,114	0,114	0,112																	
<i>Sicyopterus</i> <i>microcephalus</i> _MSFUH1385	0,005	0,051	0,136	0,136	0,116	0,116	0,002	0,114																
<i>Smilosicyopus</i> <i>leprurus</i> _MSFUH864	0,114	0,107	0,112	0,112	0,114	0,114	0,112	0,000	0,114															
<i>Smilosicyopus</i> <i>leprurus</i> _MSFUH119	0,118	0,111	0,122	0,122	0,120	0,120	0,116	0,010	0,118	0,010														
<i>Sicyopterus</i> <i>longifilis</i> _MSFUH1355	0,055	0,000	0,148	0,148	0,114	0,114	0,053	0,107	0,051	0,107	0,111													
<i>Sicyopterus</i> <i>longifilis</i> _MSFUH1311	0,055	0,000	0,148	0,148	0,114	0,114	0,053	0,107	0,051	0,107	0,111	0,000												
<i>Stiphodon</i> <i>pelewensis</i> _MSFUH1259	0,116	0,106	0,124	0,124	0,108	0,108	0,112	0,118	0,114	0,118	0,118	0,106	0,106											
<i>Stiphodon</i> <i>pelewensis</i> _MSFUH1396	0,116	0,106	0,124	0,124	0,108	0,108	0,112	0,118	0,114	0,118	0,118	0,106	0,106	0,000										

Lampiran 2. Lanjutan.

Jenis ikan penja	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
<i>Stiphodon pelewensis</i> _MSFU H1225	0,1 16	0,1 06	0,1 24	0,1 24	0,1 08	0,1 08	0,1 12	0,1 18	0,1 14	0,1 18	0,1 18	0,1 06	0,1 06	0,0 00	0,0 00									
<i>Stiphodon semoni</i> _MSFUH12 68	0,1 16	0,1 22	0,1 16	0,1 16	0,1 08	0,1 08	0,1 16	0,1 08	0,1 18	0,1 08	0,1 12	0,1 22	0,1 22	0,0 69	0,0 69	0,0 69								
<i>Stiphodon semoni</i> _MSFUH13 36	0,1 20	0,1 22	0,1 16	0,1 16	0,1 08	0,1 08	0,1 20	0,1 08	0,1 22	0,1 08	0,1 12	0,1 22	0,1 22	0,0 75	0,0 75	0,0 75	0,0 05							
<i>Stiphodon semoni</i> _MSFUH13 94	0,1 18	0,1 20	0,1 14	0,1 14	0,1 06	0,1 06	0,1 18	0,1 06	0,1 20	0,1 06	0,1 10	0,1 20	0,1 20	0,0 71	0,0 71	0,0 71	0,0 02	0,0 03						
<i>Sicyopus zosterophorus</i> _MS FUH1212	0,1 34	0,1 52	0,0 03	0,0 03	0,1 01	0,1 01	0,1 34	0,1 16	0,1 36	0,1 16	0,1 22	0,1 52	0,1 52	0,1 28	0,1 28	0,1 28	0,1 20	0,1 20	0,1 18					
<i>Stiphodon atropurpureus</i> _MS FUH1284	0,1 29	0,1 20	0,1 10	0,1 10	0,1 01	0,1 01	0,1 29	0,1 16	0,1 31	0,1 16	0,1 20	0,1 20	0,1 20	0,0 60	0,0 60	0,0 60	0,0 44	0,0 43	0,0 43	0,1 14				
<i>Sicyopus auxiliimentus</i> _MSF UH1222	0,1 12	0,1 14	0,0 97	0,0 97	0,0 00	0,0 00	0,1 18	0,1 14	0,1 16	0,1 14	0,1 20	0,1 14	0,1 14	0,1 08	0,1 08	0,1 08	0,1 08	0,1 08	0,1 06	0,1 01	0,1 01			
<i>Sicyopterus cynocephalus</i> _MS FUH1306	0,0 86	0,0 94	0,1 40	0,1 40	0,1 10	0,1 10	0,0 82	0,0 99	0,0 84	0,0 99	0,1 05	0,0 94	0,0 94	0,1 24	0,1 24	0,1 24	0,1 20	0,1 24	0,1 22	0,1 44	0,1 34	0,1 10		
<i>Sicyopterus cynocephalus</i> _MS FUH1354	0,0 82	0,0 90	0,1 38	0,1 38	0,1 10	0,1 10	0,0 79	0,0 99	0,0 81	0,0 99	0,1 05	0,0 90	0,0 90	0,1 26	0,1 26	0,1 26	0,1 16	0,1 20	0,1 18	0,1 42	0,1 32	0,1 10	0,0 03	
<i>Sicyopterus cynocephalus</i> _MS FUH1234	0,0 80	0,0 90	0,1 40	0,1 40	0,1 14	0,1 14	0,0 77	0,1 03	0,0 79	0,1 03	0,1 09	0,0 90	0,0 90	0,1 24	0,1 24	0,1 24	0,1 18	0,1 22	0,1 20	0,1 44	0,1 36	0,1 14	0,0 07	0,0 07

Lampiran 2. Lanjutan.

Jenis Ikan Penja	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<i>Schismatogobius marmoratus</i> _MSFUH1406																					
<i>Schismatogobius bruynisi</i> _MSFUH1400	0,20																				
<i>Schismatogobius bruynisi</i> _MSFUH1398	0,20	0,00																			
<i>Schismatogobius bussoni</i> _MSFUH1145	0,19	0,17	0,17																		
<i>Schismatogobius bussoni</i> _MSFUH1160	0,20	0,18	0,18	0,01																	
<i>Schismatogobius marmoratus</i> _MSFUH1255	0,00	0,20	0,20	0,19	0,20																
<i>Schismatogobius marmoratus</i> _MSFUH1289	0,00	0,20	0,20	0,19	0,20	0,00															
<i>Schismatogobius bruynisi</i> _MSFUH1413	0,20	0,00	0,00	0,18	0,18	0,20	0,20														
<i>Schismatogobius saurii</i> _MSFUH1416	0,20	0,00	0,00	0,18	0,18	0,20	0,21	0,00													
<i>Schismatogobius saurii</i> _MSFUH1175	0,20	0,00	0,00	0,18	0,18	0,20	0,21	0,00	0,00												
<i>Schismatogobius bussoni</i> _MSFUH1285	0,19	0,17	0,17	0,00	0,01	0,19	0,19	0,18	0,18	0,18											
<i>Schismatogobius saurii</i> _MSFUH1405	0,20	0,00	0,00	0,18	0,18	0,20	0,21	0,00	0,00	0,00	0,18										
<i>Awaous grammepomus</i> _MSFUH1190	0,20	0,24	0,24	0,24	0,24	0,20	0,20	0,24	0,24	0,24	0,24	0,24									
<i>Awaous grammepomus</i> _MSFUH1196	0,21	0,25	0,25	0,25	0,25	0,21	0,21	0,25	0,25	0,25	0,25	0,25	0,00								

Lampiran 2. Lanjutan.

Jenis ikan penja	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<i>Stenogobius genivittatus</i> _MSFUH1365	0,2 25	0,2 54	0,2 54	0,2 44	0,2 38	0,2 25	0,2 25	0,2 54	0,2 56	0,2 56	0,2 44	0,2 56	0,1 85	0,1 91							
<i>Glossogobius giuris</i> _MSFUH1415	0,2 63	0,2 52	0,2 52	0,2 63	0,2 61	0,2 63	0,2 61	0,2 49	0,2 52	0,2 52	0,2 63	0,2 52	0,2 33	0,2 40	0,2 53						
<i>Glossogobius giuris</i> _MSFUH870	0,2 90	0,2 73	0,2 73	0,2 90	0,2 88	0,2 90	0,2 87	0,2 70	0,2 72	0,2 72	0,2 90	0,2 72	0,2 53	0,2 60	0,2 78	0,0 24					
<i>Awaous ocellaris</i> _MSFUH1191	0,2 38	0,2 86	0,2 86	0,2 90	0,2 90	0,2 38	0,2 40	0,2 83	0,2 83	0,2 83	0,2 90	0,2 83	0,0 48	0,0 56	0,2 10	0,2 70	0,2 83				
<i>Awaous grammepomus</i> _MSFUH1198	0,2 07	0,2 49	0,2 49	0,2 39	0,2 36	0,2 07	0,2 09	0,2 47	0,2 46	0,2 46	0,2 39	0,2 46	0,0 07	0,0 15	0,1 82	0,2 30	0,2 55	0,0 50			
<i>Awaous ocellaris</i> _MSFUH1322	0,2 07	0,2 43	0,2 43	0,2 49	0,2 46	0,2 07	0,2 09	0,2 41	0,2 40	0,2 40	0,2 49	0,2 40	0,0 09	0,0 16	0,1 77	0,2 33	0,2 53	0,0 42	0,0 11		
<i>Awaous ocellaris</i> _MSFUH1219	0,2 07	0,2 43	0,2 43	0,2 49	0,2 46	0,2 07	0,2 09	0,2 41	0,2 40	0,2 40	0,2 49	0,2 40	0,0 09	0,0 16	0,1 77	0,2 33	0,2 53	0,0 42	0,0 11	0,0 00	
<i>Schismatogobius risdawatiae</i> _MSFUH1186	0,1 90	0,1 66	0,1 66	0,0 81	0,0 75	0,1 90	0,1 90	0,1 69	0,1 71	0,1 71	0,0 81	0,1 71	0,2 39	0,2 49	0,2 26	0,2 43	0,2 69	0,2 76	0,2 34	0,2 39	0,2 39

Lampiran 2. Lanjutan.

Jenis ikan penja	1	2	3	4	5	6	7	8	9	10	11
<i>Belobranchus segura</i> _MSFUH1292											
<i>Eleotris fusca</i> _MSFUH1335	0,181										
<i>Eleotris fusca</i> _MSFUH1201	0,181	0,000									
<i>Belobranchus belobranchus</i> _MSFUH1324	0,127	0,183	0,183								
<i>Belobranchus segura</i> _MSFUH1324	0,010	0,185	0,185	0,135							
<i>Eleotris fusca</i> _MSFUH1200	0,177	0,005	0,005	0,183	0,181						
<i>Eleotris melanosoma</i> _MSFUH1203	0,206	0,133	0,133	0,194	0,206	0,131					
<i>Eleotris melanosoma</i> _MSFUH1204	0,204	0,133	0,133	0,192	0,203	0,131	0,002				
<i>Eleotris melanosoma</i> _MSFUH1302	0,204	0,139	0,139	0,196	0,203	0,137	0,008	0,010			
<i>Giuris margaritacea</i> _MSFUH1364	0,193	0,180	0,180	0,184	0,195	0,181	0,181	0,179	0,181		
<i>Giuris margaritacea</i> _MSFUH1396	0,197	0,175	0,175	0,201	0,201	0,175	0,190	0,192	0,199	0,124	
<i>Giuris margaritacea</i> _MSFUH1230	0,193	0,184	0,184	0,182	0,195	0,186	0,185	0,183	0,185	0,006	0,124



Lampiran 3. Hasil penjaran gen COI spesimen ikan penja dari perairan Sulawesi Barat di *GeneBank* (NCBI).

Spesimen	Cakupan (Query Cover) (%)	Identitas (Identity) (%)	<i>E-value</i>	Nomor akses (Accession Number)	Lokasi
<i>S. cynocephalus</i>	100%	100.00%	0.0	KU693015.1	Bali
	100%	99.69%	0.0	MK496936.1	Solomon Islands
	100%	99.69%	0.0	NC_044137.1	Solomon Islands
	100%	99.69%	0.0	MN069305.1	Gorontalo
	100%	99.39%	0.0	KU693016.1	Banten
<i>S. microcephalus</i>	94%	99.85	0.0	KU693045.1	Jawa
	94%	99.54	0.0	KU693052.1	Jawa
	94%	99.54	0.0	KU693046.1	Jawa
	94%	99.39	0.0	KU693055.1	Bali
	94%	99.39	0.0	KU693053.1	Jawa
	94%	99.23	0.0	KU693054.1	Bali
	98%	98.97	0.0	MK496964.1	Indonesia
	98%	98.97	0.0	MK496963.1	Perancis
<i>S. longifilis</i>	98%	99.56	0.0	MK496956.1	Indonesia
	98%	99.41	0.0	NC_044142.1	Filipina
	98%	99.12	0.0	MK496959.1	Indonesia
	98%	98.76	0.0	MK496957.1	Indonesia
	98%	98.23	0.0	MK496958.1	Indonesia
	94%	99.39	0.0	MT706723.1	Gorontalo
<i>S. zosterophorus</i>	96%	99.55	0.0	KC407438.1	Jepang
	96%	99.55	0.0	KC407496.1	Papua New Guinea
	96%	99.40	0.0	KC407517.1	Papua New Guinea
	96%	99.25	0.0	KC407518.1	Papua New Guinea
	96%	99.25	0.0	KC407480.1	Filipina
	96%	99.10	0.0	KC407466.1	Filipina
<i>S. auxiliimentus</i>	94%	99.69	0.0	KU693084.1	Bali
	94%	99.54	0.0	KU693083.1	Bali
	94%	99.39	0.0	KU693082.1	Bali
	94%	99.23	0.0	KU693087.1	Bali
	94%	99.23	0.0	KU693086.1	Jawa
<i>S. leprurus</i>	96%	99.25%	0.0	KF668816.1	France
	94%	99.85%	0.0	KF668817.1	France
<i>S. semoni</i>	100%	100.00%	0.0	KU693171.1	Jawa
	100%	99.85%	0.0	KU693172.1	Jawa
	100%	99.85%	0.0	MT706724.1	Gorontalo
	100%	99.69%	0.0	MN812978.1	Sulawesi

Lampiran 3. Lanjutan

Spesimen	Cakupan (Query Cover) (%)	Identitas (Identity) (%)	E-value	Nomor akses (Accession Number)	Lokasi
<i>S. atropurpureus</i>	100%	100.00%	0.0	KU693153.1	Bali
	100%	100.00%	0.0	KU693140.1	Bali
	100%	99.53%	0.0	KU693155.1	Bali
	100%	99.37%	0.0	KU693145.1	Jawa
	100%	99.37%	0.0	KU693142.1	Jawa
	100%	99.37%	0.0	KU693136.1	Jawa
<i>S. pelewensis</i>	100%	100.00%	0.0	MK496968.1	Indonesia
	100%	100.00%	0.0	KU693163.1	Banten
	100%	100.00%	0.0	KF668849.1	France
	100%	99.69%	0.0	NC_044176.1	Vanuatu
<i>G. giuris</i>	62%	99.31%	0.0	KU692522.1	Banten
	62%	99.31%	0.0	KU692522.1	Banten
	60%	99.52%	0.0	KU692519.1	Jawa
	94%	99.23%	0.0	KU692518.1	Jawa
	59%	99.27%	0.0	KU692517.1	Jawa
<i>S. genivittatus</i>	93%	99.69%	0.0	JQ432168.1	French Polynesia
	93%	99.54%	0.0	JQ432169.1	French Polynesia
	79%	100%	0.0	KU944871.1	Taiwan
	79%	99.82%	0.0	KU944869.1	Taiwan
	79%	99.64%	0.0	KU944870.1	Taiwan
<i>A. ocellaris</i>	100%	100.00%	0.0	KC959851.1	Filipina
	97%	99.68%	0.0	KC959856.1	Filipina
	95%	98.84%	0.0	KC959850.1	Filipina
<i>A. grammepomus</i>	97%	98.67%	0.0	KU692311.1	Bali
	93%	98.93%	0.0	KU692306.1	Bali
	93%	98.93%	0.0	KU692305.1	Bali
	93%	98.93%	0.0	KU692312.1	Jawa
	93%	98.77%	0.0	KU692310.1	Jawa
<i>S. saurii</i>	92%	100%	0.0	MG648720.1	Filipina
	94%	99.23%	0.0	MG648718.1	Maluku
	92%	99.53%	0.0	MG648721.1	Lampung
	98%	99.71%	0.0	AP018057.1	Jepang
	98%	99.56%	0.0	AP018096.1	Jepang
	98%	99.56%	0.0	AP018058.1	Jepang
	98%	99.42%	0.0	AP018099.1	Jepang

Lampiran 3. Lanjutan

Spesimen	Cakupan (Query Cover) (%)	Identitas (Identity) (%)	E-value	Nomor akses (Accession Number)	Lokasi
<i>S. bruynisi</i>	94%	99.54%	0.0	KU692858.1	Jawa
	94%	99.54%	0.0	KU692857.1	Jawa
	94%	99.54%	0.0	KU692856.1	Bali
	94%	99.54%	0.0	KU692855.1	Bali
	94%	99.54%	0.0	KU692854.1	Bali
	94%	99.08%	0.0	KU692853.1	Bali
	94%	98.93%	0.0	KU692851.1	Jawa
<i>S. marmoratus</i>	93%	99.69%	0.0	KU692887.1	Bali
	93%	99.69%	0.0	KU692886.1	Bali
	93%	99.69%	0.0	KU692885.1	Jawa
	93%	99.69%	0.0	KU692864.1	Jawa
	93%	99.69%	0.0	KU692863.1	Jawa
	93%	99.54%	0.0	KU692883.1	Jawa
	93%	99.54%	0.0	KU692882.1	Jawa
	93%	99.54%	0.0	KU692881.1	Jawa
	93%	99.54%	0.0	KU692876.1	Bali
	93%	99.38%	0.0	KU692879.1	Bali
93%	99.23%	0.0	KU692884.1	Jawa	
<i>S. risdawatiae</i>	100%	100.00%	0.0	MG648716.1	Sumatera
	100%	99.85%	0.0	MG648715.1	Sumatera
	98%	99.84%	0.0	MG648717.1	Sumatera
<i>S. bussoni</i>	94%	100%	0.0	MG648705.1	Maluku
	92%	100%	0.0	MG648701.1	Maluku
	90%	99.84%	0.0	MG648702.1	Maluku
<i>B. belobranthus</i>	100%	100%	0.0	KU692352.1	Jawa
	100%	100%	0.0	KU692349.1	Jawa
	100%	99.69%	0.0	KU692351.1	Bali
	100%	99.54%	0.0	MT706726.1	Gorontalo
	100%	99.23%	0.0	KU692350.1	Bali
	100%	99.23%	0.0	MT706791.1	Gorontalo
	100%	96.93%	0.0	KU692345.1	Banten
<i>B. segura</i>	95%	99.39%	0.0	MN069308.1	Gorontalo
	95%	99.24%	0.0	MN069306.1	Gorontalo
	95%	98.47%	0.0	KU692375.1	Jawa
	95%	98.47%	0.0	KU692374.1	Jawa
	95%	98.47%	0.0	KU692367.1	Jawa
	95%	98.32%	0.0	KU692372.1	Bali
	95%	98.16%	0.0	KU692373.1	Bali
	93%	98.28%	0.0	KU692357.1	Bali
88%	98.03%	0.0	KU692354.1	Bali	

Lampiran 3. Lanjutan

Spesimen	Cakupan (Query Cover) (%)	Identitas (Identity) (%)	E-value	Nomor akses (Accession Number)	Lokasi
<i>E. fusca</i>	94%	99.39%	0.0	KT960771.1	Jawa
	94%	99.23%	0.0	KT960770.1	Jawa
	94%	99.23%	0.0	KT960768.1	Jawa
	94%	99.08%	0.0	KT960773.1	Bali
	84%	99.83%	0.0	MH498109.1	Papua
	84%	99.83%	0.0	MH498098.1	Papua
<i>E. melanosoma</i>	100%	100.00%	0.0	KU692490.1	Banten
	100%	99.85%	0.0	KU692489.1	Jawa
	100%	99.54%	0.0	KU692488.1	Bali
	100%	99.23%	0.0	KU692486.1	Bali
<i>G. margaritacea</i>	100%	100.00%	0.0	KU692514.1	Bali
	100%	99.39%	0.0	KU692506.1	Bali
	100%	99.39%	0.0	KU692505.1	Bali
	100%	89.11%	0.0	KU692508.1	Jawa
	100%	88.96%	0.0	KU692513.1	Banten

Lampiran 4. Markah molekuler spesimen ikan penja dari perairan Sulawesi Barat.

MSFUH1406\_ *Schismatogobius marmoratus*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCGGTTTTGTATTTGGTGCATGGGCAGGAATGGTAGGAACCGCACT  
TAGCCTTTTAATTCGGGCTGAGCTCAGTCAACCCGGCGCCCTATTAGGAGACGACC  
AGATCTATAACGTCATCGTCACCGCACATGCCTTTGTAATAATCTTTTTTATAGTTATA  
CCCATCATAATCGGGGGCTTCGGAAACTGACTTATCCCCCTTATAATCGGAGCCCCA  
GACATGGCCTTCCCTCGGATAAACAACATAAGCTTTTGGCTTCTGCCTCCTTCTTTT  
TACTTCTCCTTGCCTCTTCTGGCGTAGAAGCCGGGGCCGGAACAGGTTGAACGGTT  
TACCCTCCCCTTGCAGGCAACCTTGCCCATGCTGGAGCCTCTGTAGACCTAACCATC  
TTCTCCCTCCACTTGGCAGGTGTTTCTTCTATCCTAGGTGCCATTAACCTTTATTACAA  
CAATTCTCAATATAAAACCTCCTGCCATCTCTCAATACCAGACGCCCTGTTTGTGTG  
AGCAGTACTCATTACTGCAGTCCCTCCTTCTATCTCTTCCAGTCCTTGCCGCAGG  
CATCACAATGCTTCTGACAGACCGAAACCTAAATACAACCTTCTTCGACCCGGCGGG  
GGGAGGAGACCCCAATTCTTTATCAACACTTATTCTGATTCTTCGGCCACCCGGAAG  
GTCTAA

MSFUH1255\_ *Schismatogobius marmoratus*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCTGTATTTAGTTTTGGTTGCATGGGCAGGAATGGTAGGAACCGCACTT  
AGCCTTTTAATTCGGGCTGAGCTCAGTCAACCCGGCGCCCTATTAGGAGACGACCA  
GATCTATAACGTCATCGTCACCGCACATGCCTTTGTAATAATCTTTTTTATAGTTATAC  
CCATCATAATCGGGGGCTTCGGAAACTGACTTATCCCCCTTATAATCGGAGCCCCAG  
ACATGGCCTTCCCTCGGATAAACAACATAAGCTTTTGGCTTCTGCCTCCTTCTTTTT  
ACTTCTCCTTGCCTCTTCTGGCGTAGAAGCCGGGGCCGGAACAGGTTGAACGGTTT  
ACCCTCCCCTTGCAGGCAACCTTGCCCATGCTGGAGCCTCTGTAGACCTAACCATCT  
TCTCCCTCCACTTGGCAGGTGTTTCTTCTATCCTAGGTGCCATTAACCTTTATTACAAC  
AATTCTCAATATAAAACCTCCTGCCATCTCTCAATACCAGACGCCCTGTTTGTGTGA  
GCAGTACTCATTACTGCAGTCCCTCCTTCTATCTCTTCCAGTCCTTGCCGCAGGC  
ATCACAATGCTTCTGACAGACCGAAACCTAAATACAACCTTCTTCGACCCGGCGGGG  
GGAGGAGACCCCAATTCTTTATCAACACTTATTCTGATTCTTTGGCCACCAGAAAAGTCT  
AA

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ATTGGCACCCCTGTATTTAGTATTTGGTGCATGGGCAGGAATGGTAGGAACCGCACTT  
AGCCTTTTAATTCGGGCTGAGCTCAGTCAACCCGGCGCCCTATTAGGAGACGACCA  
GATCTATAACGTCATCGTCACCGCACATGCCTTTGTAATAATCTTTTTTATAGTTATAC  
CCATCATAATCGGGGGCTTCGGAAACTGACTTATCCCCCTTATAATCGGAGCCCCAG  
ACATGGCCTTCCCTCGGATAAACAACATAAGCTTTTGGCTTCTGCCTCCTTCTTTTT  
ACTGCTCCTTGCCTCTTCTGGCGTAGAAGCCGGGGCCGGAACAGGTTGAACGGTTT  
ACCCTCCCCTTGCAGGCAACCTTGCCCATGCTGGAGCCTCTGTAGACCTAACCATCT  
TCTCCCTCCACTTGGCAGGTGTTTCTTCTATCCTAGGTGCCATTAACCTTTATTACAAC  
AATTCTCAATATAAAACCTCCTGCCATCTCTCAATACCAGACGCCCTGTTTGTGTGA  
GCAGTACTCATTACTGCAGTCCCTCCTTCTATCTCTTCCAGTCCTTGCCGCAGGC  
ATCACAATGCTTCTGACAGACCGAAACCTAAATACAACCTTCTTCGACCCGGCGGGG  
GGAGGAGACCCCAATTCTTTATCAACACTTATTCTGATTCTTTGGCCACCAGAAAAGTC  
TAA

Lampiran 4. Lanjutan.

MSFUH1400\_ *Schismatogobius bruynisi*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCTTTATTTAGTCTTTGGGTGGCCTGGGCAGGGATGGTAGGAACCGCT  
CTAAGCCTCTTAATCCGGGCCGAACCTAAGTCAGCCCGGCGCTCTATTAGGGGACGA  
TCAAATTTACAATGTAATCGTCACCGCCCATGCGTTTGTAATAATCTTTTTTATGGTTA  
TGCCCATCATGATCGGGGGCTTTGGGAACCTGGCTTATCCCCCTCATGATTGGTGCC  
CCCGATATAGCCTTTCTCGGATAAACAACATAAGCTTCTGGCTCCTCCCCCCTCT  
TTCCTTCTTCTCCTTGCCTCTTCAGGAGTAGAGGCCGGGGCCGGAACGGGCTGAAC  
AGTCTACCCTCCCCTGGCAGGGAACCTCGCGCACGCCGGGGCTTCTGTGGACTTAA  
CCATCTTCTCCCTTACCTCGCGGGGGTCTCTTCAATTCTAGGCGCCATTAATTTTAT  
TACGACTATTCTTAACATAAAGCCCCAGCCATTTACAGTACCAGACACCTCTATTT  
GTGTGAGCAGTCCCTCATCACTGCAGTTCTTTACTTCTCTCCTTGCCAGTTCTTGCCG  
CAGGAATTACAATGCTACTCACGGACCGAAATTTAAACACAACATTCTTTGACCCGG  
CAGGGGGAGGAGACCCCATTTACCAACACCTGTTCTGATTCTTCGGCCACCCG  
GAAGGTCTAAAA

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ATTGGCACCCCTTTTTGTCTTTGGTGCCTGGGCAGGGATGGTAGGAACCGCTCTA  
AGCCTCTTAATCCGGGCCGAACCTAAGTCAGCCCGGCGCTCTATTAGGGGACGATCA  
AATTTACAATGTAATCGTCACCGCCCATGCGTTTGTAATAATCTTTTTTATGGTTATGC  
CCATCATGATCGGGGGCTTTGGGAACCTGGCTTATCCCCCTCATGATTGGTGCCCCC  
GATATAGCCTTTCTCGGATAAACAACATAAGCTTCTGGCTCCTCCCCCCTCTTTTC  
CTTCTTCTCCTTGCCTCTTCAGGAGTAGAGGCCGGGGCCGGAACGGGCTGAACAGT  
CTACCCTCCCCTGGCAGGGAACCTCGCGCACGCCGGGGCTTCTGTGGACTTAACCA  
TCTTCTCCCTTACCTCGCGGGGGTCTCTTCAATTCTAGGCGCCATTAATTTTATTAC  
GACTATTCTTAACATAAAGCCCCAGCCATTTACAGTACCAGACACCTCTATTTGTG  
TGAGCAGTCCCTCATCACTGCAGTTCTTTACTTCTCTCCTTGCCAGTTCTTGCCGCGAG  
GAATTACAATGCTACTCACGGACCGAAATTTAAACACAACATTCTTTGACCCGGCAG  
GGGGAGGAGACCCCATTTACCAACACCTGTTCTGCTTCTTCGGCCACCCCGGA  
CGTCTAAAA

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ATTGGCACCCCTTTATTTAGTCTTTGGTGCCTGGGCAGGGATGGTAGGAACCGCTCTA  
AGCCTCTTAATCCGGGCCGAACCTAAGTCAGCCCGGCGCTCTATTAGGGGACGATCA  
AATTTACAATGTAATCGTCACCGCCCATGCAATTTGTAATAATCTTTTTTATGGTTATGC  
CCATCATGATCGGGGGCTTTGGGAACCTGGCTTATCCCCCTCATGATTGGTGCCCCC  
GATATAGCCTTTCTCGGATAAACAACATAAGCTTCTGGCTCCTCCCCCCTCTTTTC  
CTTCTTCTCCTTGCCTCTTCAGGAGTAGAGGCCGGGGCCGGAACGGGCTGAACAGT  
CTACCCTCCCCTGGCAGGGAACCTCGCGCACGCCGGGGCTTCTGTGGACTTAACCA  
TCTTCTCCCTTACCTCGCGGGGGTCTCTTCAATTCTAGGCGCCATTAATTTTATTAC  
GACTATTCTTAACATAAAGCCCCAGCCATTTACAGTACCAGACACCTCTATTTGTG  
TGAGCAGTCCCTCATCACTGCAGTTCTTTACTTCTCTCCTTGCCAGTTCTTGCCGCGAG  
GAATTACAATGCTACTCACGGACCGAAATTTAAACACAACATTCTTTGACCCGGCAG  
GGGGAGGAGACCCCATTTACCAACACCTGTTCTGCTTCTTCGGCCACCCCGAC  
GTCTAAGT

Lampiran 4. Lanjutan.

MSFUH1145\_ *Schismatogobius bussoni*\_ Sulawesi Barat\_ Indonesia  
ATTGGCACCCCTCTACTTAGTCTTCGGTGCCTGGGCAGGGATAGTTGGAACCGCCCT  
TAGCCTGCTTATTCGGGCGGAGCTCAGCCAACCCGGGGCCCTATTAGGGGACGATC  
AGATTTATAACGTGATCGTCACCGCACATGCGTTTGTAATAATCTTTTTTATAGTTATA  
CCCATCATGATCGGGGGCTTCGGAAACTGGCTTATCCCTCTTATAATCGGCGCCCC  
AGACATAGCCTTTCCCCGAATAAACAATATGAGCTTTTGACTGCTCCCTCCCTCTTTC  
CTTCTCCTCCTCGCCTCTTCCGGAGTCGAGGCCGGAGCGGGGACAGGCTGAACAG  
TTTATCCTCCCTTAGCAGGGAACCTCGCACATGCGGGCGCGTCAGTGGATCTCACC  
ATCTTCTCCCTTACCTGGCAGGTGTCTCTTCTATTCTGGGGGCCATTAACCTTTATCA  
CAACCATTCTTAATATAAAACCCCCAGCCATTTACAGTATCAAACCCCGTTGTTTGT  
GTGAGCAGTACTTATTACTGCCGTTCTTTTACTTCTTTCCCTCCCAGTCCTTGCAGCA  
GGCATTACAATGTTGCTCACAGACCGAAACCTTAACACGACTTTCTTCGATCCGGCA  
GGAGGGGGAGACCCCATTTTGTACCAACACCTGTTCTGATTCTTTGGCCACCAGAAA  
AGTCTAAA

MSFUH1160\_ *Schismatogobius bussoni*\_ Sulawesi Barat\_ Indonesia  
ATTGGCACCCCTCTCTAGTCTTCGGTGCCTGGGCAGGGATAGTTGGAACCGCCCT  
TAGCCTGCTTATTCGGGCGGAGCTCAGCCAACCCGGGGCCCTACTAGGGGACGAT  
CAGATTTATAACGTGATCGTCACCGCACATGCGTTTGTAATAATCTTTTTTATAGTCAT  
ACCCATCATGATTGGGGGCTTCGGAAACTGGCTTATCCCTCTTATAATCGGCGCCCC  
AGACATAGCCTTTCCCCGAATAAACAATATGAGCTTTTGACTGCTTCCCTCCCTCTTTC  
CTTCTCCTCCTCGCCTCTTCCGGAGTCGAAGCCGGAGCGGGGACAGGCTGAACAGT  
CTATCCTCCCTTAGCAGGGAACCTCGCACATGCGGGCGCGTCAGTGGATCTCACCA  
TCTTCTCCCTTACCTCGCAGGTGTCTCTTCTATTCTGGGGGCCATTAACCTTTATCAC  
GACCATTCTTAATATAAAACCCCCAGCCATTTACAGTATCAAACCCCTTGTGTTG  
TGAGCAGTACTTATTACTGCCGTTCTTTTACTTCTTTCCCTCCCAGTCCTTGCAGCAG  
GCATTACAATGTTGCTCACAGACCGAAACCTCAACACGACTTTCTTCGATCCGGCAG  
GAGGGGGAGACCCCATTTTGTACCAACACCTGTTCTGATTCTTTGGCCACCAGAAAA  
GTCTAA

MSFUH1285\_ *Schismatogobius bussoni*\_ Sulawesi Barat\_ Indonesia  
ATTGGCACCCCTCACTAGTCTTCGAGGTGCCTGGGCAGGGATAGTTGGAACCGCC  
CTTAGCCTGCTTATTCGGGCGGAGCTCAGCCAACCCGGGGCCCTATTAGGGGACGA  
TCAGATTTATAACGTGATCGTCACCGCACATGCGTTTGTAATAATCTTTTTTATAGTTA  
TACCCATCATGATCGGGGGCTTCGGAAACTGGCTTATCCCTCTTATAATCGGCGCCCC  
CAGACATAGCCTTTCCCCGAATAAACAATATGAGCTTTTGACTGCTCCCTCCCTCTTT  
CCTTCTCCTCCTCGCCTCTTCCGGAGTCGAGGCCGGAGCGGGGACAGGCTGAACA  
GTTTATCCTCCCTTAGCAGGGAACCTCGCACATGCGGGCGCGTCAGTGGATCTCAC  
CATCTTCTCCCTTACCTGGCAGGTGTCTCTTCTATTCTGGGGGCCATTAACCTTTATC  
ACAACCATTCTTAATATAAAACCCCCAGCCATTTACAGTATCAAACCCCGTTGTTTGT  
TGTGAGCAGTACTTATTACTGCCGTTCTTTTACTTCTTTCCCTCCCAGTCCTTGCAGC  
AGGCATTACAATGTTGCTCACAGACCGAAACCTTAACACGACTTTCTTCGATCCGGC  
AGGAGGGGGAGACCCCATTTTGTACCAACACCTGTTCTGATTCTTTGGCCACCAGAA  
AAGTCTAAA

Lampiran 4. Lanjutan.

MSFUH1416\_ *Schismatogobius saurii*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCTTATTTAGTCTTTGGTGCCTGGGCAGGGATGGTAGGAACCGCTCTA  
AGCCTCTTAATCCGGGCGAACTAAGTCAGCCCGGCGCTCTATTAGGGGACGATCA  
AATTTACAATGTAATCGTCACCGCCCATGCATTTGTAATAATCTTTTTTATGGTTATGC  
CCATCATGATCGGGGGCTTTGGGAACTGGCTTATCCCCCTCATGATTGGTGCCCC  
GATATAGCCTTTCCTCGGATAAACAACATAAGCTTCTGGCTCCTCCCCCCTCTTTC  
CTTCTTCTCCTTGCCTCTTCAGGAGTAGAGGCCGGGGCCGGAACGGGCTGAACAGT  
CTACCCTCCCCTGGCAGGGAACCTCGCGCACGCCGGGGCTTCTGTGGACTTAACCA  
TCTTCTCCCTTACCTCGCGGGGGTCTCTTCAATTCTAGGCGCCATTAATTTTATTAC  
GACTATTCTTAACATAAAGCCCCAGCCATTTACAGTACCAGACACCTCTATTTGTG  
TGAGCAGTCCTCATCACTGCAGTTCTTTTACTTCTCTCCTTGCCAGTTCTTGCCGCAG  
GAATTACAATGCTACTCACGGACCGAAATTTAAACACAACATTCTTTGACCCGGCAG  
GGGGAGGAGACCCCATTTACCAACACCTGTTCTGATTCTTTGGCCACCAGAAAA  
GTCTAA

MSFUH1175\_ *Schismatogobius saurii*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCTTATATGTTCTTTGGTGCCTGGGCAGGGATGGTAGGAACCGCTCTA  
AGCCTCTTAATCCGGGCGAACTAAGTCAGCCCGGCGCTCTATTAGGGGACGATCA  
AATTTACAATGTAATCGTCACCGCCCATGCATTTGTAATAATCTTTTTTATGGTTATGC  
CCATCATGATCGGGGGCTTTGGGAACTGGCTTATCCCCCTCATGATTGGTGCCCC  
GATATAGCCTTTCCTCGGATAAACAACATAAGCTTCTGGCTCCTCCCCCCTCTTTC  
CTTCTTCTCCTTGCCTCTTCAGGAGTAGAGGCCGGGGCCGGAACGGGCTGAACAGT  
CTACCCTCCCCTGGCAGGGAACCTCGCGCACGCCGGGGCTTCTGTGGACTTAACCA  
TCTTCTCCCTTACCTCGCGGGGGTCTCTTCAATTCTAGGCGCCATTAATTTTATTAC  
GACTATTCTTAACATAAAGCCCCAGCCATTTACAGTACCAGACACCTCTATTTGTG  
TGAGCAGTCCTCATCACTGCAGTTCTTTTACTTCTCTCCTTGCCAGTTCTTGCCGCAG  
GAATTACAATGCTACTCACGGACCGAAATTTAAACACAACATTCTTTGACCCGGCAG  
GGGGAGGAGACCCCATTTACCAACACCTGTTCTGATTCTTTGGCCACCAGAAAA  
GTCTAAA

MSFUH1405\_ *Schismatogobius saurii*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCTTTTTAGTCTTTGGTGCCTGGGCAGGGATGGTAGGAACCGCTCT  
AAGCCTCTTAATCCGGGCGAACTAAGTCAGCCCGGCGCTCTATTAGGGGACGATC  
AAATTTACAATGTAATCGTCACCGCCCATGCATTTGTAATAATCTTTTTTATGGTTATG  
CCCATCATGATCGGGGGCTTTGGGAACTGGCTTATCCCCCTCATGATTGGTGCCCC  
CGATATAGCCTTTCCTCGGATAAACAACATAAGCTTCTGGCTCCTCCCCCCTCTTT  
CCTTCTTCTCCTTGCCTCTTCAGGAGTAGAGGCCGGGGCCGGAACGGGCTGAACAG  
TCTACCCTCCCCTGGCAGGGAACCTCGCGCACGCCGGGGCTTCTGTGGACTTAACC  
ATCTTCTCCCTTACCTCGCGGGGGTCTCTTCAATTCTAGGCGCCATTAATTTTATTA  
CGACTATTCTTAACATAAAGCCCCAGCCATTTACAGTACCAGACACCTCTATTTGT  
GTGAGCAGTCCTCATCACTGCAGTTCTTTTACTTCTCTCCTTGCCAGTTCTTGCCGCA  
GGAATTACAATGCTACTCACGGACCGAAATTTAAACACAACATTCTTTGACCCGGCA  
GGGGAGGAGACCCCATTTACCAACACCTGTTCTGATTCTTTGGCCACCAGAAA  
-GTCTAAA



Lampiran 4. Lanjutan.

MSFUH1186\_ *Schismatogobius risdawatieae*\_ Sulawesi Barat\_ Indonesia  
CCTCTACCTAGTCTTCGGTGCCTGGGCAGGGATGGTGGGAACCGCCCTTAGCCTGC  
TAATCCGGGCGGAGCTCAGCCAGCCCGGAGCCCTACTGGGAGACGATCAAATTTAC  
AATGTGATCGTCACCGCACATGCGTTTTGTAATAATCTTTTTTATAGTCATACCCATCA  
TGATCGGGGGCTTCGGAAACTGGCTTATCCCTCTTATAATCGGCGCCCCAGATATG  
GCCTTTCTCGAATAAACAATATAAGCTTTTTGACTGCTTCCTCCCTCTTTCCTCCTCC  
TCCCTCGCTCTTCGGAGTCGAGGCCGGGGCCGGAACAGGCTGAACGGTCTATCC  
CCCCTTAGCGGGGAACCTTGACATGCGGGGGCGTCCGTGGACCTCACCATCTTCT  
CCCTTACCTCGCAGGTGTCTTCAATCCTGGGGGCCATTAACCTTTATCAGACCA  
TCCTTAATATAAAACCCCGAGCCATTCGAGTACCAAACCCCTCTGTTCTGTGTGAG  
CAGTCCTTATTACTGCCGTTCTTACTTCTCTCCCTCCCCGTCTTGCAGCGGGCA  
TTACAATGTTGCTTACAGACCGAAACCTAAACACAACCTTCTTCGACCCGGCAGGAG  
GGGGAGACCCCATTTTGTACCAACACCTG

MSFUH1325\_ *Belobranchus belobranchus*\_ Sulawesi Barat\_ Indonesia  
CCTTTATCTTGTATTTGGTGCCTTGAGCGGGGATAGTGGGCACAGCTTTAAGCCTACT  
TATCCGAGCTGAATTAAGTCAACCCGGAGCACTCCTGGGAGACGACCAAATCTATAA  
TGTTATCGTTACCGCTCACGCGTTCGTAATAATTTTCTTTATAGTAATACCAATTATGA  
TTGGCGGATTTGGTAACTGACTAATCCCGCTAATGATCGGCGCCCTGATATAGCCT  
TCCCACGAATAAATAACATAAGCTTTTGACTTCTTCCCCCTCCTTCTACTTCTCCT  
GGCATCCTCCGGAGTAGAAGCCGGGGCTGGAACAGGTTGAACCGTTTACCCGCC  
TTAGCGGGAAACCTTGCCCATGCAGGCGCTTCTGTAGACCTAACAATTTTTTCACTC  
CACTTAGCCGGGGTGTCTCAATTCTTGGGGCAATTAACCTCATCACCACAATTATTA  
ATATAAAACCACCAGCAATTTCCCAATACCAAACACCCCTGTTCTGTCTGGGCTGTTCT  
AATTACAGCCGTCTTACTACTACTATCCCTCCCCGTGCTTGCCGCAGGTATTACAAT  
GCTACTCACAGATCGAAATCTAAATACAACCTTCTTCGACCCAG-  
CAGGGGGTGGAGACCCAATTCTATATCAACATCTC

MSFUH1292\_ *Belobranchus segura*\_ Sulawesi Barat\_ Indonesia  
CCTTTATCTTGTCTTCGGTGCCTGAGCCGGGATAGTGGGCACAGCTTTAAGCCTACT  
CATCCGCGCTGAACTAAGTCAACCTGGCGCACTCCTAGGAGATGACCAGATCTATAA  
TGTTATCGTTACCGCCCACGCGTTCGTAATAATTTTCTTTATAGTAATACCAATTATGA  
TTGGCGGATTTGGTAACTGACTAATCCCTTAATGATTGGAGCCCCAGACATGGCCT  
TCCCACGAATAAACAACATAAGTTTCTGACTCCTCCCGCCATCTTTCCTCCTCCTTTT  
AGCATCCTCTGGAGTAGAAGCAGGGGCCGGAACAGGGTGAACCGTTTACCCGCC  
CTAGCGGGCAACCTCGCCACGCAGGCGCCTCTGTGGACCTAACAATCTTTTCACT  
ACACCTAGCAGGGGTATCCTCAATTCTTGGAGCAATTAATTTTATTACCACAATTATT  
AACATAAAACCTCCGGCAATTTCCCAATACCAAACGCCCTTGTTCGTCTGAGCCGTT  
CTAATTACAGCCGTCTTATTACTATTATCCCTTCCCGTACTTGTCTGCTGGCATCACAA  
TGCTACTTACAGATCGAAATTTAAATACGACGTTCTTTGACCCGG-  
CCGGGGTGGGACCCAATCTTATACCAACACCTT

MSFUH1415\_ *Glossogobius giuris*\_ Sulawesi Barat\_ Indonesia  
ATTGGCACCCCTTTATTTAGTATTTGGCGCCTGAGCTGGTATAGTACGCACTGATTTGA  
GCCTACTAATTCGAGCTGAGCTAAGTCAACCGATGCGCTCTATTAGGTGATGATCAA  
ATTTATAATGTTATTGTCACCGCCACGCATTTGTTATAATTTTCTTTATAGTAATACC  
AATTATGATTGGAGGGTTTGGGAATTGACTAATCCCCCTAATAATTGGCGCCCCTGA  
TATGGCCTTCCCTCGAATAAATAACATAAGCTTTTGGCTATTGCCCCCTCTTTCTT  
CTGCTGCTCTTCTTCTGGGTTGAAGCAGGGGCTGGAACAGGATGAACTGTTTAT  
CCCCACTAGCAGGAAATCTTGACACGCAGGAGCATCGGTAGATCTCACTATTTTT  
TCTTTACATCTTGCTGGTATTTCTTCAATCCTCGGGGCTATTAATTTTATTACCACCAT  
TTTAAATATGAAACCCCGAGCTATTTCTCAATACCAGACCCCTTTATTTGTATGAGCA  
GTCTTAATTACTGCCGTGCTTTTACTTTTGTCCCTGCCAGTGCTTGCCGCGGGCATT  
ACAATGCTTCTCACAGACCGAAACCTAAACACAACATTTTTTACCCTGCAGGAGGA  
GAAACCCAATTCTTTACCAGCACTTATTTTGAATCTTTGGCCACCCAAAAGTCTAAA  
G

Lampiran 4. Lanjutan.

MSFUH870\_ *Glossogobius giuris* \_Sulawesi Barat\_Indonesia

ATTGGCACCCCTTTATTTAGTATTTGGCGCCTGAGCTGGTATAGTAGGCACTGCTTTG  
AGCCTACTAATTTCGAGCTGAGCTAAGTCAACCGGTGCGCTCTATTAGGTGATGATCA  
AATTTATAATGTTATTGTCACCGCCCACGCATTTGTTATAATTTTCTTTATAGTAATAC  
CAATTATGATTGGAGGGTTTGGGAATTGACTAATCCCCCTAATAATTGGCGCCCCTG  
ATATGGCCTTCCCTCGAATAAATAACATAAGCTTTTGGCTATTGCCCCCTCTTTCT  
TCTGTTGCTGTCTTCTTCTGGGTTGAAGCAGGGGCTGGAACAGGATGAACTGTTTA  
TCCCCACTAGCAGGAAATCTTGCACACGCAGGAGCATCGGTAGATCTCACTATTTT  
TTCTTTACATCTTGCTGGTATTTCTTCAATCCTCGGGGCTCTTAATTTTATTACCACCA  
TTTTAAATATGAAACCCCGAGATTTTCTCAATACCAGACCCCTTTATTTGTATGAGCT  
GTCTTCATCCCTGCCGTGCTTTTACTTTTCGTCCCTGCCAGTGCTTGCAGCGGGCATT  
ACCATGCTTCTCGCAGACCGAAACCTAAACACAACATTTTCTGACCCTGCAGGAGGA  
GAAACCCAATTCTTTACCAGCACTTATTTTGATTCTTTGGCCACCCAAAAGTCTAAA  
G

MSFUH1364\_ *Giuris margaritacea* \_Sulawesi Barat\_Indonesia

CCTCTATCTTGATTTGGTGCCTGGGCGGGAATAGTGGGCACAGCTTTAAGCCTGCT  
TATTCGAGCCGAACCTAAGTCAACCCGGAGCCCTACTGGGGACGACCAGATTTACA  
ACGTCATCGTTACAGCTCACGCCTTCGTGATAATTTTCTTTATAGTAATACCAATTAT  
GATTGGGGGCTTTGGAAACTGATTAGTGCCCTAATGATTGGCGCCCCCGACATGG  
CCTTCCCCGAATAAATAACATGAGCTTTTACTCCTTCCACCGTCTTCTCCTACT  
TCTAGCATCTTCTGGAGTAGAGGCGGGAGCTGGAACAGGATGAACCGTCTACCCCC  
CTTAGCAGGGAACCTAGCCACGCAGGGGCTCCGTAGATCTAACAATTTTTTCTC  
TTCATCTTGCCGGTGTTCCTCAATTCTAGGGGCCATCAACTTCATTAACAATTAT  
TAACATAAAACCCCTGCCATTTACAGTACCAACACCACTATTCTGTGTGAGCAGTT  
CTAATCACAGCCGTCCTCCTACTTCTCTCCCTCCAGTCCTAGCTGCTGGCATCACA  
ATACTCCTCACAGACCGAAACTTAAATACAACCTTCTTCGACCCTG-  
CCGGGGGAGGAGACCCAATTCTATACCAACACCTT

MSFUH1396\_ *Giuris margaritacea* \_Sulawesi Barat\_Indonesia

CCTCTATCTTGATTTGGTGCCTGAGCGGGAATAGTGGGCACGCTTTAAGCCTGC  
TAATTCGAGCCGAATTAAGTCAACCTGGCGCCCTGCTAGGAGATGACCAATTTATA  
ATGTCATCGTGACAGCTCATGCCTTCGTGATAATTTTCTTTATAGTAATACCAATTATG  
ATTGGCGGCTTTGGAAATTGACTGGTGCCTCTAATGATTGGCGCCCCTGACATGGC  
CTTTCCCCGAATAAACAACATAAGCTTCTGACTCCTTCCCCATCTTCTCTTCTTCTT  
CTAGCATCTTCTGGCGTAGAGGCGGGGCTGGAACAGGGTGAACCGTCTACCCCC  
CTTAGCAGGAACTTAGCCACGCAGGGGCTCCGTAGATCTAACCATCTTCTCC  
CTTCATCTTGCCGGTGTCTCCTCTATTCTAGGGGCCATCAACTTCATCACCACAATTA  
TTAATGAAGCCCCCTGCCATTTCAATAACCAACGCCTCTGTTTCGTATGGGCAG  
TCCTGATTACAGCCGTTCTCCTACTTCTGTCTCTGCCAGTCCTAGCCGCTGGTATCA  
CAATGCTTCTCACAGACCGAAACTTAAATACAACCTTCTTTGACCCTGCTGGAGGAG  
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MSFUH1230\_ *Giuris margaritacea* \_Sulawesi Barat\_Indonesia

CCTCTATCTTGATTTGGTGCCTGGGCGGGAATAGTGGGCACAGCTTTAAGCCTGCT  
TATTCGAGCCGAACCTAAGTCAACCCGGAGCCCTACTGGGAGACGACCAGATTTACA  
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GATTGGGGGCTTTGGAAACTGATTAGTGCCCTAATGATTGGCGCCCCCGACATGG  
CCTTCCCCGAATAAATAACATGAGCTTTTACTCCTTCCACCGTCTTCTCCTACT  
TCTAGCATCTTCTGGAGTAGAGGCGGGAGCTGGAACAGGGTGAACCGTCTACCCCC  
CTTTAGCAGGGAACCTAGCCACGCAGGGGCTCCGTAGATCTGACAATTTTTTCTC  
TTCATCTTGCCGGTGTTCCTCAATTCTAGGGGCCATCAACTTCATTAACAATTAT  
TAACATAAAACCCCTGCCATTTACAGTACCAACACCACTATTCTGTGTGAGCAGTT  
CTAATCACAGCCGTCCTCCTACTTCTCTCCCTCCAGTCCTAGCTGCTGGCATCACA  
ATACTCCTCACAGACCGAAACTTAAATACAACCTTCTTCGACCCTGCCGGGGGAGGA  
GACCAATTCTATACCAACACCTT

Lampiran 4. Lanjutan.

MSFUH1203\_ *Eleotris melanosoma* \_Sulawesi Barat\_Indonesia

CCTCTATCTTGTATTTGGTGCTTGAGCAGGCATGGTAGGCACCGCTTTAAGCCTACT  
AATCCGCGCCGAACCTAAGTCAACCTGGTGCCTTACTAGGAGACGACCAAATCTACAA  
TGTCATCGTTACGGCTCATGCCTTTGTAATGATTTTCTTTATAGTAATACCAATCATGA  
TTGGTGGCTTCGGAACTGATTAATCCCTCTAATAATCGGCGCCCCAGACATGGCTT  
TCCCACGAATAACAATATAAGCTTCTGACTCCTCCCCCTTCTTCCCTTCTCCTTCT  
GGCATCCTCAGGCGTTGAAGCAGGAGCTGGCACAGGATGAACTGTTTACCCCCCTC  
TGGCAGGGAACCTTGCCACGCAGGGGCTTCGCTAGACTTAACAATTTTTCCCTTC  
ATCTGGCAGGTGTTTCATCAATTTAGGGGCCATCAACTTTATTACCACAATTATTAA  
TATGAAGCCCCCGCAATTTCTCAATACCAAACACCTCTGTTTCGTCTGAGCTGTTTTA  
ATTACAGCAGTACTATTACTATCCCTTCCCGTGCTTGCCGCGGCATCACAATAC  
TGCTCACAGACCGAAACCTCAACACTACCTTCTTTGACCCAG-  
CCGGAGGAGGAGACCAATTCTATACCAACACCTC

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CCTCTATCTTGTATTTGGTGCTTGAGCAGGCATGGTAGGCACCGCTTTAAGCCTACT  
AATCCGCGCCGAACCTAAGTCAACCTGGTGCCTTACTAGGAGACGACCAAATCTACAA  
TGTCATCGTTACGGCTCATGCCTTTGTAATGATTTTCTTTATAGTAATACCAATCATGA  
TTGGTGGCTTCGGAACTGATTAATCCCTCTAATAATCGGCGCCCCAGACATGGCTT  
TCCCACGAATAACAATATAAGCTTCTGACTCCTCCCCCTTCTTCCCTTCTCCTTCT  
GGCATCCTCAGGCGTTGAAGCAGGAGCTGGCACAGGATGAACTGTTTACCCCCCTC  
TGGCAGGGAACCTTGCCACGCAGGGGCTTCGCTAGACTTAACAATTTTTCCCTTC  
ATCTGGCAGGTGTTTCATCAATTTAGGGGCCATCAACTTTATTACCACAATTATTAA  
TATGAAGCCCCCGCAATTTCTCAATACCAAACACCTCTGTTTCGTCTGAGCTGTTTTA  
ATTACAGCAGTACTATTACTATCCCTTCCCGTGCTTGCCGCGGCATCACAATAC  
TGCTCACAGACCGAAACCTCAACACTACCTTCTTTGACCCAGCCGGGGGAGGAGAC  
CCAATTCTATACCAACACCTC

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CCTCTATCTTGTATTTGGTGCTTGAGCAGGCATGGTAGGCACCGCTTTAAGCCTACT  
AATCCGCGCCGAACCTAAGTCAACCTGGTGCCTTACTAGGAGACGACCAAATCTACAA  
TGTCATCGTTACGGCTCATGCCTTTGTAATGATTTTCTTTATAGTAATACCAATCATGA  
TTGGTGGCTTCGGAACTGATTAATCCCTCTAATAATCGGCGCCCCAGACATGGCTT  
TCCCACGAATAACAATATAAGCTTCTGACTCCTCCCCCTTCTTCCCTTCTCCTTCT  
GGCATCCTCAGGCGTTGAAGCAGGAGCTGGCACAGGATGAACTGTTTACCCCCCTC  
TGGCAGGGAACCTTGCCATGCAGGGGCTTCGCTAGACTTAACAATTTTTCCCTTC  
ATCTGGCAGGTGTTTCATCAATTTAGGGGCCATCAACTTTATTACTACAATTATTAAT  
ATGAAACCCCCCGCAATTTCTCAATACCAAACACCTCTGTTTCGTCTGAGCTGTTTTAA  
TTACAGCAGTACTATTACTATCCCTTCCCGTACTTGCCGCGGCATCACAATACT  
GCTCACAGACCGAAACCTCAACACTACCTTCTTTGACCCAGCCGGAGGAGGAGACC  
CAATTTTATACCAACACCTC

MSFUH1335\_ *Eleotris fusca* \_Sulawesi Barat\_Indonesia

ATTGGCACCCCTTATTTGGTATTTGGTGCTTGAGCGGGCATAGTGGGCACTGCTTTA  
AGCCTACTCATCCGCGCTGAACTGAGTCAACCTGGTGCCCTACTAGGAGACGACCA  
AATTTACAATGTCATCGTTACGGCCCATGCCTTCGTGATGATTTTCTTTATAGTAATA  
CCAATTATGATTGGTGGCTTTGGAAATTGATTAATCCCCTTAATAATTGGCGCCCCAG  
ACATGGCCTTCCCACGAATAACAACATAAGCTTCTGACTCCTCCCTCCTTCTTTCT  
CCTCCTCCTTGCCTCTTCTGGGGTCTGAAGCAGGGGCTGGCACAGGATGAACCGTCT  
ACCCCCCTCTGGCAGGAAACCTCGCCACGCAGGGGCTCTGTAGACCTAACAATT  
TTCTCCCTTCACTTAGCCGGCGTGTCTTCAATTTTAGGGGCTATTAACCTTTATCACTA  
CAATTATCAATATGAAGCCCCCGCAATTTCCAGTACCAAACACCCCTCTTTCGTCT  
GAGCTGTCTTAATTACAGCAGTTCTACTACTTCTATCCCTCCCTGTGCTTGCCGCTG  
GCATTACAATGCTTCTGACAGACCGAAATCTAAACACCACCTTCTTTGACCCCTGCAG  
GCGGAGGGGACCCAATCCTATACAGCACCTCTTCTGATTCTTTGGCCACCAGAAAA  
GTCTAAA

Lampiran 4. Lanjutan.

MSFUH1201\_ *Eleotris fusca*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCTTTATCTTGTATTTGGTGCTTGAGCGGGCATAGTGGGCACTGCTTTA  
AGCCTACTCATCCGCGCTGAACTGAGTCAACCTGGTGCCCTACTAGGAGACGACCA  
AATTTACAATGTCATCGTTACGGCCCATGCCTTCGTGATGATTTTTCTTTATAGTAATA  
CCAATTATGATTGGTGGCTTTGGAAATTGATTAATCCCCTTAATAATTGGCGCCCCAG  
ACATGGCCTTCCCACGAATAAACAACATAAGCTTCTGACTCCTCCCTCCTTCCCTTTCT  
CCTCCTCCTTGCTCTTCTGGGGTGAAGCAGGGGCTGGCACAGGATGAACCGTCT  
ACCCCCCTCTGGCAGGAAACCTCGCCACGCAGGGGCTCTGTAGACCTAACAATT  
TTCTCCCTTCACTTAGCCGGCGTGTCTTCAATTTTAGGGGCTATTAACCTTTATCACTA  
CAATTATCAATATGAAGCCCCCGCAATTTCCCAGTACCAAACACCCCTCTTCGTCT  
GAGCTGTCTTAATTACAGCAGTTCTACTACTTCTATCCCTCCCTGTGCTTGCCGCTG  
GCATTACAATGCTTCTGACAGACCGAAATCTAAACACCACCTTCTTTGACCCTGCAG  
GCGGAGGGGACCCAATCCTATACCAGCACCTCTTCTGATTCTTTGGCCACCAGAAAA  
GTCTAAA

MSFUH1200\_ *Eleotris fusca*\_ Sulawesi Barat\_ Indonesia

GGTGCTTGAGCGGGCATAGTGGGCACTGCTTTAAGCCTACTCATCCGCGCTGAACT  
GAGTCAACCTGGTGCCCTACTAGGAGACGACCAAATTTACAATGTCATCGTTACGGC  
CCATGCCTTCGTGATGATTTTTCTTTATAGTAATACCAATTATGATTGGTGGCTTTGGA  
AATTGATTAATCCCCTTAATAATTGGCGCCCCAGACATGGCCTTCCCACGAATAAAC  
AACATAAGCTTCTGACTCCTCCCTCCTTCTCCTCCTCCTCGCCTCTTCTGGG  
GTCGAAGCAGGGGCTGGCACAGGATGAACCGTCTACCCCCCTCTGGCAGGAAACC  
TCGCCACGCAGGGGCTCTGTAGACCTAACAATTTTCTCCCTTCACTTAGCCGGG  
GTGTCTTCAATTTTAGGGGCTATTAACCTTTATCACTACAATTATCAATATGAAGCCCC  
CCGCAATTTCCCAGTACCAAACACCCCTCTTCGTCTGAGCTGTCTTAATTACAGCAG  
TTCTACTACTTCTATCCCTTCTGTGCTTGCCGCTGGCATTACAATGCTTCTGACAGA  
CCGAAATCTAAACACCACCTTCTTTGACCCTGCAGGCGGAGGGGACCCAATCCTATA  
CCAGCACCTC

MSFUH1191\_ *Awaous ocellaris*\_ Sulawesi Barat\_ Indonesia

GGACACGACCAAATCTATAATGTCATTGTAACAGCACATGCATTTGTAATAATTTTCT  
TTATAGTAATACCAATTATGATTGGTGGCTTTGGGAAGTACTAATCCCCCTAATGAT  
TGGTGCCCTGACATGGCCTTCCCTCAATAAATAACATGAGCTTTTACTTCTCCCT  
CCTTCATTCCCTGCTTCTCCTAGCATCATCAGGTGTTGAAGCTGGGGCAGGGACTGGT  
TGAAGTGTCTACCCCCACTAGCAGGGAACCTTGCCCATGCTGGAGCTTCTGTAAAC  
CTAACAATTTTCTCACTTACCTGGCAGGTGTCTCATCAATTTTAGGTGCAATTAAC  
TCATTACAACCATCCTAAATATGAAACCCCTGCAATTTACAATAACCAAACACCCCT  
GTTCTTTGAGCCGTTCTAATCACAGCAGTCTACTACTTCTTTCCCTACCAGGCCTT  
GCTGGCTGCATTACAATGGTTCTATCACAACGCAACCTTAACACAACCTTCTTTCCC  
CCCCAGGTGGAGAAGAGCCACACCTTTATCAACACTTGATTTGAATCTTTCCGGTAC  
CTGGAGTTTT

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GTTTTTTTTGGTTTTGAACTTAGCCAACCTGGGGCTCTTTTAGGAGACGACCAAATC  
TATAATGTCATTGGAACAGCACATGCATTTGTAATAATTTTCTTTATAGTAATACCAAT  
TATGATTGGTGGCTTTGGGAAGTACTAATCCCCCTAATGATTGGTGGCCCTGACAT  
GGCCTTCCCTCGAATAAATAACATGAGCTTTTACTTCTCCCTCCTTCACTCCTGCTT  
CTCCTAGCATCATCAGGTGTTGAAGCTGGAGCAGGGACTGGTTGAACTGTCTACCC  
CCCACTAGCAGGGAACCTTGCCCATGCTGGAGCTTCTGTAGACCTAACAATTTTCTC  
ACTTACCTGGCAGGTGTCTCATCAATTTTAGGTGCAATTAACCTTCAATTACAACCATC  
CTAAATATGAAACCCCTGCAATTTACAATAACCAAACACCCCTGTTCTTTGAGCC  
GTTCTAATCACAGCAGTCTACTACTTCTTTCCCTACCAGTCTTGTGCGGGCATT  
CAATGCTACTAACAGACCGCAACCTGAACACAACCTTCTTTGACCCTCAGGTGGAG  
GAGACCCAATCCTTTACCAAACACTTGTTCTGATTCTTCGGACACCCTGAAGTGTCA

Lampiran 4. Lanjutan.

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GTTTTTTTTTGGTTTTGAACTTAGCCAACCTGGGGCTCTTTTAGGAGACGACCAAATC  
TATAATGTCATTGGAACAGCACATGCATTTGTAATAATTTTCTTTATAGTAATACCAAT  
TATGATTGGTGGCTTTGGGAACTGACTAATCCCCCTAATGATTGGTGCCCCTGACAT  
GGCCTTCCCTCGAATAAATAACATGAGCTTTTGACTTCTCCCTCCTTCATTCTGCTT  
CTCCTAGCATCATCAGGTGTTGAAGCTGGAGCAGGGACTGGTTGAACTGTCTACCC  
CCCACTAGCAGGGAACCTTGCCCATGCTGGAGCTTCTGTAGACCTAACAATTTTCTC  
ACTTCACCTGGCAGGTGTCTCATCAATTTAGGTGCAATTACTTCATTACAACCATC  
CTAAATATGAAACCCCTGCAATTTACAATACCAAACACCCCTGTTTCGTTTGAGCC  
GTTCTAATCACAGCAGTCCTACTACTTCTTTCCCTACCAGTCCTTGCTGCCGGCATT  
CAATGCTACTAACAGACCGCAACCTGAACACAACCTTCTTTGACCCCTCAGGTGGAG  
GAGACCCAATCCTTTACCAACACTTGTTCTGATTCTTCGGACACCCTGAAGTGTCA

MSFUH1190\_ *Awaous grammepomus*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCTAACTGGTTTTCGGTGCCTGAGCTGGAATAGTAGGCACAGCTCTT  
AGCCTTCTTATCCGAGCTGAACTTAGCCAACCTGGGGCTCTTTTAGGAGACGACCAA  
ATCTATAATGTCATTGTAACAGCACATGCATTTGTAATAATTTTCTTTATAGTAATACC  
AATTATGATTGGTGGCTTTGGGAACTGACTAATCCCCCTAATGATTGGTGCCCCTGA  
CATGGCCTTCCCTCGAATGAATAACATGAGCTTTTGACTTCTCCCTCCTTCATTCTG  
CTTCTCCTAGCATCATCAGGGGTTGAAGCTGGAGCAGGGACTGGTTGAACTGTCTA  
CCCCCACTAGCAGGGAACCTTGCCCATGCTGGAGCTTCTGTAGACCTAACAATTTT  
CTCACTTCACCTGGCAGGTGTCTCATCAATTTAGGTGCAATTACTTCATTACAACC  
ATCCTAAATATGAAACCCCTGCAATTTACAATACCAAACACCCCTGTTTCGTTTGAG  
CCGTTCTAATCACAGCAGTCCTACTACTTCTTTCCCTACCAGTCCTTGCTGCCGGCA  
TTACAATGCTACTAACAGACCGCAACCTGAACACGACCTTCTTTGACCCGTGAGGTG  
GAGGAGACCCAATCCTTTACCAACACTTGTTCTGATTCTTTGGCCACCAGAAAATTCT  
TAAA

MSFUH1196\_ *Awaous grammepomus*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCTATACCTGGTTTTCGGTGCCTGAGCTGGAATAGTAGGCACAGCTCTT  
AGCCTTCTTATCCGAGCTGAACTTAGCCAACCTGGGGCTCTTTTAGGAGACGACCAA  
ATCTATAATGTCATTGTAACAGCACATGCATTTGTAATAATTTTCTTTATAGTAATACC  
AATTATGATTGGTGGCTTTGGGAACTGACTAATCCCCCTAATGATTGGTGCCCCTGA  
CATGGCCTTCCCTCGAATGAATAACATGAGCTTTTGACTTCTCCCTCCTTCATTCTG  
CTTCTCCTAGCATCATCAGGGGTTGAAGCTGGAGCAGGGACTGGTTGAACTGTCTA  
CCCCCACTAGCAGGGAACCTTGCCCATGCTGGAGCTTCTGTAGACCTAACAATTTT  
CTCACTTCACCTGGCAGGTGTCTCATCAATTTAGGTGCAATTACTTCATTACAACC  
ATCCTAAATATGAAACCCCTGCAATTTACAATACCAAACACCCCTGTTTCGTTTGAG  
CCGTTCTAATCACAGCAGTCCTACTACTTCTTTCCCTACCAGTCCTTGCTGCCGGCA  
TTACAATGCTACTAACAGACCGCAACCTGAACACGACCTTCTTTGACCCGTGAGGTG  
GAGGAGACCCAATCCTTAACCATCCTTTGTTCTGATTCTTTGGCC

MSFUH1198\_ *Awaous grammepomus*\_ Sulawesi Barat\_ Indonesia

CCTATACCTGGTTTTCGGTGCCTGAGCTGGAATAGTAGGCACAGCTCTTAGCCTTCT  
AATCCGAGCTGAACTTAGCCAACCTGGGGCTCTTTTAGGAGACGACCAAATCTATAA  
TGTCATTGTAACAGCACATGCATTTGTAATAATTTTCTTTATAGTAATACCAATTATGA  
TTGGTGGCTTTGGGAACTGACTAATCCCCCTAATGATTGGTGCCCCTGACATGGCCT  
TCCCTCGAATAAATAATATGAGCTTTTGACTTCTCCCTCCTTCATTCTGCTTCTCCTA  
GCATCATCAGGGGTTGAAGCTGGAGCAGGGACTGGTTGAACTGTCTACCCCCACT  
AGCAGGGAACCTTGCCCATGCTGGAGCTTCTGTAGACCTAACAATTTTCTCACTTCA  
CCTGGCAGGTGTCTCATCAATTTAGGTGCAATTACTTCATTACAACCATCCTAAAT  
ATGAAACCCCTGCAATTTACAATACCAAACACCCCTGTTTCGTTTGAGCCGTTCTAA  
TTACAGCAGTCCTACTACTTCTTTCCCTACCAGTCCTTGCTGCCGGCATTACAATGCT  
ACTAACAGACCGCAACCTGAACACGACCTTCTTTGACCCATCAGGTGGAGGAGACC  
CAATCCTTTACCAACACTTG

Lampiran 4. Lanjutan.

MSFUH1365\_ *Stenogobius genivittatus*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCAACCTTGTTTTCGGTGCCTGAGCAGGAATGGTAGGCACAGCCCT  
AAGCCTACTAATTCGAGCTGAACTGAGTCAACCCGGGGCCCTTCTAGGGGACGACC  
AGATTTATAATGTAATCGTCACTGCACATGCCTTTGTAATAATTTCTTTATAGTAATA  
CCAATCATAATTGGAGGCTTTGGAACTGACTCATCCCACTAATGATTGGTGCCCCC  
GACATGGCCTTCCCCCGAATAAACAACATGAGCTTCTGACTTCTTCCCCCTCATTCTC  
CTCCTCCTATTAGCATCTTCTGGTGTGGAAGCCGGGGCCGGAAGTGGTTGGACTGT  
CTATCCCCCTTGGCAGGAAATCTTGCACATGCAGGAGCTTCTGTGACCTAACAAT  
TTTCTCCCTCCACCTAGCCGGAGTTTCTCAATTTTGGGGGCAATCAACTTCATTACA  
ACCATCCTAAACATGAAACCCCTGCCATCTCTCAATATCAAACGCCTCTGTTTGTCT  
GAGCCGTCCTTATTACAGCTGTTCTCCTGCTTCTCTCCCTACCAGTTCTTGCTGCTG  
GCATTACAATGCTTCTTACGGACCGAAACCTTAATACAACCTTTTTCGATCCCTCAGG  
TGGAGGAGATCCTATTCTCTACCAGCACCTTTCTGATTCTTTGGCCACCAGAAAAG  
TCTAAA

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ATTGGCACCCCTAACTTGTTTTCGGTGCCTGAGCAGGAATAGTAGGGACTGCCCT  
CAGCCTACTCATCCGAGCTGAATTAAGTCAACCTGGAGCTCTTCTAGGGGACGACC  
AAATTTACAATGTAATTGTTACTGCACATGCCTTTGTAATAATTTCTTTATAGTAATAC  
CAATCATGATTGGAGGCTTTGGAACTGACTTATTCCCCTAATGATCGGTGCCCTG  
ATATGGCCTTTCCTCGAATAAATAACATAAGCTTTTGACTTCTCCCCCTTCATTCTT  
CTCCTCCTAGCATCTTCTGGTGTGGAAGCAGGGGCCGGAAGTGGCTGAACAGTATA  
TCCTCCTCTGGCAGGAAACCTTGCACATGCAGGAGCTTCTGTTGACTTAACTATTTT  
CTCCCTCCACCTGGCAGGTATTTTCAATTTCTTGGGGCAATTAATTTTATTACAACC  
ATCCTAAACATGAAACCCCTGCAATTTTCAATATCAAACACCTCTATTTGTATGAG  
CTGTTCTTATTACAGCAGTCTCCTACTTCTCTCCCTCCCTGTCTTGCAGCTGGCAT  
TACAATGCTACTAACAGACCGAAACCTTAACACAACCTTCTTTGACCCATCAGGAGG  
AGGTGACCCAATTCTCTACCAACATCTATTCTGATTCTTTGGCCACCAGAAAAGTCTA  
AA

MSFUH1355\_ *Sicyopterus longifilis*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCTATACCTTGTTTTCGGTGCCTGAGCAGGAATAGTAGGGACTGCCCTC  
AGCCTACTCATCCGAGCTGAATTAAGTCAACCTGGAGCTCTTCTAGGGGACGACCAA  
ATTTACAATGTAATTGTTACTGCACATGCCTTTGTAATAATTTCTTTATAGTAATACC  
AATCATGATTGGAGGCTTTGGAACTGACTTATTCCCCTAATGATCGGTGCCCTGA  
TATGGCCTTTCCTCGAATAAATAACATAAGCTTTTGACTTCTCCCCCTTCATTCTT  
CTCCTCCTAGCATCTTCTGGTGTGGAAGCAGGGGCCGGAAGTGGCTGAACAGTATA  
TCCTCCTCTGGCAGGAAACCTTGCACATGCAGGAGCTTCTGTTGACTTAACTATTTT  
CTCCCTCCACCTGGCAGGTATTTTCAATTTCTTGGGGCAATTAATTTTATTACAACC  
ATCCTAAACATGAAACCCCTGCAATTTTCAATATCAAACACCTCTATTTGTATGAG  
CTGTTCTTATTACAGCAGTCTCCTACTTCTCTCCCTCCCTGTCTTGCAGCTGGCAT  
TACAATGCTACTAACAGACCGAAACCTTAACACAACCTTCTTTGACCCATCAGGAGG  
AGGTGACCCAATTCTCTACCAACATCTATTCTGATTCTTTCGGCCACCCCG

Lampiran 4. Lanjutan.

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ATTGGCACCTATACCTTGTTTTCGGTGCCTGAGCAGGAATAGTAGGGACTGCCCTC  
AGCCTACTCATCCGAGCTGAATTAAGTCAACCTGGAGCTCTTCTAGGGGACGACCAA  
ATTTACAATGTAATTGTTACTGCACATGCCTTTGTAATAATTTTCTTTATAGTAATACC  
AATCATGATTGGAGGCTTTGGAACTGACTTATTCCCCTAATGATCGGTGCCCTGA  
TATGGCCTTTCTCGAATAAATAACATAAGCTTTTGACTTCTCCCCCTTCATTCTCT  
CTCCTCCTAGCATCTTCTGGTGTGAAGCAGGGGCCGGAAGTGGCTGAACAGTATA  
TCCCTCCTGGCAGGAAACCTTGCACATGCAGGAGCTTCTGTTGACTTAACTATTTT  
CTCCCTCCACCTGGCAGGTATTTCAATTTCTTGGGGCAATTAATTTCAATACAACC  
ATCCTAAACATGAAACCCCTGCAATTTCAATATCAAACACCTCTATTTGTATGAG  
CTGTTCTTATTACAGCAGTCTCCTACTTCTCTCCCTCCCTGTCTTGCAGCTGGCAT  
TACAAATGCTACTAACAGACCGAAACCTTAACACAACCTTCTTTGACCCATCAGGAGG  
AGGTGACCCAATTCTCTACCAACATCTATTCTGATTCTTCGGCCACCCCG

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CCTATACCTTGTTTTCGGTGCCTGAGCAGGAATGGTAGGAACTGCCCTAAGCCTACT  
TATCCGAGCTGAACCTAAGCCAACCTGGGGCTCTTCTAGGAGACGACCAGATTTACAA  
TGTAATTGTTACTGCACATGCCTTTGTAATAATTTTCTTTATAGTAATGCCAATCATGA  
TTGGAGGATTTGGAACTGACTCATCCCTCTAATGATCGGTGCCCCAGATATGGCCT  
TCCCCGAATGAACAACATAAGCTTTTGACTCCTCCCCCTTCATTCTTCTCCTCCT  
GGCATCTTCAGGTGTTGAAGCAGGGGCTGGGACTGGCTGAACAGTCTACCCCCCTC  
TAGCAGGAAACCTTGCCCATGCAGGGGCTTCTGTTGATCTAACTATTTTCTCCCTCC  
ACCTAGCAGGTATTTCAATTTCTTGGTGAATTAACTTCATTACAACCTATTCTAAAT  
ATGAAACCTCCTGCAATTTCAATATCAGACACCTCTCTTCGTCTGAGCTGTTCTTA  
TTACGGCAGTCTACTACTTCTTTCTCTCCCAGTTCTTGCAGCTGGCATCACAATGCT  
ACTGACAGACCGAAACCTCAACACAACCTTCTTTGACCCATCAGGAGGAGGTGACC  
CAATTCTCTACCAACATCTA

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GGCACCTATACCTTGTTTTCGGTGCCTGAGCAGGAATGGTAGGAACTGCCCTAAG  
CCTACTTATCCGAGCTGAACCTAAGCCAACCTGGGGCTCTTCTAGGAGACGACCAGA  
TTTACAATGTAATTGTTACTGCACATGCCTTTGTAATAATTTTCTTTATAGTAATGCCA  
ATCATGATTGGAGGATTTGGAACTGACTCATCCCCCTAATGATCGGTGCCCCAGAT  
ATGGCCTTCCCCGAATGAACAACATAAGCTTTTGACTCCTCCCCCTTCATTCTTCT  
TCCCTCCTGGCATCTTCAGGTGTTGAAGCAGGGGCTGGGACTGGCTGAACAGTCTAC  
CCCCCTTAGCAGGAAACCTTGCCCATGCAGGGGCTTCTGTTGACCTAACTATTTTCT  
TCCCTCCACCTAGCAGGTATTTCAATTTCTTGGTGAATTAACTTCATTACAACCTA  
TTCTAAATATGAAACCTCCTGCAATTTCAATATCAGACACCTCTCTTCGTCTGAGC  
TGTTCTTATTACGGCAGTCTACTACTTCTTTCTCTCCCAGTTCTTGCAGCTGGCATC  
ACAATGCTACTGACAGACCGAAACCTCAACACAACCTTCTTTGACCCATCAGGAGGA  
GGTGACCCAATTCTCTACCAACATCTATTCTGATT

MSFUH1234\_ *Sicyopterus cynocephalus*\_ Sulawesi Barat\_ Indonesia

CCTATACCTTGTTTTCGGTGCCTGAGCAGGAATAGTAGGAACTGCCCTAAGCCTACT  
TATCCGAGCTGAACCTAAGCCAACCTGGGGCTCTTCTAGGAGACGACCAGATTTACAA  
TGTAATTGTTACTGCACATGCCTTTGTAATAATTTTCTTTATAGTAATGCCAATCATGA  
TTGGAGGATTTGGAACTGACTCATCCCCCTAATGATCGGTGCCCCAGATATGGCCT  
TCCCCGAATGAACAACATAAGCTTTTGACTCCTCCCCCTTCATTCTTCTCCTCCT  
GGCATCTTCAGGTGTTGAAGCAGGGGCTGGGACTGGCTGAACAGTCTACCCCCCTC  
TAGCAGGAAACCTTGCCCATGCAGGGGCTTCTGTTGATCTAACTATTTTCTCCCTCC  
ACCTAGCAGGTATTTCAATTTCTTGGTGAATTAATTTCAATACAACCTATTCTAAAT  
ATGAAACCTCCTGCAATTTCAATATCAGACACCTCTCTTCGTCTGAGCTGTTCTTA  
TTACGGCAGTCTACTACTTCTTTCTCTCCCAGTTCTTGCAGCTGGCATCACAATGCT  
ACTGACAGACCGAAACCTCAACACAACCTTCTTTGACCCATCAGGAGGAGGTGACC  
CAATTCTCTACCAACATCTA

Lampiran 4. Lanjutan.

MSFUH1310\_ *Sicyopterus microcephalus*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCTATAACTTGTTTTCGGTGCCTGAGCAGGAATAGTAGGGACTGCCCTC  
AGCCTACTCATCCGAGCTGAATTAAGTCAACCTGGAGCTCTTCTAGGGGATGACCAA  
ATTTACAATGTAATTGTTACGGCACATGCCTTTGTAATAATTTTCTTTATAGTAATACC  
AATCATGATTGGAGGCTTTGGGAAGTACTTATTCCCCTAATGATCGGTGCCCCCGA  
TATGGCCTTCCCTCGAATGAACAACATAAGCTTTTGACTCCTTCCCCCTTCATTCCCT  
CTTCTTCTGGCATCTTCGGGTGTTGAAGCAGGAGCTGGAAGTGGCTGAACAGTCTA  
CCCCCTCTAGCAGGAAACCTTGCCCATGCAGGGGCTTCTGTTGACTTAACTATTTT  
CTCCCTCCATCTAGCAGGTATTTTCATCAATTCTGGGTGCAATTAATTTTCATTACAACC  
ATCCTAAACATGAAACCCCTGCAATTTTACAATATCAGACACCTCTATTTGTATGAG  
CTGTTCTAATTACAGCAGTTCTTCTACTTCTCTCCCTCCCTGTTCTTGCAGCTGGAAT  
TACAATGCTACTAACAGACCGAAACCTAAACACAACCTTCTTTGACCCATCAGGTGG  
AGGTGATCCCATTCTCTACCAACACCTATTCTGATTCTTTGGCCACCAGAAAAGTCTA  
A

MSFUH868\_ *Sicyopterus microcephalus*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCCCAACTTGTTTTCGGTGCCTGAGCAGGAATAGTAGGGACTGCCCT  
CAGCCTACTCATCCGAGCTGAATTAAGTCAACCTGGGGCTCTTCTAGGGGATGACC  
AAATTTACAATGTAATTGTTACGGCACATGCCTTTGTAATAATTTTCTTTATAGTAATA  
CCAATCATGATTGGAGGCTTTGGGAAGTACTTATTCCCCTAATGATCGGTGCCCCCG  
GATATGGCCTTCCCTCGAATGAACAACATAAGCTTTTGACTCCTTCCCCCTTCATTCC  
TTCTTCTTCTGGCATCTTCGGGTGTTGAAGCAGGGGCTGGAAGTGGCTGAACAGTCT  
ACCCCCCTCTAGCAGGAAACCTTGCCCATGCAGGGGCTTCTGTTGACTTAACTATTT  
TCTCCCTCCATCTAGCAGGTATTTTCATCAATTCTGGGTGCAATTAATTTTCATTACAAC  
CATCCTAAACATGAAACCCCTGCAATTTTACAATATCAGACACCTCTATTTGTATGA  
GCTGTTCTAATTACAGCAGTTCTCCTACTTCTCTCCCTCCCTGTTCTTGCAGCTGGAA  
TTACAATGCTACTAACAGACCGAAACCTAAACACAACCTTCTTTGACCCATCAGGCG  
GAGGTGATCCCATTCTCTACCAACACCTATTCTGATTCTTTGGCCACCAGAAAAGTCT  
AAAA

MSFUH1385\_ *Sicyopterus microcephalus*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCCCAACTTGTTTTCGGTGCCTGAGCAGGAATAGTAGGGACTGCCCT  
CAGCCTACTCATCCGAGCTGAATTAAGTCAACCTGGAGCTCTTCTAGGGGATGACCA  
AATTTACAATGTAATTGTTACGGCACATGCCTTTGTAATAATTTTCTTTATAGTAATAC  
CAATCATGATTGGAGGCTTTGGGAAGTACTTATTCCCCTAATGATCGGTGCCCCCG  
ATATGGCCTTCCCTCGAATGAACAACATAAGCTTTTGACTCCTTCCCCCTTCATTCCCT  
TCTTCTTCTGGCATCTTCGGGTGTTGAAGCAGGGGCTGGAAGTGGCTGAACAGTCT  
ACCCCCCTCTAGCAGGAAACCTTGCCCATGCAGGGGCTTCTGTTGACTTAACTATTT  
TCTCCCTCCATCTAGCAGGTATTTTCATCAATTCTGGGTGCAATTAATTTTCATTACAAC  
CATCCTAAACATGAAACCCCTGCAATTTTACAATATCAGACACCTCTATTTGTATGA  
GCTGTTCTAATTACAGCAGTTCTCCTACTTCTCTCCCTCCCTGTTCTTGCAGCTGGAA  
TTACAATGCTACTAACAGACCGAAACCTAAACACAACCTTCTTTGACCCATCAGGCG  
GAGGTGATCCCATTCTCTACCAACACCTATTCTGATTCTTTGGCCACCAGAAAAGTCT  
AAAA



Lampiran 4. Lanjutan.

MSFUH113\_ *Smilosicyopus leprurus*\_Sulawesi Barat\_Indonesia

ATTGGCACCCCAATCTAATTTTCGGTGCCTGAGCAGGAATGGTAGGCACAGCCCT  
AAGCCTACTTATCCGAGCTGAATTAAGTCAACCTGGGGCTCTTCTAGGAGACGACCA  
AATTTATAATGTAATTGTTACTGCACATGCCTTTGTGATAATTTCTTTATAGTAATAC  
CAATCATGATTGGAGGCTTTGGAACTGACTCATTCTCTAATGATTGGTGCCCTG  
ATATAGCCTTTCTCGCATGAACAACATAAGTTTTGACTCCTCCCTCCCTCATTCTT  
GCTCCTCCTAGCATCTTCTGGTGTGGAAGCAGGGGCTGGTACAGGCTGAACAGTAT  
ACCCCTCTAGCTGGAAACCTTGCCCATGCTGGTGCTTCTGTTGACCTGACAATTT  
TCTCCCTCCACTTAGCAGGTATTTTCATCAATTTTAGGTGCAATTAATTTTATTACAACC  
ATCCTCAATATAAAACCCCTGCAATCTCACAATACCAGACACCCCTCTTTGTCTGAG  
CTGTTCTTATTACAGCAGTCTTACTACTTCTCTCTGCCAGTCCTTGCAGCTGGCAT  
TACAATGCTACTAACAGACCGAAACCTCAACACAACCTTCTTTGACCCCTCAGGTGG  
TGGTGACCCGATTCTTTACCAACACCTGTTCTGATTCTTTGGCCACCAGAAAAAGTCT  
AAA

MSFUH864\_ *Smilosicyopus leprurus*\_Sulawesi Barat\_Indonesia

ATTGGCACCCCTATCTAACTATTTTCGGTGCCTGAGCAGGAATGGTAGGCACAGCCCTA  
AGCCTACATTATCCGAGCTGAATTAAGTCAACCTGGGGCTCTTCTAGGAGACGACCA  
AATTTATAATGTAATTGTTACTGCACATGCCTTTGTGATAATTTCTTTATAGTAATAC  
CAATCATGATTGGAGGCTTTGGAACTGACTCATTCTCTAATGATTGGTGCCCTG  
ATATAGCCTTTCTCGCATGAACAACATAAGTTTTGACTCCTCCCTCCCTCATTCTT  
GCTCCTCCTAGCATCTTCTGGTGTGGAAGCAGGGGCTGGTACAGGCTGAACAGTAT  
ACCCCTCTAGCTGGAAACCTTGCCCATGCTGGTGCTTCTGTTGACCTGACAATTT  
TCTCCCTCCACTTAGCAGGTATTTTCATCAATTTTAGGTGCAATTAATTTTATTACAACC  
ATCCTCAATATAAAACCCCTGCAATCTCACAATACCAGACACCCCTCTTTGTCTGAG  
CTGTTCTTATTACAGCAGTCTTACTACTTCTCTCTGCCAGTCCTTGCAGCTGGCAT  
TACAATGCTACTAACAGACCGAAACCTCAACACAACCTTCTTTGACCCCTCAGGTGG  
TGGTGACCCGATTCTTTACCAACACCTGTTCTGATTCTTTGGCCACCAGAAAAATCTA  
AAA

MSFUH119\_ *Smilosicyopus leprurus*\_Sulawesi Barat\_Indonesia

ATTGGCACCCCTATATCTTATTTTCGGTGCCTGAGCAGGAATGGTAGGCACAGCCCTA  
AGCCTACTTATCCGAGCTGAATTAAGTCAACCTGGGGCTCTTCTAGGAGACGACCAA  
ATTTATAATGTAATTGTTACTGCACATGCCTTTGTAATAATTTCTTTATAGTAATACCA  
ATCATGATTGGAGGCTTTGGAACTGACTCATTCTCTAATGATTGGTGCCCTGAT  
ATAGCCTTTCTCGCATGAACAACATAAGTTTTGACTCCTCCCTCCCTCATTCTTGC  
TCCTCCTAGCATCTTCTGGTGTGAGGCAGGGGCTGGTACAGGCTGAACAGTATAC  
CCCCCTAGCTGGAAACCTTGCCCATGCTGGTGCTTCTGTTGACCTGACAATTTTC  
TCCCTCCACTTAGCAGGTATTTCTCAATTTTAGGTGCAATTAATTTTATTACAACCAT  
CCTCAATATAAAACCCCTGCAATCTCACAATACCAGACACCCCTCTTTGTCTGAGCT  
GTTCTTATTACAGCAGTCTTACTACTTCTCTCTGCCGGTCCTTGCAGCCGGCATT  
CAATGCTACTAACAGACCGAAACCTCAACACAACCTTCTTTGACCCCTCAGGTGGGG  
GTGACCCCATCTTTACCAACACCTGTTCTGATTCTTTGGCCACCAGAAAGTCTAAA

Lampiran 4. Lanjutan.

MSFUH1217\_ *Sicyopus auxilimentus*\_ Sulawesi Barat\_ Indonesia

ATTGGCACCCCTGTACCTTTGTTTCGGTGCCTGAGCAGGAATGGTAGGCACAGCCCT  
TAGCCTGCTTATCCGAGCTGAACTAAGTCAACCTGGAGCTCTTCTAGGGGACGACC  
AAATTTACAATGTAATTGTTACTGCACATGCCTTTGTAATAATTTTCTTTATAGTAATG  
CCAATTATGATTGGGGGATTTGGAACTGACTAATCCCTCTAATGATTGGCGCCCCT  
GACATGGCCTTCCCTCGAATGAACAACATGAGCTTTTGACTTCTCCCCCATCATT  
CTTCTCCTACTAGCATCCTCGGGTGTGGAAGCTGGAGCAGGAAGTGGCTGAACAGT  
TTACCCACCCCTAGCAGGAAACCTTGCACATGCCGGGGCTTCTGTTGACCTAACAAT  
CTTCTCACTCCACTTAGCAGGTATTTATCAATTTTAGGTGCTATTAATTTTATTACAA  
CAATCCTAAACATGAAACCCCTGCAATCTCACAATACCAGACACCACTATTTGTCTG  
AGCTGTCCCTCATTACAGCAGTCCTTCTGCTTCTCTCCCTACCAGTGCTTGCAGCTGG  
CATCACAATGCTACTGACAGACCGAAACCTAAACACAACCTTCTTTGACCCTTCAGG  
AGGAGGTGATCCAATTCTTTACCAACATCTATTCTGATTCTTTGGCCACCCAGAAAGT  
CTAAA

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ATTGGCACCCCTGTACCTTGTTCGGTGCCTGAGCAGGAATGGTAGGCACAGCCCT  
TAGCCTGCTTATCCGAGCTGAACTAAGTCAACCTGGAGCTCTTCTAGGGGACGACC  
AAATTTACAATGTAATTGTTACTGCACATGCCTTTGTAATAATTTTCTTTATAGTAATG  
CCAATTATGATTGGGGGATTTGGAACTGACTAATCCCTCTAATGATTGGCGCCCCT  
GACATGGCCTTCCCTCGAATGAACAACATGAGCTTTTGACTTCTCCCCCATCATT  
CTTCTCCTACTAGCATCCTCGGGTGTGGAAGCTGGAGCAGGAAGTGGCTGAACAGT  
TTACCCACCCCTAGCAGGAAACCTTGCACATGCCGGGGCTTCTGTTGACCTAACAAT  
CTTCTCACTCCACTTAGCAGGTATTTATCAATTTTAGGTGCTATTAATTTTATTACAA  
CAATCCTAAACATGAAACCCCTGCAATCTCACAATACCAGACACCACTATTTGTCTG  
AGCTGTCCCTCATTACAGCAGTCCTTCTGCTTCTCTCCCTACCAGTGCTTGCAGCTGG  
CATCACAATGCTACTGACAGACCGAAACCTAAACACAACCTTCTTTGACCCTTCAGG  
AGGAGGTGATCCAATTCTTAACCAAC

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CCTGTACCTTGTTCGGTGCCTGAGCAGGAATGGTAGGCACAGCCCTTAGCCTGC  
TTATCCGAGCTGAACTAAGTCAACCTGGAGCTCTTCTAGGGGACGACCAAAATTTACA  
ATGTAATTGTTACTGCACATGCCTTTGTAATAATTTTCTTTATAGTAATGCCAATTATG  
ATTGGGGGATTTGGAACTGACTAATCCCTCTAATGATTGGCGCCCCTGACATGGCC  
TTCCCTCGAATGAACAACATGAGCTTTTGACTTCTCCCCCATCATTCTTCTCCTAC  
TAGCATCCTCGGGTGTGGAAGCTGGAGCAGGAAGTGGCTGAACAGTTTACCCACCC  
CTAGCAGGAAACCTTGCACATGCCGGGGCTTCTGTTGACCTAACAATCTTCTCACTC  
CACTTAGCAGGTATTTATCAATTTTAGGTGCTATTAATTTTATTACAACAATCCTAAA  
CATGAAACCCCTGCAATCTCACAATACCAGACACCACTATTTGTCTGAGCTGTCTCCT  
CATTACAGCAGTCCTTCTGCTTCTCTCCCTACCAGTGCTTGCAGCTGGCATCACAAT  
GCTACTGACAGACCGAAACCTAAACACAACCTTCTTTGACCCTTCAGGAGGAGGTGA  
TCCAATTCTTTACCAACATCTA

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ATTGGCACCCCTAACTTGTTCGGTGCCTGAGCAGGAATAGTAGGCACAGCCCTA  
AGCCTGCTTATCCGAGCTGAATTAAGTCAACCTGGGGCTCTTCTAGGTGACGACCAA  
ATTTATAATGTTATTGTAAGTGCACATGCCTTTGTGATAATTTTCTTTATAGTAATACC  
AATCATAATTGGAGGCTTTGGAACTGACTTATCCCACTAATGATTGGTGCCCCTGA  
CATAGCCTTCCCTCGTATGAACAACATGAGCTTCTGGCTTCTTCTCCTCATTCTG  
CTCCTACTAGCATCCTCAGGTGTGGAAGCTGGAGCTGGTACTGGCTGAACAGTTTAC  
CCACCCCTAGCGGGCAACCTTGTCTATGCAGGGGCTTCTGTTGACTTAACAATTTTC  
TCACTCCATTTAGCAGGGATCTTCAATTTTAGGTGCAATTAACCTTTATTACAACCAT  
CCTAAACATGAAACCTCCTGCAATCTCACAATACCAACACCATTGTTTGTCTGAGCT  
GTTCTAATTACAGCAGTTCTTCTGCTTCTTCACTACCAGTACTTGCAGCTGGCATCA  
CAATGCTACTGACAGACCGAAACCTCAACACAACCTTTCTTTGACCCTTCAGGCGGTG  
GTGACCCAATTCTTTACCAACACCTATTCTGATTCTTTGGCCACCAGAAAAGTCTAAA

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ATTGGCACCCCTATACCTTGTTTTCGGTGCCTGAGCAGGAATAGTAGGCACAGCCCTA  
AGCCTGCTTATCCGAGCTGAATTAAGTCAACCTGGGGCTCTTCTAGGTGACGACCAA  
ATTTATAATGTTATTGTAACCTGCACATGCCTTTGTGATAATTTTCTTTATAGTAATACC  
AATCATAATTGGAGGCTTTGGAACTGACTTATCCCCTAATGATTGGTGCCCCTGA  
CATAGCCTTCCCTCGTATGAACAACATGAGCTTCTGGCTTCTTCCCTCATTCCCTG  
CTCCTACTAGCATCCTCAGGTGTTGAAGCTGGAGCTGGTACTGGCTGAACAGTTTAC  
CCACCCCTAGCGGGCAACCTTGCTCATGCAGGGGCTTCTGTTGACTTAACAATTTTC  
TCACTCCATTTAGCAGGGATCTTCAATTTTAGGTGCAATTAACCTTTATTACAACCAT  
CCTAAACATGAAACCTCCTGCAATCTCACAATACCAAACACCATTGTTTGTCTGAGCT  
GTTCTAATTACAGCAGTTCTTCTGCTTCTTCACTACCAGTACTTGCAGCTGGCATCA  
CAATGCTACTGACAGACCGAAACCTCAACACAACCTTCTTTGACCCTTCAGGCGGTG  
G

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CCTATACCTTGTTTTCGGTGCCTGAGCAGGAATAGTAGGCACAGCCCTAAGCCTGCT  
TATCCGAGCTGAATTAAGTCAACCTGGGGCTCTTCTAGGTGATGACCAAATTTATAAT  
GTTATTGTAACCTGCACATGCCTTTGTGATAATTTTCTTTATAGTAATACCAATCATAAT  
TGGAGGCTTTGGAACTGACTTATCCCCTAATGATTGGTGCCCCTGACATAGCCTT  
CCCTCGTATGAACAACATGAGCTTCTGGCTTCTTCCCTCATTCCCTGCTCCTACTA  
GCATCCTCAGGTGTTGAGGCTGGAGCTGGTACTGGCTGAACAGTTTACCCACCCCT  
AGCGGGCAACCTTGCTCATGCAGGGGCTTCTGTTGACTTAACAATTTTCTCACTCCA  
TTTAGCAGGGATCTTCAATTTTAGGTGCAATTAACCTTTATTACAACCATCCTAAACA  
TGAAACCTCCTGCAATCTCACAATACCAAACACCATTGTTTGTCTGAGCTGTTCTAAT  
TACAGCAGTTCTTCTGCTTCTTCACTACCAGTACTTGCAGCTGGCATCACAATGCTA  
CTGACAGACCGAAACCTCAACACAACCTTCTTTGACCCTTCAGGCGGTGGTGACCCA  
ATTCTTTACCAACACCTA

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CCTATACCTTGTTTTCGGTGCCTGAGCTGGAATGGTAGGCACAGCCCTTAGCCTACT  
CATCCGAGCTGAATTAAGCCAACCTGGGGCTCTTCTAGGTGACGACCAAATTTACAA  
TGTAATTGTTACTGCACATGCCTTTGTAATAATTTTCTTTATAGTAATGCCAATCATGA  
TTGGAGGCTTTGGAACTGACTAATCCCCTAATGATCGGCGCCCCTGACATGGCCT  
TTCTCGAATAAATAACATGAGCTTTTGGCTTCTTCCCTCCATCATTCCCTTCTTCTG  
GCCTCCTCAGGAGTCGAAGCAGGGGCTGGAACCTGGCTGAACAGTATACCCTCCACT  
AGCAGGAAACCTTGCTCATGCAGGAGCTTCTGTTGATCTCACAATTTTCTCCCTTCA  
CTTAGCAGGTATTTCTCAATTTTAGGTGCAATTAATTTTATTACAACCATTTAAACA  
TGAAGCCCCCTGCAATTTTACAATACCAAACACCCCTGTTTGTGTGAGCTGTGCTTA  
TTACAGCAGTTCTGCTTCTTCTCCCTCCCGTACTTGCAGCTGGCATTACAATGC  
TACTAACAGACCGAAACCTAAACACAACCTTCTTTGACCCTCAGGAGGTGGTGACC  
CAATTCTTTACCAACACCTA

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CCTATACCTTGTTTTCGGTGCCTGAGCTGGAATGGTAGGCACAGCCCTTAGCCTACT  
CATCCGAGCTGAATTAAGCCAACCTGGGGCTCTTCTAGGTGACGACCAAATTTACAA  
TGTAATTGTTACTGCACATGCCTTTGTAATAATTTTCTTTATAGTAATGCCAATCATGA  
TTGGAGGCTTTGGAACTGACTAATCCCCTAATGATCGGCGCCCCTGACATGGCCT  
TTCTCGAATAAATAACATGAGCTTTTGGCTTCTTCCCTCCATCATTCCCTTCTTCTG  
GCCTCCTCAGGAGTCGAAGCAGGGGCTGGAACCTGGCTGAACAGTATACCCTCCACT  
AGCAGGAAACCTTGCTCATGCAGGAGCTTCTGTTGATCTCACAATTTTCTCCCTTCA  
CTTAGCAGGTATTTCTCAATTTTAGGTGCAATTAATTTTATTACAACCATTTAAACA  
TGAAGCCCCCTGCAATTTTACAATACCAAACACCCCTGTTTGTGTGAGCTGTGCTTA  
TTACAGCAGTTCTGCTTCTTCTCCCTCCCGTACTTGCAGCTGGCATTACAATGC  
TACTAACAGACCGAAACCTAAACACAACCTTCTTTGACCCTCAGGAGGTGGTGACC  
CAATTCTTTACCAACACCTA

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CCTATACCTTGTTCGCTGAGCTGGAATGGTAGGCACAGCCCTTAGCCTACT  
CATCCGAGCTGAATTAAGCCAACCTGGGGCTCTTCTAGGTGACGACCAAATTTACAA  
TGTAATTGTTACTGCACATGCCTTTGTAATAATTTCTTTATAGTAATGCCAATCATGA  
TTGGAGGCTTTGGAACTGACTAATCCCCTAATGATCGGCGCCCCTGACATGGCCT  
TTCTCGAATAAATAACATGAGCTTTGGCTTCTCCTCCATCATTCTTCTTCTTCTG  
GCCTCCTCAGGAGTCGAAGCAGGGGCTGGAAGTGGCTGAACAGTATACCTCCACT  
AGCAGGAAACCTTGCTCATGCAGGAGCTTCTGTTGATCTCACAATTTTCTCCCTTCA  
CTTAGCAGGATTTTCTCAATTTTAGGTGCAATTAATTTTATTACAACCATTCTAAACA  
TGAAGCCCCCTGCAATTTACAATACCAAACACCCCTGTTTGTGTGAGCTGTGCTTA  
TTACAGCAGTTCTGCTTCTTCTCCTCCCGGACTTGCAGCTGGCATTACAATGC  
TACTAACAGACCGAAACCTAAACACAACCTTCTTTGACCCCTCAGGAGGTGGTGACC  
CAATTCTTTACCAACACCTA

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GCTTGAGCAGGAATGGTAGGCACAGCCCTTAGCCTACTCATCCGAGCTGAACTAAG  
CCAACCTGGGGCTCTTCTAGGTGACGACCAAATTTATAATGTAATTGTTACTGCACAT  
GCTTTTGTAAATAATTTCTTTATAGTAATACCAATCATGATTGGAGGCTTTGGAACTG  
ACTAATCCCCTAATGATTGGTGCCTCCGACATGGCCTTTCCCGAATAAATAATAT  
GAGCTTCTGGCTGCTTCTCCTCCATCATTCTTCTTCTTAGCCTCCTCAGGAGTTGAA  
GCTGGAGCTGGAAGTGGCTGAACAGTTTATCCCCACTAGCAGGAAACCTTGCTCA  
TGCAGGAGCTTCTGTTGACCTTACAATTTTCTCCCTACACTTAGCAGGATTTTCTTCA  
ATTTTAGGTGCAATTAATTTTATTACAACCATTCTAAACATGAAACCCCTGCAATCTC  
ACAATACCAAACACCCCTGTTTGTGTGAGCTGTCCTTATTACAGCAGTCTACTGCTT  
CTCTCCCTACCTGTCCTTGCAGCTGGCATTACAATGCTACTGACAGACCGAAACCTA  
AACACAACCTTCTTTGATCCCTCAGGAGGTGGTGATCCAATTCTTTACCAACACCTA

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CCTATACCTTGTTCGCTGAGCAGGAATGGTAGGCACAGCCCTTAGCCTACT  
CATCCGAGCTGAACTAAGCCAACCTGGGGCTCTTCTAGGTGACGACCAAATTTATAA  
TGTAATTGTTACTGCACATGCTTTTGTAAATAATTTCTTTATAGTAATACCAATCATGA  
TTGGAGGCTTTGGGAACTGACTAATCCCCTAATGATCGGCGCCCCTGACATGGCC  
TTTCCCGAATAAATAACATGAGCTTCTGACTGCTTCTCCTCCTCATTCTTCTTCTCC  
TGGCCTCCTCAGGAGTTGAAGCTGGAGCTGGGACTGGCTGAACAGTTTACCCCCCA  
CTAGCAGGAAACCTTGCCCATGCAGGAGCTTCTGTTGACCTTACAATTTTCTCCCTA  
CACTTAGCAGGAATTTCTTCAATTTTAGGTGCAATTAATTTTATTACAACCATTCTAAA  
CATGAAACCCCTGCAATCTCACAATACCAGACACCCCTGTTTGTCTGAGCTGTCCT  
TATTACAGCAGTTCTACTGCTTCTTCTCTACCTGTTCTTGCAGCTGGCATTACAATG  
CTACTAACAGATCGAAATCTAAACACAACCTTCTTTGACCCCTCAGGAGGTGGTGAC  
CCAATTCTTTACCAACACCTA

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CCTATACCTTGTTCGCTGAGCAGGAATGGTAGGCACAGCCCTTAGCCTACT  
CATCCGAGCTGAACTAAGCCAACCTGGGGCTCTTCTAGGTGACGACCAAATTTATAA  
TGTAATTGTTACTGCACATGCTTTTGTAAATAATTTCTTTATAGTAATACCAATCATGA  
TTGGAGGCTTTGGGAACTGACTAATCCCCTAATGATCGGCGCCCCTGACATGGCC  
TTTCCCGAATAAATAACATGAGCTTCTGACTGCTTCTCCTCCTCATTCTTCTTCTCC  
TAGCCTCCTCAGGAGTTGAAGCTGGAGCTGGGACTGGCTGAACAGTTTACCCCCCG  
CTAGCAGGAAACCTTGCCCATGCAGGAGCTTCTGTTGACCTTACAATTTTCTCCCTA  
CACTTAGCAGGAATTTCTTCAATTTTAGGTGCAATTAATTTTATTACAACCATTCTAAA  
CATGAAACCCCTGCAATCTCACAATACCAGACACCCCTGTTTGTCTGAGCTGTCCT  
TATTACAGCAGTTCTACTGCTTCTTCTCTACCTGTTCTTGCAGCTGGCATTACAATG  
CTACTAACAGATCGAAATCTAAACACAACCTTCTTTGATCCCTCAGGAGGTGGTGAC  
CCAATTCTTTACCAACACCTA

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CCTATACCTTGTTTTCGGTGCCTGAGCAGGAATGGTAGGCACAGCCCTTAGCCTACT  
CATCCGAGCTGAACTAAGCCAACCTGGGGCTCTTCTAGGTGACGACCAAATTTATAA  
TGTAATTGTTACTGCACATGCTTTTGTAATAATTTTCTTTATAGTAATACCAATCATGA  
TTGGAGGCTTTGGGAACTGACTAATCCCCTAATGATCGGCGCCCCTGACATGGCC  
TTTCCCGAATAAATAACATGAGCTTCTGACTGCTTCCTCCCTCATTCTTCTTCTCC  
TAGCCTCCTCAGGAGTTGAAGCTGGAGCTGGGACTGGCTGAACAGTTTACCCCCA  
CTAGCAGGAAACCTTGCCCATGCAGGAGCTTCTGTTGACCTTACAATTTTCTCCCTA  
CACTTAGCAGGAATTTCTTCAATTTTAGGTGCAATTAATTTTATTACAACCATTCTAAA  
CATGAAACCCCCTGCAATCTCACAATACCAGACACCCCTGTTTGTCTGAGCTGTCCT  
TATTACAGCAGTTCTACTGCTTCTTCTCTACCTGTTCTTGCAGCTGGCATTACAATG  
CTACTAACAGATCGAAATCTAAACACAACCTTCTTTGACCCCTCAGGAGGTGGTGAC  
CCAATTCCTTACCAACACCTA