IB 2016 iDigBio Workshop

AN INSIGHT ABOUT SPECIES TURNOVER FROM BAT SPECIES RECORDS ON SIBERUT ISLANDS, INDONESIA

Aninta SG[1*], Noerfahmy S[2], Wiantoro S[3], and Iskandar DT[1]

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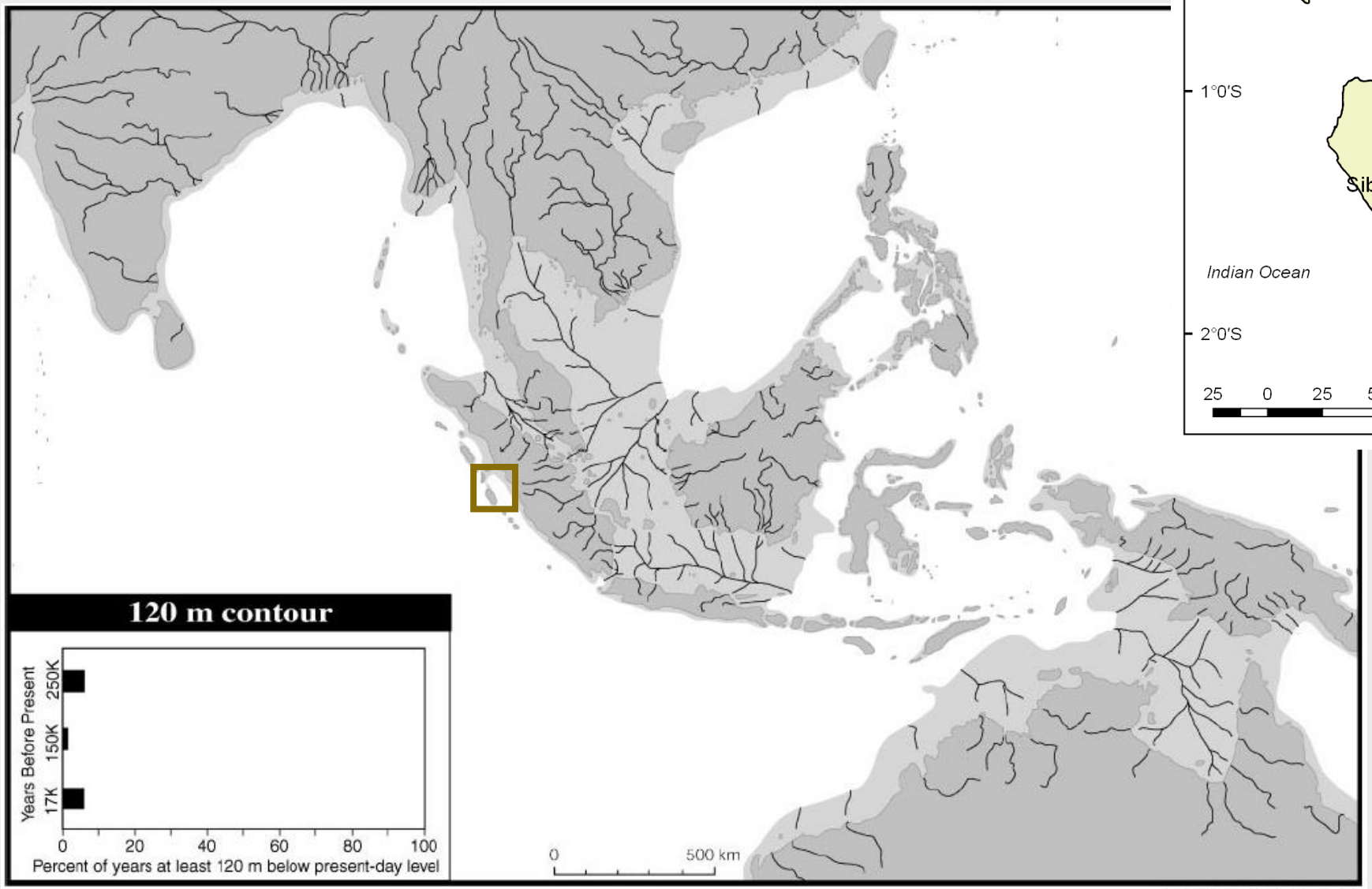
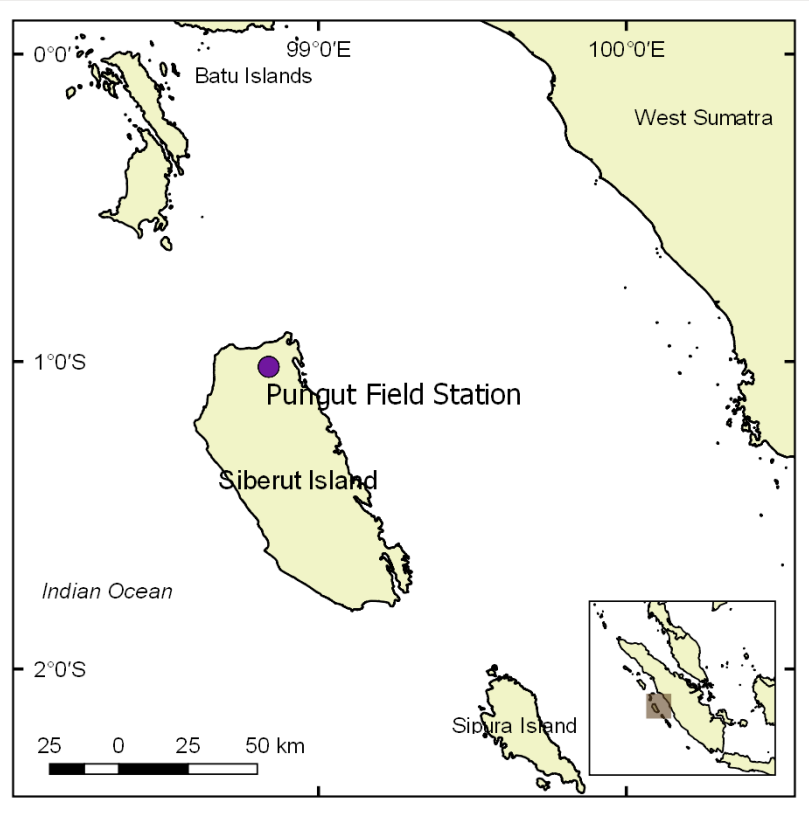
[2]Fauna & Flora International – Indonesia Programme, Jakarta, Indonesia

[3]Museum Zoologicum Bogoriense, Bogor, LIPI, Indonesia

Introduction



Voris (2000)

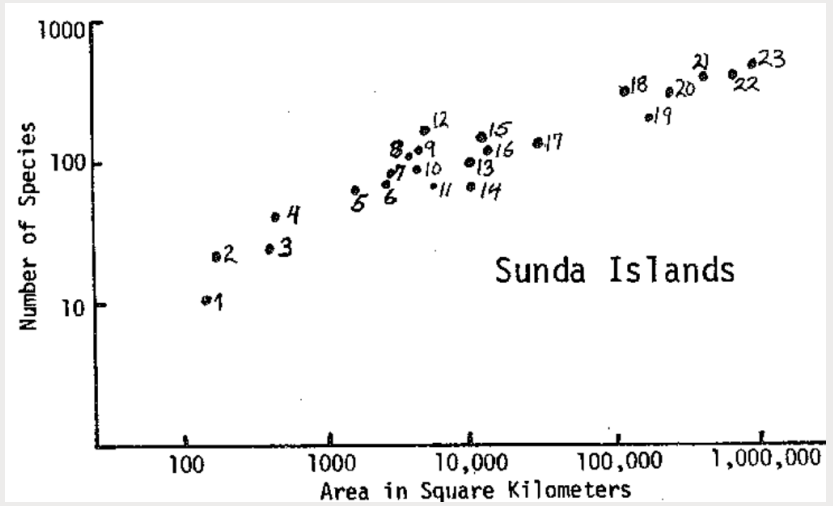


Introduction

10	No	Spesies	Expected	Observed
11	9	*Kerivoula papillosa* [a]	x	x
12	10	*Kerivoula pellucida*		x
13	11	*Macroglossus sobrinus* [a,d]	x	x
14		*Macroglossus minimus* [a]	x	
15	12	*Megaderma spasma* [a,c,d]	x	x
16	13	*Murina suilla*		x
17	14	*Myotis ater* [b]	x	
18	15	*Myotis hasseltii*	x	
19	16	*Myotis muricola* [c,d]	x	x
20	18	*Philetor brachyotis*		x

Island	Area (km^2)	Species Number	
		Before Study	After Study
Siberut	3.828,5	16	22
Sumatera	443.065,8	72	88

Species vs Area :



(MacArthur&Wilson, 1967)

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11	*Macroglossus sobrinus* [a,d]	x	x
	Macroglossus minimus [a]	x	
12	*Megaderma spasma* [a,c,d]	x	x
13	*Murina suilla*		x
14	*Myotis ater* [b]	x	
15	*Myotis hasseltii*	x	
16	*Myotis muricola* [c,d]	x	x
18	*Philetor brachyotis*		x

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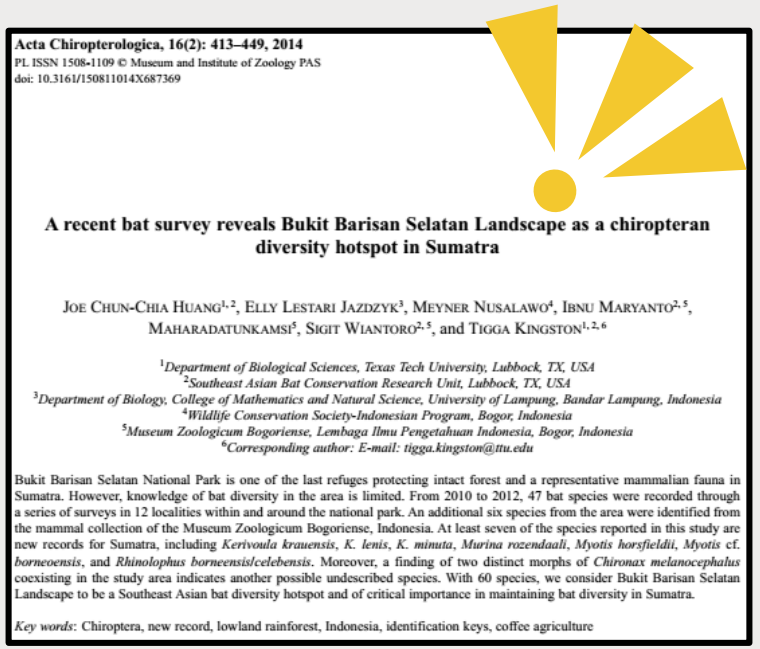

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A recent bat survey reveals Bukit Barisan Selatan Landscape as a chiropteran diversity hotspot in Sumatra

JOE CHUN-CHIA HUANG[1, 2], ELLY LESTARI JAZDZYK[3], MEYNER NUSALAWO[4], IBNU MARYANTO[2, 5], MAHARADATUNKAMSI[5], SIGIT WIANTORO[2, 5], and TIGGA KINGSTON[1, 2, 6]

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[2]*Southeast Asian Bat Conservation Research Unit, Lubbock, TX, USA*
[3]*Department of Biology, College of Mathematics and Natural Science, University of Lampung, Bandar Lampung, Indonesia*
[4]*Wildlife Conservation Society-Indonesian Program, Bogor, Indonesia*
[5]*Museum Zoologicum Bogoriense, Lembaga Ilmu Pengetahuan Indonesia, Bogor, Indonesia*
[6]*Corresponding author: E-mail: tigga.kingston@ttu.edu*

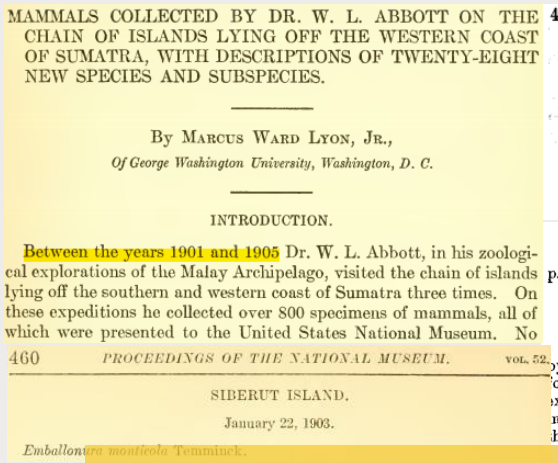
Bukit Barisan Selatan National Park is one of the last refuges protecting intact forest and a representative mammalian fauna in Sumatra. However, knowledge of bat diversity in the area is limited. From 2010 to 2012, 47 bat species were recorded through a series of surveys in 12 localities within and around the national park. An additional six species from the area were identified from the mammal collection of the Museum Zoologicum Bogoriense, Indonesia. At least seven of the species reported in this study are new records for Sumatra, including *Kerivoula krauensis*, *K. lenis*, *K. minuta*, *Murina rozendaali*, *Myotis horsfieldii*, *Myotis* cf. *borneoensis*, and *Rhinolophus borneensis*/*celebensis*. Moreover, a finding of two distinct morphs of *Chironax melanocephalus* coexisting in the study area indicates another possible undescribed species. With 60 species, we consider Bukit Barisan Selatan Landscape to be a Southeast Asian bat diversity hotspot and of critical importance in maintaining bat diversity in Sumatra.

Key words: Chiroptera, new record, lowland rainforest, Indonesia, identification keys, coffee agriculture

IS THE SPECIES NUMBER FIXED?

How did species assemblage change over time?

Methods



MAMMALS COLLECTED BY DR. W. L. ABBOTT ON THE CHAIN OF ISLANDS LYING OFF THE WESTERN COAST OF SUMATRA, WITH DESCRIPTIONS OF TWENTY-EIGHT NEW SPECIES AND SUBSPECIES.

By Marcus Ward Lyon, Jr.,

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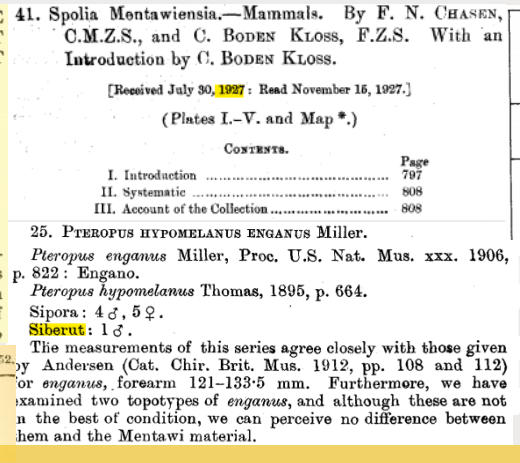
460 PROCEEDINGS OF THE NATIONAL MUSEUM. vol. 52.

SIBERUT ISLAND.

January 22, 1903.

Emballonura monticola Temminck.



41. Spolia Mentawiensia.—Mammals. By F. N. Chasen, C.M.Z.S., and C. Boden Kloss, F.Z.S. With an Introduction by C. Boden Kloss.

[Received July 30, 1927: Read November 15, 1927.]

(Plates I.–V. and Map *.)

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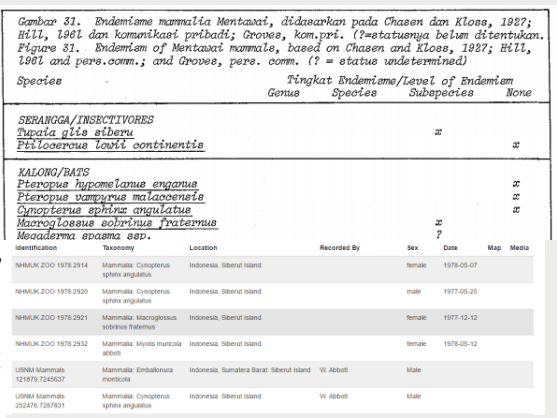
Pteropus enganus Miller, Proc. U.S. Nat. Mus. xxx. 1906, p. 822: Engano.

Pteropus hypomelanus Thomas, 1895, p. 664.

Sipora: 4 ♂, 5 ♀.

Siberut: 1 ♂.

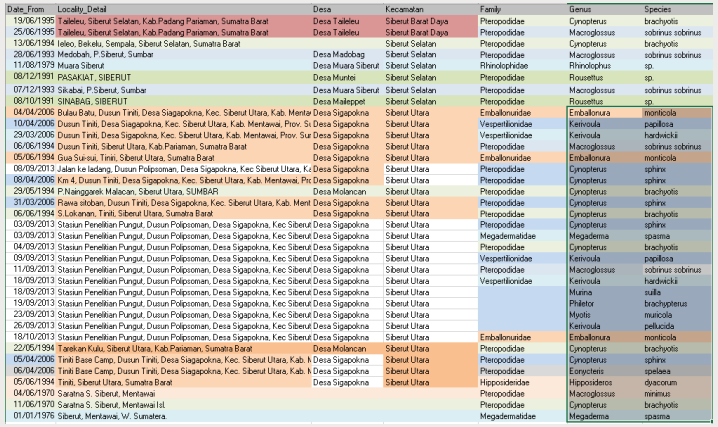
The measurements of this series agree closely with those given by Andersen (Cat. Chir. Brit. Mus. 1912, pp. 108 and 112) for *enganus*, forearm 121–133·5 mm. Furthermore, we have examined two topotypes of *enganus*, and although these are not in the best of condition, we can perceive no difference between them and the Mentawi material.



Gambar 31. Endemisme mamalia Mentawai, didasarkan pada Chasen dan Kloss, 1927; Hill, 1961 dan komunikasi pribadi; Groves, kom.pri. (?=statusnya belum ditentukan.
Figure 31. Endemism of Mentawai mammals, based on Chasen and Kloss, 1927; Hill, 1961 and pers.comm.; and Groves, pers. comm. (? = status undetermined)

Species	Tingkat Endemisme/Level of Endemism			
	Genus	Species	Subspecies	None
SERANGGA/INSECTIVORES				
Tupaia glis siberu			x	
Ptilocercus lowii continentis				x
KALONG/BATS				
Pteropus hypomelanus enganus				x
Pteropus vampyrus malaccensis				x
Cynopterus sphinx angulatus				x
Macroglossus sobrinus fratermus			x	
Megaderma spasma sep.			?	

Identification	Taxonomy	Location	Recorded By	Sex	Date	Map	Media
NHMUK ZOO 1978.2914	Mammalia: Cynopterus sphinx angulatus	Indonesia, Siberut Island.		female	1978-05-07		
NHMUK ZOO 1978.2920	Mammalia: Cynopterus sphinx angulatus	Indonesia, Siberut Island.		male	1977-05-25		
NHMUK ZOO 1978.2921	Mammalia: Macroglossus sobrinus fratermus	Indonesia, Siberut Island.		female	1977-12-12		
NHMUK ZOO 1978.2932	Mammalia: Myotis muricola abbotti	Indonesia, Siberut Island.		female	1978-05-12		
USNM Mammals 121879.7245637	Mammalia: Emballonura monticola	Indonesia, Sumatera Barat: Siberut Island	W. Abbott	Male			
USNM Mammals 252476.7287831	Mammalia: Cynopterus sphinx angulatus	Indonesia: Siberut Island	W. Abbott	Male			



Date_From	Locality_Detail	Desa	Kecamatan	Family	Genus	Species
19/06/1995	Taileleu, Siberut Selatan, Kab.Padang Pariaman, Sumatra Barat	Desa Taileleu	Siberut Barat Daya	Pteropodidae	Cynopterus	brachyotis
25/06/1995	Taileleu, Siberut Selatan, Kab.Padang Pariaman, Sumatra Barat	Desa Taileleu	Siberut Barat Daya	Pteropodidae	Macroglossus	sobrinus sobrinus
13/06/1994	Ieleo, Bekelu, Sempala, Siberut Selatan, Sumatra Barat		Siberut Selatan	Pteropodidae	Cynopterus	brachyotis
28/06/1993	Medobah, P.Siberut, Sumbar	Desa Madobag	Siberut Selatan	Pteropodidae	Macroglossus	sobrinus sobrinus
11/08/1975	Muara Siberut	Desa Muara Siberut	Siberut Selatan	Rhinolophidae	Rhinolophus	sp.
08/12/1991	PASAKIAT, SIBERUT	Desa Muntei	Siberut Selatan	Pteropodidae	Rousettus	sp.
07/12/1993	Sikabai, P.Siberut, Sumbar	Desa Muara Siberut	Siberut Selatan	Pteropodidae	Macroglossus	sobrinus sobrinus
08/10/1991	SINABAG, SIBERUT	Desa Maileppet	Siberut Selatan	Pteropodidae	Rousettus	sp.
04/04/2006	Bulau Baku, Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. Mentav	Desa Siagapokna	Siberut Utara	Emballonuridae	Emballonura	monticola
10/04/2006	Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. Mentawai, Prov. Su	Desa Siagapokna	Siberut Utara	Vespertilionidae	Kerivoula	papillosa
29/03/2006	Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. Mentawai, Prov. Su	Desa Siagapokna	Siberut Utara	Vespertilionidae	Kerivoula	hardwickii
06/06/1994	Dusun Tiniti, Siberut Utara, Kab.Pariaman, Sumatra Barat	Desa Siagapokna	Siberut Utara	Pteropodidae	Macroglossus	sobrinus sobrinus
05/06/1994	Gua Sui-sui, Tiniti, Siberut Utara, Sumatra Barat	Desa Siagapokna	Siberut Utara	Emballonuridae	Emballonura	monticola
08/09/2013	Jalan ke ladang, Dusun Polipsoman, Desa Sigapokna, Kec Siberut Utara, Ka	Desa Siagapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
08/04/2006	Km 4, Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. Mentawai, Pr	Desa Siagapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
29/05/1994	P.Nanggarek Malacan, Siberut Utara, SUMBAR	Desa Molaicoan	Siberut Utara	Pteropodidae	Cynopterus	brachyotis
31/03/2006	Rawa sitoban, Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. Ment	Desa Siagapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
06/06/1994	S.Lokanan, Tiniti, Siberut Utara, Sumatra Barat	Desa Siagapokna	Siberut Utara	Pteropodidae	Cynopterus	brachyotis
03/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Siagapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
03/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Siagapokna	Siberut Utara	Megadermatidae	Megaderma	spasma
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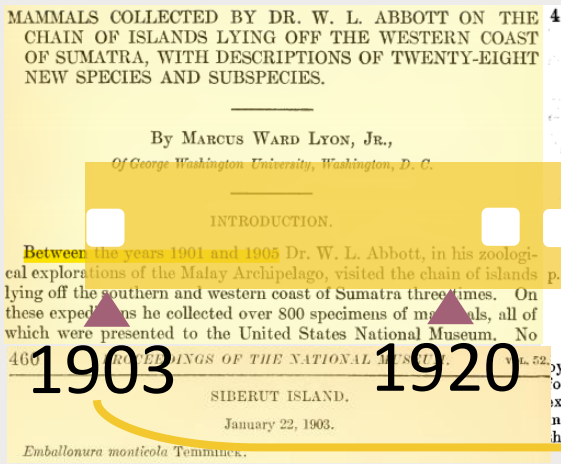
11/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Siagapokna	Siberut Utara	Pteropodidae	Macroglossus	sobrinus sobrinus
18/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Siagapokna	Siberut Utara	Vespertilionidae	Kerivoula	hardwickii
18/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Siagapokna	Siberut Utara		Murina	suilla
19/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Siagapokna	Siberut Utara		Philetor	brachypterus
23/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Siagapokna	Siberut Utara		Myotis	muricola
26/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Siagapokna	Siberut Utara		Kerivoula	pellucida
18/10/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Siagapokna	Siberut Utara	Emballonuridae	Emballonura	monticola
22/05/1994	Tarekan Kuku, Siberut Utara, Kab.Pariaman, Sumatra Barat	Desa Molaicoan	Siberut Utara	Pteropodidae	Cynopterus	brachyotis
05/04/2006	Tiniti Base Camp, Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. M	Desa Siagapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
06/04/2006	Tiniti Base Camp, Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. M	Desa Siagapokna	Siberut Utara	Pteropodidae	Ecnyctenis	speiaea
05/06/1994	Tiniti, Siberut Utara, Sumatra Barat	Desa Siagapokna	Siberut Utara	Hipposideridae	Hipposideros	dyacorum
04/06/1970	Saratna S. Siberut, Mentawai			Pteropodidae	Macroglossus	minimus
11/06/1970	Saratna S. Siberut, Mentawai Isl.			Pteropodidae	Cynopterus	brachyotis
01/01/1976	Siberut, Mentawai, W. Sumatera			Megadermatidae	Megaderma	spasma

1903 1920 1970 1990 2013

Methods



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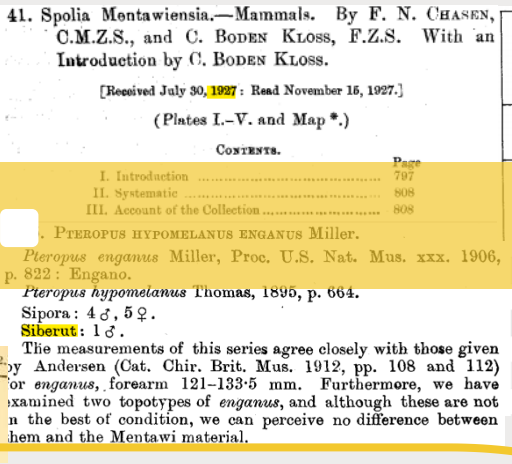

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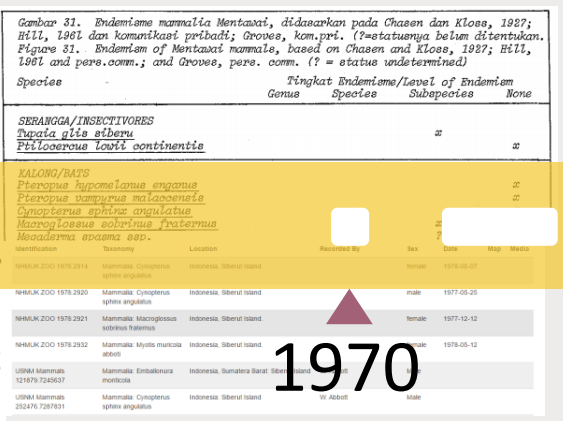

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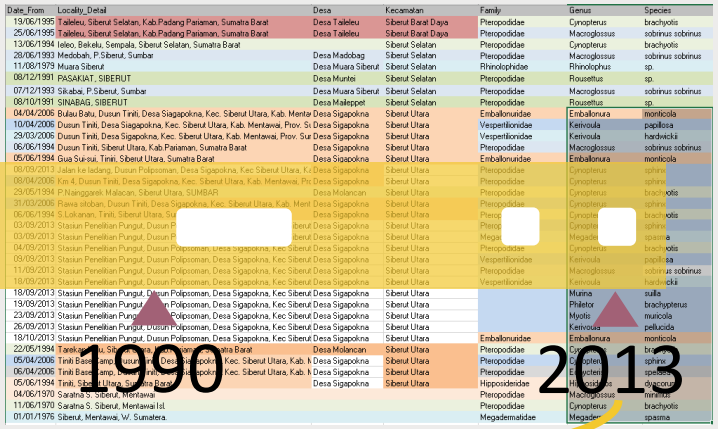
Cynopterus sphinx angulatus				x
Macroglossus sobrinus fraternus				x
Megaderma spasma sep.				x



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07/12/1993	Sikabai, P.Siberut, Sumbar	Desa Muara Siberut	Siberut Selatan	Pteropodidae	Macroglossus	sobrinus sobrinus
08/10/1991	SINABAG, SIBERUT	Desa Maileppet	Siberut Selatan	Pteropodidae	Rousettus	sp.
04/04/2006	Bulau Batu, Dusun Tinti, Desa Siagapokna, Kec. Siberut Utara, Kab. Mentaw	Desa Sigapokna	Siberut Utara	Emballonuridae	Emballonura	monticola
10/04/2006	Dusun Tinti, Desa Siagapokna, Kec. Siberut Utara, Kab. Mentawai, Prov. Su	Desa Sigapokna	Siberut Utara	Vespertilionidae	Kerivoula	papillosa
29/03/2006	Dusun Tinti, Desa Siagapokna, Kec. Siberut Utara, Kab. Mentawai, Prov. Su	Desa Sigapokna	Siberut Utara	Vespertilionidae	Kerivoula	hardwickii
06/06/1994	Dusun Tinti, Siberut Utara, Kab.Pariaman, Sumatra Barat	Desa Sigapokna	Siberut Utara	Pteropodidae	Macroglossus	sobrinus sobrinus
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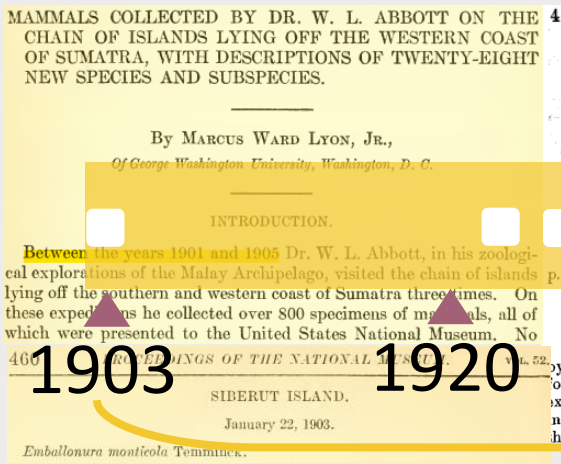
25/05/1994	P.Nanggoreh, Malacan, Siberut Utara, SUMBAR	Desa Molancan	Siberut Utara	Pteropodidae	Cynopterus	brachyotis
31/03/2006	Rawa atoban, Dusun Tinti, Desa Siagapokna, Kec. Siberut Utara, Kab. Ment	Desa Sigapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
06/06/1994	S.Lokanan, Tinti, Siberut Utara, Su	Desa Sigapokna	Siberut Utara	Pteropodidae	Cynopterus	brachyotis
03/09/2013	Stasiun Penelitian Pungut, Dusun P	iberut Desa Sigapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
03/09/2013	Stasiun Penelitian Pungut, Dusun P	Desa Sigapokna	Siberut Utara	Megadermatidae	Megaderma	spasma
04/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara	Pteropodidae	Cynopterus	brachyotis
09/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara	Vespertilionidae	Kerivoula	papillosa
11/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara	Pteropodidae	Macroglossus	sobrinus sobrinus
18/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara	Vespertilionidae	Kerivoula	hardwickii
18/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara		Murina	suilla
19/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara		Philetor	brachypterus
23/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara		Myotis	muricola
26/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara		Kerivoula	pellucida
18/10/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara	Emballonuridae	Emballonura	monticola
22/05/1994	Tarekat, Sib	Desa Molancan	Siberut Utara	Pteropodidae	Cynopterus	brachyotis
05/04/2006	Tinti Basi Lamp, Dusun Tinti, Desa Sigapokna, Kec. Siberut Utara, Kab. M	Desa Sigapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
06/04/2006	Tinti Basi Lamp, Dusun Tinti, Desa Sigapokna, Kec. Siberut Utara, Kab. M	Desa Sigapokna	Siberut Utara	Pteropodidae	Dyacopterus	spadiceus
05/06/1994	Tinti, Siberut Utara, Sumatra Barat	Desa Sigapokna	Siberut Utara	Hipposideridae	Hipposideros	diadema
04/06/1970	Saralma S. Siberut, Mentawai			Pteropodidae	Macroglossus	minimus
11/06/1970	Saralma S. Siberut, Mentawai Isl.			Pteropodidae	Cynopterus	brachyotis
01/01/1975	Siberut, Mentawai, W. Sumatera.			Megadermatidae	Megaderma	spasma

1903 1920 1970 1990 2013

9 periods of exploration

Methods



MAMMALS COLLECTED BY DR. W. L. ABBOTT ON THE CHAIN OF ISLANDS LYING OFF THE WESTERN COAST OF SUMATRA, WITH DESCRIPTIONS OF TWENTY-EIGHT NEW SPECIES AND SUBSPECIES.

By Marcus Ward Lyon, Jr.,

Of George Washington University, Washington, D. C.

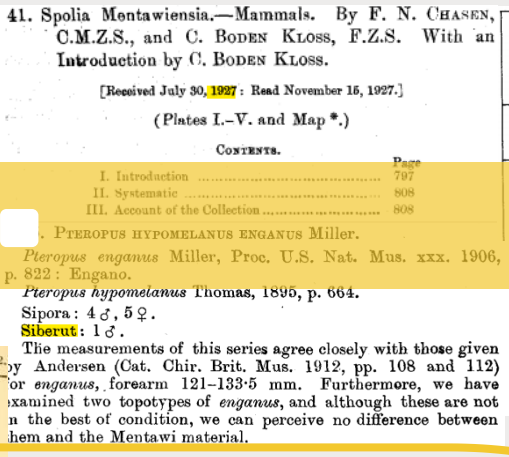
INTRODUCTION.

Between the years 1901 and 1905 Dr. W. L. Abbott, in his zoological explorations of the Malay Archipelago, visited the chain of islands lying off the southern and western coast of Sumatra three times. On these expeditions he collected over 800 specimens of mammals, all of which were presented to the United States National Museum. No

SIBERUT ISLAND.

January 22, 1903.

Emballonura monticola Temminck.



41. Spolia Mentawiensia.—Mammals. By F. N. Chasen, C.M.Z.S., and C. Boden Kloss, F.Z.S. With an Introduction by C. Boden Kloss.

[Received July 30, 1927: Read November 15, 1927.]

(Plates I.–V. and Map *.)

Contents.

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II. Systematic	808
III. Account of the Collection	808

. Pteropus hypomelanus enganus Miller.

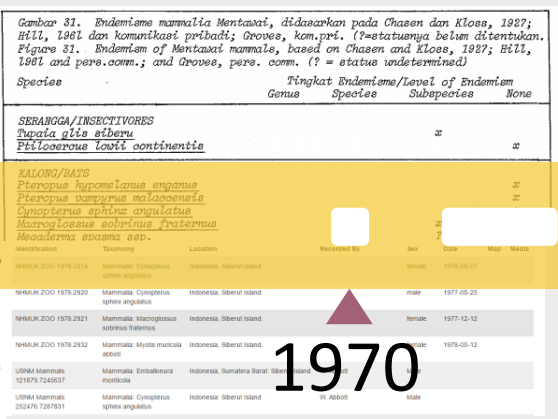
Pteropus enganus Miller, Proc. U.S. Nat. Mus. xxx. 1906, p. 822 : Engano.

Pteropus hypomelanus Thomas, 1895, p. 664.

Sipora : 4 ♂, 5 ♀.

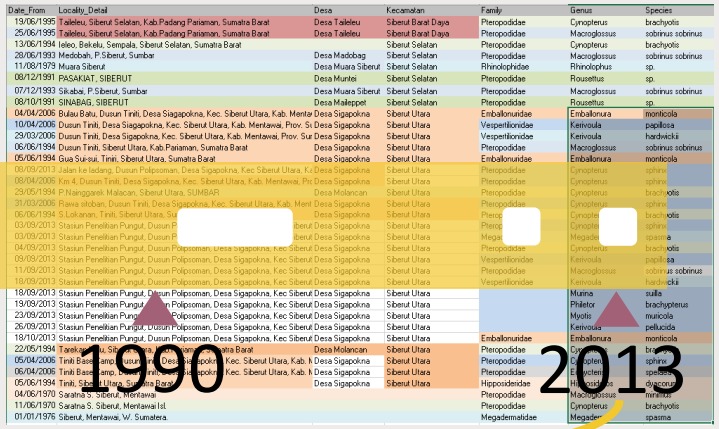
Siberut : 1 ♂.

The measurements of this series agree closely with those given by Andersen (Cat. Chir. Brit. Mus. 1912, pp. 108 and 112) for *enganus*, forearm 121–133·5 mm. Furthermore, we have examined two topotypes of *enganus*, and although these are not in the best of condition, we can perceive no difference between them and the Mentawi material.



Gambar 31. Endemisme mamnalia Mentawai, didasarkan pada Chasen dan Kloss, 1927; Hill, 1961 dan komunikasi pribadi; Groves, kom.pri. (?=statusnya belum ditentukan.
Figure 31. Endemism of Mentaxai mammals, based on Chasen and Kloss, 1927; Hill, 1961 and pers.comm.; and Groves, pers. comm. (? = status undetermined)

Species	Tingkat Endemisme/Level of Endemism			
	Genus	Species	Subspecies	None
SERANGGA/INSECTIVORES				
Tupaia glis siberu				x
Ptilocercus lowii continentis				x
KALONG/BATS				
Pteropus hypomelanus enganus				x
Pteropus vampyrus malaccensis				x
Cynopterus sphinx angulatus				
Macroglossus sobrinus fraternus				
Meaderma spasma sep.				



Date_From	Locality_Detail	Desa	Kecamatan	Family	Genus	Species
19/06/1995	Taileleu, Siberut Selatan, Kab.Padang Pariaman, Sumatra Barat	Desa Taileleu	Siberut Barat Daya	Pteropodidae	Cynopterus	brachyotis
25/06/1995	Taileleu, Siberut Selatan, Kab.Padang Pariaman, Sumatra Barat	Desa Taileleu	Siberut Barat Daya	Pteropodidae	Macroglossus	sobrinus sobrinus
13/06/1994	Ieleo, Bekeku, Sempala, Siberut Selatan, Sumatra Barat		Siberut Selatan	Pteropodidae	Cynopterus	brachyotis
28/06/1993	Medobah, P.Siberut, Sumbar	Desa Madobag	Siberut Selatan	Pteropodidae	Macroglossus	sobrinus sobrinus
11/08/1979	Muara Siberut	Desa Muara Siberut	Siberut Selatan	Rhinolophidae	Rhinolophus	sp.
08/12/1991	PASAKIAT, SIBERUT	Desa Muntei	Siberut Selatan	Pteropodidae	Rousettus	sp.
07/12/1993	Sikabai, P.Siberut, Sumbar	Desa Muara Siberut	Siberut Selatan	Pteropodidae	Macroglossus	sobrinus sobrinus
08/10/1991	SINABAG, SIBERUT	Desa Maileppet	Siberut Selatan	Pteropodidae	Rousettus	sp.
04/04/2006	Bulau Baiu, Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. Mentav	Desa Sigapokna	Siberut Utara	Emballonuridae	Emballonura	monticola
10/04/2006	Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. Mentawai, Prov. Su	Desa Sigapokna	Siberut Utara	Vespertilionidae	Kerivoula	papillosa
29/03/2006	Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. Mentawai, Prov. Su	Desa Sigapokna	Siberut Utara	Vespertilionidae	Kerivoula	hardwickii
06/06/1994	Dusun Tiniti, Siberut Utara, Kab.Pariaman, Sumatra Barat	Desa Sigapokna	Siberut Utara	Pteropodidae	Macroglossus	sobrinus sobrinus
05/06/1994	Gua Sui-sui, Tiniti, Siberut Utara, Sumatra Barat	Desa Sigapokna	Siberut Utara	Emballonuridae	Emballonura	monticola
09/09/2013	Jalan ke ladang, Dusun Polipsoman, Desa Sigapokna, Kec Siberut Utara, Ka	Desa Sigapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
08/04/2006	Km 4, Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. Mentawai, Pr	Desa Sigapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
25/05/1994	P.Nanggoreh, Malacan, Siberut Utara, SUMBAR	Desa Molancan	Siberut Utara	Pteropodidae	Cynopterus	brachyotis
31/03/2006	Rawa sitoban, Dusun Tiniti, Desa Siagapokna, Kec. Siberut Utara, Kab. Ment	Desa Sigapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
06/06/1994	S.Lokanan, Tiniti, Siberut Utara, Su	Desa Sigapokna	Siberut Utara	Pteropodidae	Cynopterus	brachyotis
03/09/2013	Stasiun Penelitian Pungut, Dusun P	iberut Desa Sigapokna	Siberut Utara	Pteropodidae	Cynopterus	sphinx
03/09/2013	Stasiun Penelitian Pungut, Dusun P	Desa Sigapokna	Siberut Utara	Megade	Megaderma	spasma
04/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara	Pteropodidae	Cynopterus	brachyotis
09/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara	Vespertilionidae	Kerivoula	papillosa
11/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara	Pteropodidae	Macroglossus	sobrinus sobrinus
18/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara	Vespertilionidae	Kerivoula	hardwickii
18/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara		Murina	suilla
19/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara		Philetor	brachypterus
23/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara		Myotis	muricola
26/09/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara		Kerivoula	pellucida
18/10/2013	Stasiun Penelitian Pungut, Dusun Polipsoman, Desa Sigapokna, Kec Siberut	Desa Sigapokna	Siberut Utara	Emballonuridae	Emballonura	monticola
22/05/1994	Tarekat, Si	Desa Molancan	Siberut Utara	Pteropodidae	Cy	bra
05/04/2006	Tinti Bas	Desa Sigapokna	Siberut Utara	Pteropodidae	Cy	sphinx
06/04/2006	Tinti Base Camp,	Desa Sigapokna	Siberut Utara	Pteropodidae	Ep	spelaea
05/06/1994	Tinti, Sibe	Desa Sigapokna	Siberut Utara	Hipposideridae	Hi	diadema
04/06/1970	Saraina S. Siberut, Mentawai			Pteropodidae	Macroglossus	minimus
11/06/1970	Saraina S. Siberut, Mentawai Isl.			Pteropodidae	Cynopterus	brachyotis
01/01/1975	Siberut, Mentawai, W. Sumatera.			Megadermatidae	Megaderma	spasma

1903 1920 1970 1990 2013

9 periods of exploration

Species	Year of Exploration								
	1903	1927	1978	1979	1980	1992	1995	2006	2013
Cynopterus sphinx		X	X		X	X		X	X
Cynopterus brachyotis				X			X		X
Eonycteris spelaea								X	

Methods

Species	Year of Exploration								
	1903	1927	1978	1979	1980	1992	1995	2006	2013
Cynopterus sphinx		X	X		X	X		X	X
Cynopterus brachyotis				X			X		X
Eonycteris spelaea								X	

FAMILY/Species	Sb	Sm	Bn	Jv	My P.	Note
PTEROPODIDAE						
Aethalops alecto		1	1	1	1	
Balionycteris maculata		1	1	-	1	
Chironax melanocephalus		1	1	1	1	
Cynopterus brachyotis [#*]	1	1	1	1	1	
Cynopterus horsfieldi		1	1	1	1	
Cynopterus minutus		1	1	1	-	
Cynopterus sphinx	1	1	-	1	1	

Similarity Matrix		
		Sb
	Sb	
	Sm	17
	Bn	17
	Jv	18
	My P.	18

Methods

Species	Year of Exploration								
	1903	1927	1978	1979	1980	1992	1995	2006	2013
Cynopterus sphinx		X	X		X	X		X	X
Cynopterus brachyotis				X			X		X
Eonycteris spelaea								X	

FAMILY/Species	Sb	Sm	Bn	Jv	My P.	Note
PTEROPODIDAE						
Aethalops alecto		1	1	1	1	
Balionycteris maculata		1	1	-	1	
Chironax melanocephalus		1	1	1	1	
Cynopterus brachyotis [#*]	1	1	1	1	1	
Cynopterus horsfieldi		1	1	1	1	
Cynopterus minutus		1	1	1	-	
Cynopterus sphinx	1	1	-	1	1	

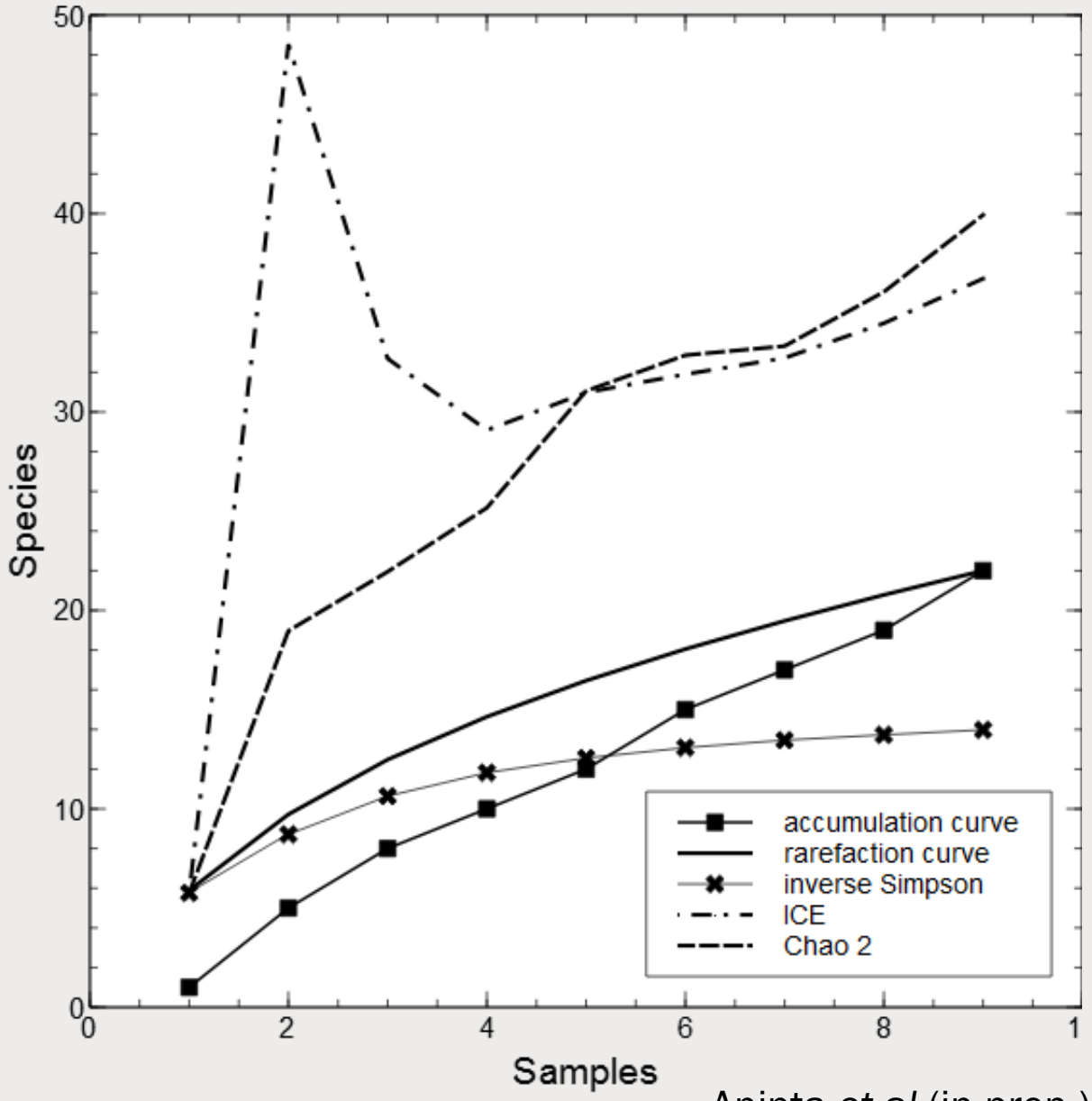
Similarity Matrix		
		Sb
	Sb	
	Sm	17
	Bn	17
	Jv	18
	My P.	18

Species richness estimation

Species assemblage assessment (turnover analysis)

Current cumulative species number is not fixed

However, museum collection data is not systematically assessed. This might lead to overestimation.



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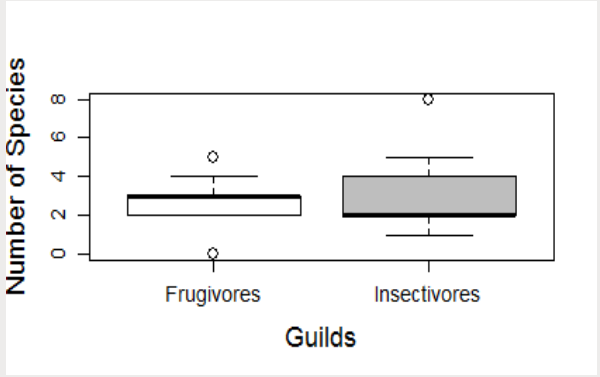
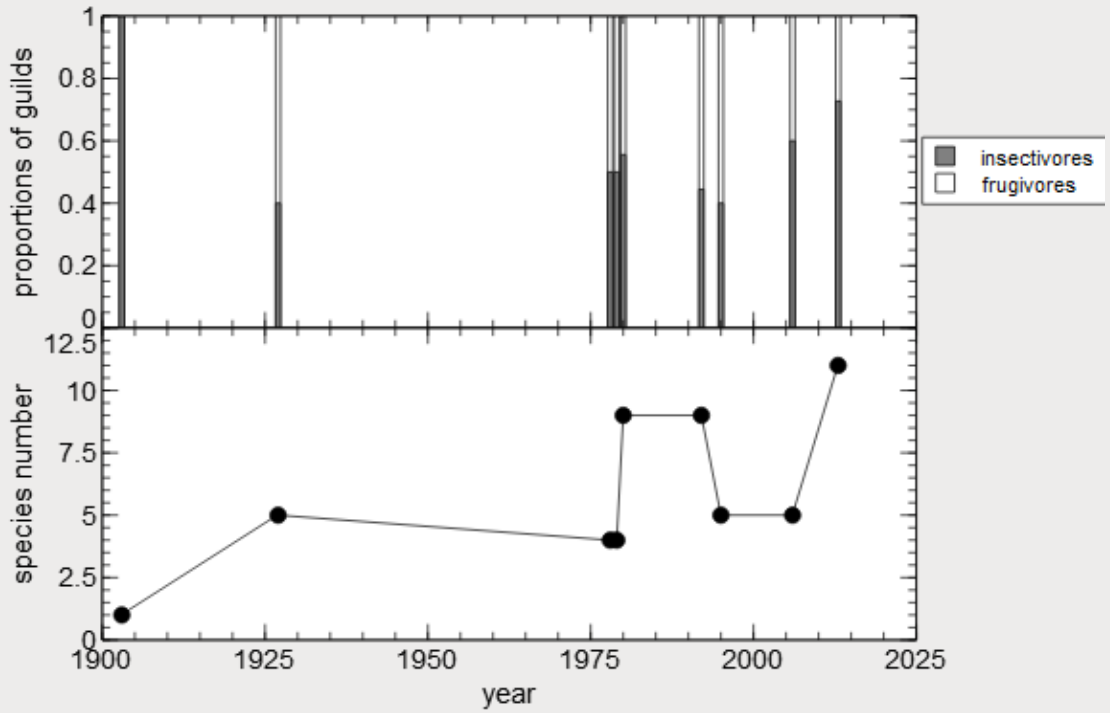
Number of species is not constant over time

However, it is not a systematic collection so I “calibrate” it by separating into two guilds.

There are no difference in guild proportion along the year (Pearson’s Chi Squared test with simulated p-value, p = 0.6658)





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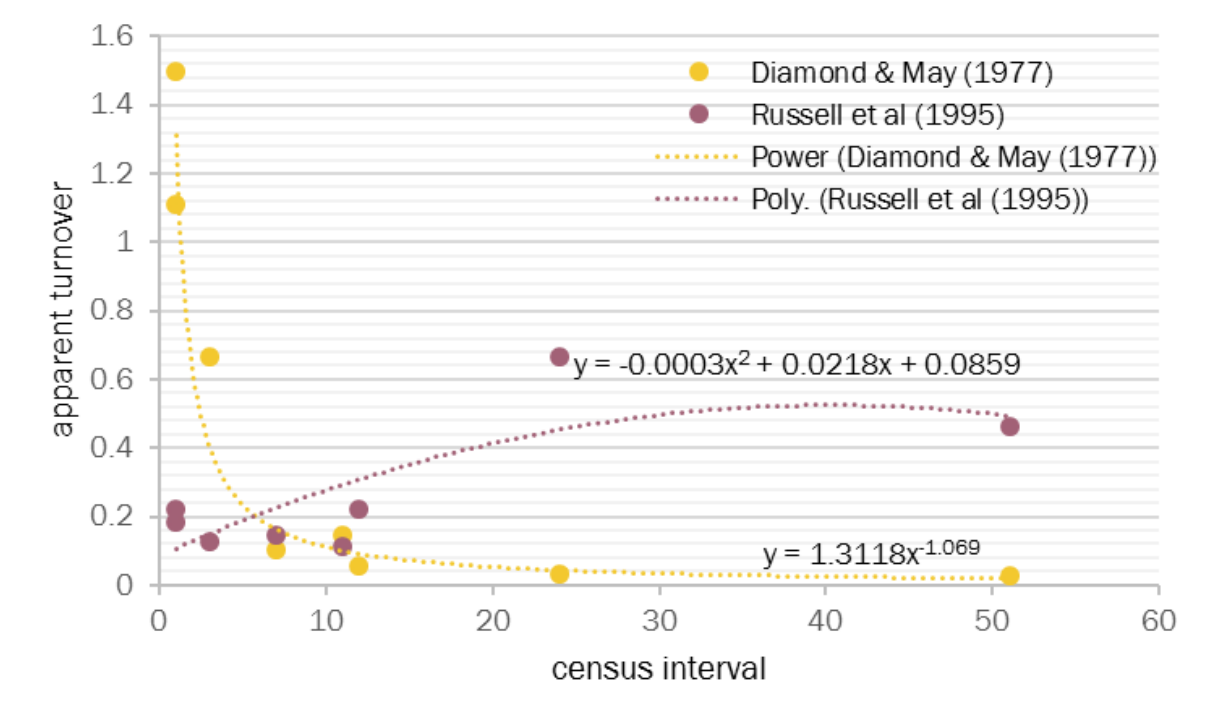
How does the diversity pattern change over time?



$$\text{turnover rate} = \frac{\text{number of extinctions} + \text{number of immigrations}}{\text{total number of species present} \times \text{census interval}}$$

Diamond & May (1977)

apparent turnover

$$T_n = \frac{E_n + I_n}{S_y + S_{y+n}}$$

Russell et al. (1995)

Museum records are prone to underestimate turnover, thus turnover should be measured with “similarity” instead of census interval

Aninta *et al* (in prep.)

Conclusions

- Species assemblage in tropical ecosystem may change over time
  - *Patterns of island diversity may depends on island type (volcanic, tectonic, land bridge, etc)*
  - *Space-based model is not enough to explain changes of diversity in biodiversity hotspot*
- Long term study of island species richness helps us evaluate conservation practices
  - *Analyses of museum collection dataset, particularly from understudied areas, requires special interpretation*

Acknowledgements

SCP Team

Dwi Yandhi Febriyanti, Agung Imansyah, Mas Padhi, Bang Potan, Risel Salamanang, Piator Salamanang,

MZB Mammal Lab

Kurnianingsih, Nanang Supriatna

My Colleagues

Martin Fisher, Susan Tsang, Sheherazade, Katherine Wolcott

...and all of you for your attention!

Young Indonesian Conservationists Network