BULLETIN
ZOÖLOGISCH MUSEUM

UNIVERSITEIT VAN AMSTERDAM

Vol. 11 No. 8 1987

FIRST RECORD OF *DOBSONIA MINOR* (DOBSON, 1879) FROM SULAWESI, INDONESIA (MAMMALIA, MEGACHIROPTERA)

BOEADI & Wim BERGMANS

ABSTRACT

A fruit bat collected recently in Central Sulawesi is assigned to *Dobsonia minor* (Dobson, 1879), hitherto only known from New Guinea and a few smaller, adjacent islands. The species' distribution is reviewed and discussed.

INTRODUCTION

On the 2nd of February, 1986, Mr. G. Henderson of Environmental Manpower Development in Indonesia collected a small fruit bat of the genus *Dobsonia* Palmer, 1898 in the Londa Cave in Toraja, Central Sulawesi. The specimen was adult and its small size and the structure of its teeth distinghuished it from *Dobsonia exoleta* Andersen, 1909 and other *Dobsonia* species recorded from the Sulawesian region (cf. De Jong & Bergmans, 1981; Hill, 1983). It clearly represents *Dobsonia minor* (Dobson, 1879), hitherto thought to be restricted to New Guinea. The Sulawesian specimen is described and compared to a number of New Guinean specimens of *Dobsonia minor;* the overall distribution of the species is reviewed and discussed. A number of new locality records in Irian Jaya is included.

MATERIAL AND METHODS

In this note collections are abbreviated as follows:

AMNH - American Museum of Natural History, New York
AMS - Australian Museum, Sydney
BMH - Bernice P. Bishop Museum, Honolulu
BMNH - British Museum (Natural History), London
MZB - Museum Zoologicum Bogoriense, Bogor
ZMA - Zoölogisch Museum, Amsterdam
ZMB - Zoologisches Museum, Berlin.

Material examined

SULAWESI: 1♂, skin, skull, Londa Cave, Rantepao, Tana-Toraja (02°59' S 119°54' E), 2-II-1986, leg. G. Henderson (MZB 14530).

IRIAN JAYA: 3♂♂, 2♀♀, skins, skulls, Apouwor River, Kapeso, Pantai Barat, Jayapura (01°40' S 138°10' E), 22-XII-1984, leg. M.H. Sinaga & Sugardjito (MZB 14304-14308); 2 ♀♀, skins, skulls, Cyclops Nature Reserve, Jayapura (02°32' S 140°36' E), 13/14-II-1986, leg. Sudarmanu (MZB 14423, 14425); 1♀, skin, skull,

Geunyeum, Nimboran, Jayapura (02°45' S 140°20' E), 6-VI-1984, leg. Yusuf (MZB 14123); 1♀, skin, skull, Kopramoka, East Mimika (04°42' S 136°21' E), altitude 150 m, 3-VII-1985, leg. S.N. Prijono & Sudarmanu (MZB 14069); 2 ♂♂, skins, skulls, Topo, Uwopa, Paniai (03°55' S 136°21' E), altitude ± 1500 m, 26-II-1986, leg. Sudarmanu (MZB 14418, 14428); 2 ♂♂, skins, skulls, Waibron, Maribu, Sentani, Jayapura (02°30' S 140°23' E), 18-II-1986, leg. Sudarmanu (MZB 14420, 14421).

PAPUA NEW GUINEA: 1♀, skin, skull, Annanberg, Ramu River (04°55' S 144°39' E), 2-IV-1971, leg. S. & N. Daan (ZMA 23.091); 1♀, alcohol, 1♂, alcohol, skull, 2 km N of Frieda Airstrip, West Sepik Province (04°35'43" S 141°57'46" E), altitude 90 m, 10- and 11-X-1982, leg. C. Unkau and L. Seri, respectively (ZMA 22.526, 22.527).

The first author has compared the Sulawesian specimen with those from Irian Jaya listed above. The second author has compared photographs of the skin, skull and teeth (see fig. 1) of the Sulesian specimen with the Pupua New Guinean specimens listed, and with notes made during earlier visits to collections containing specimens of *Dobsonia minor* (AMNH, BMNH, ZMB); notes were also available on specimens in the BMH and AMS.

All measurements are given in mm.

The Sulawesian specimen

Measurements and weights of the specimens from Sulawesi and New Guinea are given in Table I. The species as a whole seems quite exceptional among fruit bats in that ♀♀, on the average, are not only larger than ♂♂ in most body measurements, but also in most skull measurements, while their teeth are generally smaller. This observation may prove to need some modification as it is based on small samples from localities all over the species' range.

When compared to the New Guinean ♂♂, the Sulawesian ♂ appears to have shorter ears, longer lower tooth rows, and, on the whole, larger teeth - with the exception of M^2 which is evidently smaller. The lengths of its P^4, M^1, P_4 and M_2 are slightly above the maximum values measured in New Guinean ♂♂; the widths of its P^3, P^4, P_3, P_4, M_1 and M_2 equal or slightly surpass the maximum values for New Guinean specimens; P^3, P_3 and M_1 are sligthly more squarish in outline.

No other differences in skull or tooth morphology have been observed. Externally, except for the relatively short ears, the Sulawesian specimen is very much like those from New Guinea. The colours and distribution of its fur are the same, and so are the measurements of its metacarpals and phalanges.

Review of distributional data

Dobson (1879) described *Cephalotes* (= *Dobsonia*) *minor* on the basis of one specimen from Amberbaki (00°32' S 133°02' E). Andersen (1912: 824) described 2 specimen from Parimau (04°34' S 136° 30' E). Dollman (1930) mentioned one from Webi, near Washor (c. 02°43' S 134°00' E). Tate (1942) recorded a series of 28 specimens from the Idenburg and upper Fly Rivers; more exactly, the localities of those specimens - in the AMNH and (one) MZB - are: Bernhard Camp (c. 03°28' S 130°13' E); 4 km SW Bernhard Camp (c. 03°29' S 139°11' E); Oroville Camp (c. 06°09' S 141°15' E); and 5 miles below Palmer Junction, Fly River (c. 05°58' S 141°30' E). McKean (1972) recorded specimens from Ihu (07° 52' S 145°22' E), Lohiki (07°40' S 145°35' E), Ambunti (04°12' S 142°49' E) and Mount Ambunti (probably near Ambunti). Koopman (1979) mentioned specimens from Bagabag Island (04°50' S 146°15' E). Hill (1983) recorded the species from near Rauit (03°36' S 142°15' E). Bergmans & Sarbini (1985) recorded specimens from Yapen Island and from Dawai River (Yapen: 01°45' S 136°15' E). The localities listed under "Material and Methods" are all new records. There is unpublished material from Admosin Island, 1 mile north of Alexishafen (05°08' S 145°49' E) in the AMNH; from Hayfield via Maprik (c. 03°38' S 143°02' E) in the AMS; and from Nabire (03°23' S 135°31' E) and Oriomo River (c. 09°00' S 143°11' E) in the BMH.

The positions of all known collecting localities are shown in fig. 2.

DISCUSSION

The differences between the Sulawesian and the

New Guinean specimens are distinct but nevertheless minimal. More Sulawesian material is needed to assess their posible taxonomic value. Apart from some commensal species, relatively few mammal species have been found to occur both in Sulawesi and New Guinea (Groves, 1976; Van Strien, 1986): six fruit bats, ten insectivorous bats, and one rat. Of those, only *Dobsonia minor* has not been recorded for any of the islands in between Sulawesi and New Guinea. We suspect therefore, that the species may still be discovered in some of those islands. It is also remarkable that the species has not been collected earlier in Sulawesi and it may be quite rare in this part of its range.

ACKNOWLEDGEMENTS

The first author thanks Mr. A.J. Whitten for presenting the Sulawesian specimen of *Dobsonia minor* to the Museum Zoologicum Bogoriense. We are indebted to him for making the photos of the skull and skin. The second author is obliged to Dr. G.M. Maynes of the Office of Environment & Conservation of Papua New Guinea for presenting a collection of *Dobsonia*, among which two specimens of *D. minor,* to the Zoölogisch Museum of the University of Amsterdam, and to drs. R. Daan, who recently presented the specimen of *D. minor* from Annanberg to that museum. Dr. R. Angermann, ZMB; Dr. P.J.H. van Bree, ZMA; Dr. J.E. Hill, BMNH; Dr. K.F Koopman and Dr. G.G. Musser, AMNH; and Dr. A.C. Ziegler, BMH Curator of Mammal Collections, have allowed the second author to study specimens of *D. minor* or provided information in writing.

REFERENCES

ANDERSEN, K., 1912. Catalogue of the Chiroptera in the collection of the British Museum, I. Megachiroptera: i-ci, 1-854 (Trustees British Museum, London).

BERGMANS, W. & F.G. ROZENDAAL (in press). Notes on collections of fruit bats from Sulawesi and some off-lying islands (Mammalia, Megachiroptera).- Zoöl. Verh., Leiden.

BERGMANS, W. & S. SARBINI, 1985. Fruit bats of the genus Dobsonia Palmer, 1898 from the islands of Biak, Owii, Numfoor and Yapen, Irian Jaya (Mammalia, Megachiroptera).- Beaufortia, 34 (6): 181-189.

DOBSON, G.E., 1879. Notes on recent additions to the collection of Chiroptera in the Muséum d'Histoire Naturelle at Paris, with descriptions of new and rare species.- Proc. zool. Soc. Lond., 1878: 873-880.

DOLMAN, G., 1930. On mammals obtained by Mr. Shaw Mayer in New Guinea, and presented to the British Museum by Mr. J. Spedan Lewis, F.Z.S..- Proc. zool. Soc. Lond., 1930 (2): 429-435, pls. I-IV.

GROVES, C.P., 1976. The origin of the mammalian fauna of Sulawesi (Celebes).- Zs. Säugetierk., 41 (4): 201-216.

HILL, J.E., 1983. Bats (Mammalia: Chiroptera) from Indo-Australia.- Bull. Brit. Mus. (nat. Hist.), (Zool.), 45 (3): 103-208.

JONG, N. de & W. BERGMANS, 1981. A revision of the fruit bats of the genus Dobsonia Palmer, 1898 from Sulawesi and some nearby islands (Mammalia, Megachiroptera, Pteropodinae).- Zool. Abh. staatl. Mus. Tierk. Dresden, 37 (6): 209-224.

KOOPMAN, K.F., 1979. Zoogeography of mammals from islands off the northeastern coast of New Guinea.- Amer. Mus. Novit., 2690: 1-17.

MCKEAN, J.L., 1972. Notes on some collections of bats (Order Chiroptera) from Papua New Guinea and Bougainville Island.- C.S.I.R.O., Australia, Div. Wildlife Res. tech. Paper, 26: 1-35.

STRIEN, N.J. van, 1986. Abbreviated checklist of the mammals of the Australasian Archipelago: i-vii, 1-91 (School of Environmental Conservation Management, Bogor).

TATE, G.H.H., 1942. Pteropodidae (Chiroptera) of the ASrchbold Collection.- Bull. Amer. Mus. nat. Hist., 80: 331-347.

Fig. 1. Skull and mandible of *Dobsonia minor* (Dobson, 1879) from Londa Cave, Sulawesi (MZB 14530). Lateral aspect of skull; lateral aspect of mandible; ventral aspect of skull; dorsal aspect of mandible. Photographs A. J. Whitten. All figures x 2.16.

Table I. Measurements and weights of adult *Dobsonia minor* (Dobson, 1879) from Sulawesi and New Guinea.

	Sulawesi	New Guinea					
	♂	♂♂			♀♀		
		n	mean	min - max	n	mean	min - max
forearm length	78.5	28	79.45	74.4 - 83	22	83.65	75.0 - 89
ear	15	10	18	16 - 20	11	17.5	16.0 - 21
tail		8	15	10 - 20	10	13	10.0 - 15
foot		3	17.6	17 - 19	3	20	19.0 - 21
third metacarpal length	53.3	6	53.1	51.4 - 54.1	9	56.6	54.2 - 59.5
fifth metacarpal length	50.9	6	52.2	51.5 - 54.0	8	54.7	50.8 - 57.8
greatest skull length	37.7	15	37.35	35.9 - 38.1	13	37.9	36.6 - 39.1
condylobasaal length	36.0	12	35.75	34.4 - 37.0	11	36.3	35.0 - 37.2
rostrum length	11.6	7	11.7	11.4 - 12.2	10	11.9	11.4 - 12.3
palatal length	18.8	7	19.1	18.5 - 20.0	9	19.65	18.0 - 20.0
mandible length	28.7	8	28.5	27.4 - 29.55	10	29.0	27.4 - 30.2
cranium width	15.3	7	15.5	15.1 - 15.9	9	15.45	14.6 - 16.4
interorbital width	7.5	7	6.9	6.5 - 7.5	9	7.6.	6.7 - 8.9
postorbital width	6.5	7	6.85	6.4 - 7.6	10	7.0	6.4 - 7.6
zygomatic width	23.9	8	23.15	22.7 - 23.7	9	24.1	23.5 - 24.7
C^1-C^1 (cingula)	7.8	8	7.55	7.2 - 8.0	9	7.6	6.9 - 8.0
C^1-M^2 (cingula)	13.9	8	13.9	13.5 - 14.2	10	14.2	13.6 - 14.8
M^1-M^1 (cingula)	11.5	8	11.1	10.4 - 11.7	10	11.2	10.8 - 11.9
M^2-M^2 (cingula)		3	10.1	9.65 - 10.5	1		10.2
C^1-M^3 (cingula)	16.2	8	15.1	14.7 - 15.5	9	15.45	14.8 - 16.1
P^3 length	2.6	5	2.65	2.5 - 3.8	8	2.6	2.7 - 2.7
width	2.2	5	2.1	2.0 - 2.2	8	2.0	1.9 - 2.2
P^4 length	2.8	5	2.6	2.6 - 2.7	8	2.6	2.4 - 2.8
width	2.0	5	1.9	1.9 - 2.0	8	1.8	1.7 - 2.0
M^1 length	3.1	5	2.9	2.7 - 3.0	8	2.9	2.8 - 3.1
width	1.7	5	1.7	1.6 - 1.8	8	1.6	1.4 - 1.8
M^2 length	0.9	5	1.35	1.1 - 1.7	8	1.4	1.3 - 1.5
width	0.7	5	1.05	0.9 - 1.2	8	0.95	0.8 - 1.0
P_3 length	2.5	5	2.65	2.5 - 2.9	8	2.7	2.5 - 2.8
width	1.9	5	1.8	1.7 - 1.9	8	1.8	1.7 - 1.9
P_4 length	2.9	5	2.6	2.5 - 2.7	8	2.7	2.6 - 2.9
width	1.9	5	1.8	1.7 - 1.9	8	1.7	1.6 - 1.8
M_1 length	2.5	5	2.45	2.2 - 2.7	8	2.5	2.3 - 2.7
width	1.6	5	1.5	1.4 - 1.5	8	1.45	1.4 - 1.5
M_2 length	2.0	5	1.9	1.8 - 1.9	8	1.8	1.5 - 2.0
width	1.4	5	1.35	1.3 - 1.4	8	1.25	1.2 - 1.3
M_3 length	1.0	5	1.05	0.9 - 1.2	8	1.0	0.8 - 1.1
width	0.9	5	0.9	0.8 - 1.0	8	0.8	0.8 - 1.0
weight		1		66	1		60

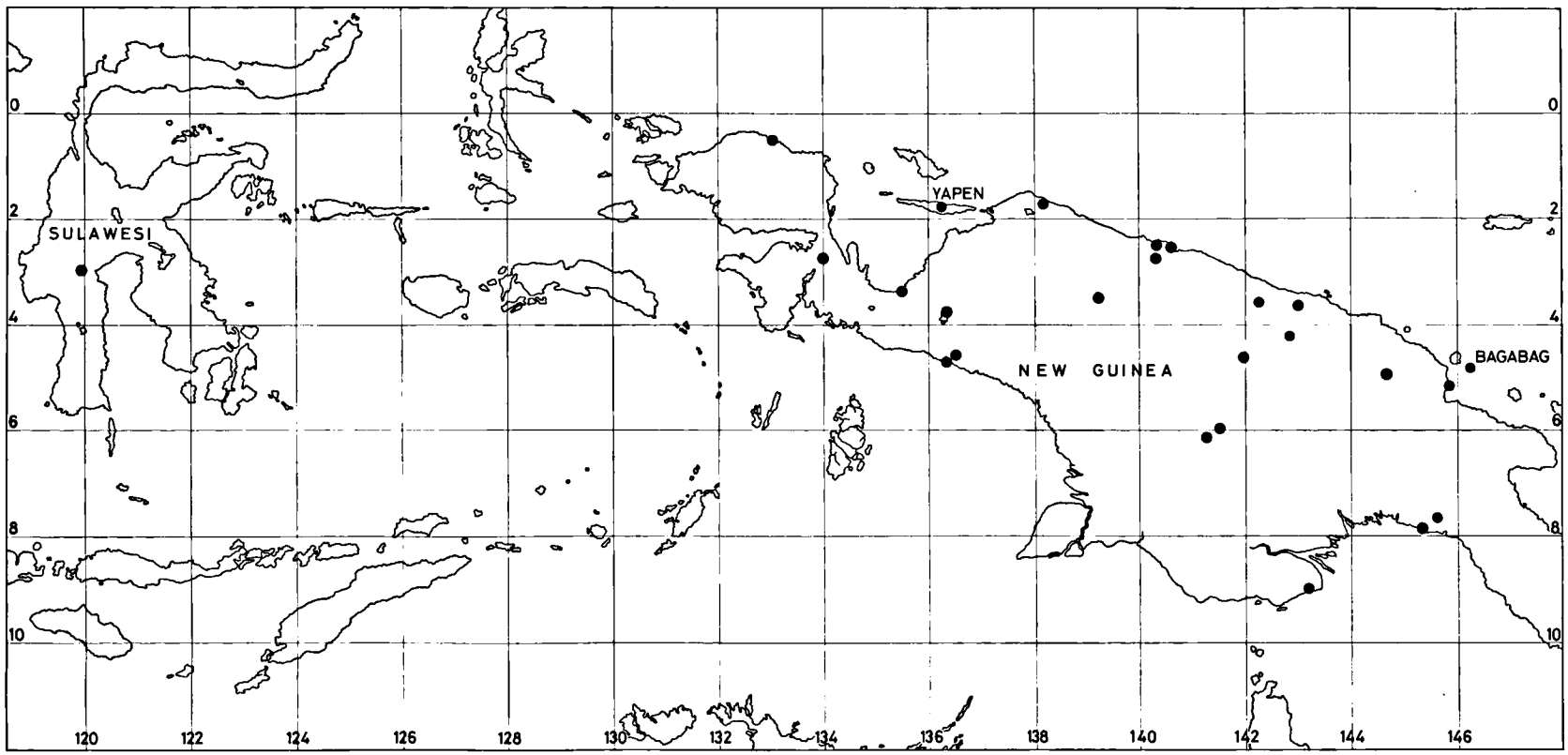

Fig. 2. Collecting localities of *Dobsonia minor* (Dobson, 1879).

Boeadi,
Museum Zoologicum Bogoriense,
P.O. Box 110,
Bogor,
Indonesia.

Wim Bergmans,
Instituut voor Taxonomische Zoölogie,
(Zoölogisch Museum),
Universiteit van Amsterdam,
P.O. Box 20125,
1000 HC Amsterdam,
The Netherlands.

Received : 10 February 1987
Distributed: 27 - XI - 1987