

Special Report 78-9

12 LEVEL II
P.S.

ENTERIC PARASITES OF ORANGUTANS (Pongo pygmaeus) IN INDONESIA

Erich E. Stafford, Austin L. Moede, Richard J. Brown, Purnomo,
Birute Galdikas-Brindamour, and Monica Boerner

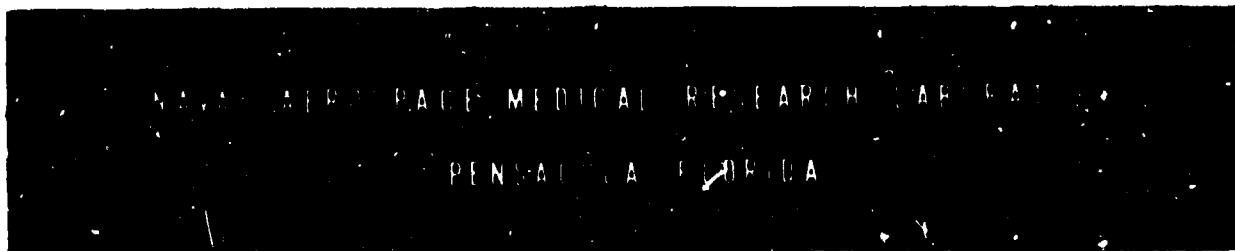
ADA073530

DDC FILE COPY



DDC
RECEIVED
SEP 10 1979
B

October, 1978



Approved for public release; distribution unlimited.

79 09 07 014

Approved for public release; distribution unlimited.

6) ENTERIC PARASITES OF ORANGUTANS (Pongo pygmaeus) IN INDONESIA

10) Erich E. Stafford, Austin L. Moede, Richard J. Brown, Purnomo,
Birute Galdikas-Brindamour, and Monica Boerner

111) 11001-1-1-1-9

De ...

D D C
RECEIVED
SEP 10 1979
RECEIVED
B

Approved by

Ashton Graybiel
Assistant for Scientific Programs

Released by

Captain R. E. Mitchell, MC USN
Commanding Officer

111) 27 Oct 1978

NAVAL AEROSPACE MEDICAL RESEARCH LABORATORY
NAVAL AIR STATION
PENSACOLA, FLORIDA 32508

SUMMARY PAGE

THE PROBLEM

Diarrheal diseases are a common problem in nearly all species of non-human primates. The treatment of diarrheal diseases in the less widely used non-human primates, such as orangutans, is difficult because of the lack of information as to possible etiologic agents.

FINDINGS

This paper tabulates identified enteric parasitic ova in three groups of orangutans living in their native habitat. This information will be useful to those laboratories attempting to treat parasitic diarrheal diseases in orangutans.

ACKNOWLEDGMENTS

The authors wish to thank Dr. Kurt Sorensen, Commanding Officer of the Naval Medical Research Unit No. 2, Taipei, Taiwan, for his encouragement in this study. They also wish to thank the Commanding Officer and Staff of the Naval Aerospace Medical Research Laboratory, Pensacola, Florida for providing the support in the completion of this study.

ACCESSION NO.		
NTIS	Section	<input checked="" type="checkbox"/>
DOC	Section	<input type="checkbox"/>
UNCLASSIFIED		<input type="checkbox"/>
BY		
DISTRIBUTION/AVAILABILITY CODES		
Dist. Avail. and/or SPECIAL		
A		

The animals used in this study were handled in accordance with the Principles of Laboratory Animal Care established by the Committee on the Guide for Laboratory Animal Resources, National Academy of Science-National Research Council.

INTRODUCTION

Many veterinarians concerned with laboratory animal/non-human primates are frequently asked to provide medical care for unusual primates such as the orangutan. Frequently such animals are new acquisitions in a colony and may be suffering an illness associated with prolonged periods of travel. This is especially true in non-human primates in which diarrheal diseases are a common manifestation of stress due to movement over great distances. Bacterial and parasitic pathogens, which are usually tolerated as normal enteric inhabitants, often will be a cause of such diarrheal diseases following travel stress.

This paper lists the enteric parasites of probable pathologic significance identified from three groups of orangutans (Pongo pygmaeus) in Indonesia, the normal wild habitat of the orangutan (2). This information should be of value to any veterinarian who might be called upon to treat orangutans suffering from enteric parasite diseases.

PROCEDURE

Stool samples were obtained from captives in the Rangunun Zoo at Jakarta, from the Orangutan Rehabilitation Center at Bohorok Sumatra, and from wild and ex-captive orangutans at the Tanjung Puting Preserve in South Borneo (Kalimantan) (Figure 1). This work was done in 1975 and 1976 as part of a combined public health and medical research effort of the United States Embassy Medical Unit and the Naval Medical Research Unit No. 2 (NAMRU 2) in Jakarta, the capital of the Republic of Indonesia. Stool samples were delivered directly to NAMRU 2 from Tanjung Puting, Kalimantan (1), while samples from the Orangutan Rehabilitation Center at Bohorok Sumatra were forwarded directly to the United States Embassy Medical Unit through the United States consulate in Medan, Sumatra. Stool samples were also obtained directly from the Jakarta Zoological Garden by NAMRU 2; the stools were examined in the NAMRU 2 laboratory by direct smear and with 10% formalin ether concentration. Standard techniques for laboratory examination of enteric parasites were utilized (3).

RESULTS

The enteric parasites identified from forty orangutans at the Orangutan Rehabilitation Center in Bohorok Sumatra included twenty-one with Balantidium, twenty-one with Strongyloides, ten with hookworms (no genus identified), two with Ascaris, four with Trichuris, and twenty-one with Entamoeba (one or more parasites per animal). Enteric parasites identified from forty-three orangutans examined in the Tanjung Puting Reserve in Kalimantan South Borneo included twelve harboring Balantidium, thirty-six shedding hookworm (no genus identification made), eight with Trichuris, and one with Dicrocoelidae.

Orangutans are not normal inhabitants of the island of Java (2), but a large group is maintained at the Jakarta Zoo. Their enteric parasitic data are reported here as many were recent acquisitions from Borneo and Sumatra. Stool samples were examined from sixteen animals in the Jakarta

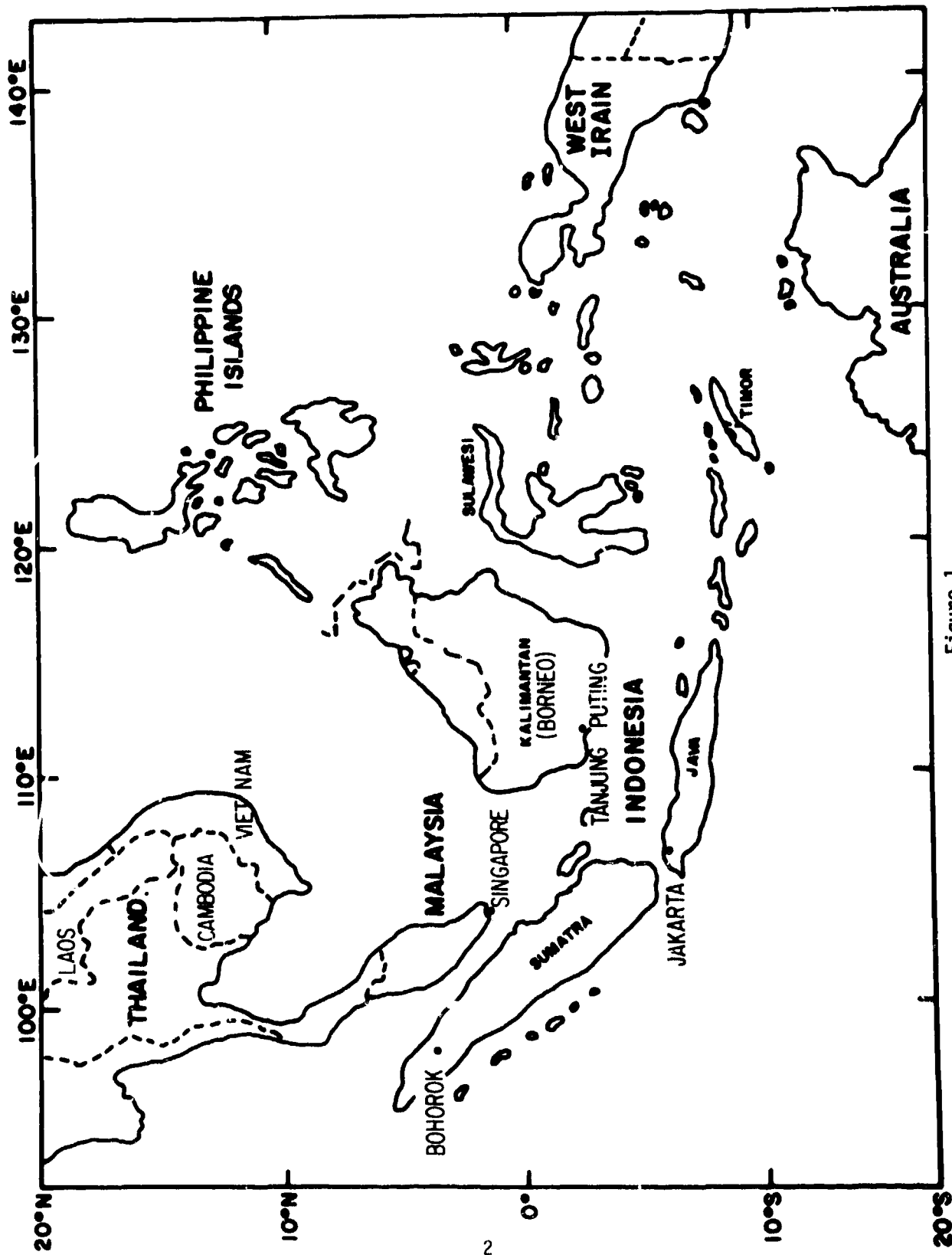


Figure 1

Map of Indonesia showing the study areas where enteric parasites of orangutans were identified.

Figure 1 courtesy of NAMRU-2, Taipei.

Zoological Gardens. Fourteen had Balantidium, eight were shedding hookworms (no genus identified), fourteen animals had Strongyloides, six had Trichuris, one had Entamoeba, and two had Ascaris (Table I).

COMMENTS

The authors recognize that nematodes were not examined in this study; only their eggs which were found in stool samples. However, the strict conservation and endangered species laws of Indonesia regarding non-human primates prohibited us from making other than a fecal examination from these uncommon non-human primates.

One possible source of misidentification is pointed out here. Occasionally, hookworm and Oesophagostomum eggs have been confused in other non-human primates, and this possibly exists here. However, it is the desire of the authors to present the available data with these limitations in mind for the benefit of those who may be called upon to provide medical care for the orangutan in the laboratory or zoological garden environment.

Table I

Intestinal Parasites of Orangutans (Pongo pygmaeus) From Three Locations in Indonesia

Parasite	Location		
	Jakarta Zoo (Rangunun) Java (16 animals examined)	Bohorok Sumatra (40 animals examined)	Tanjung Puting, Kalimantan (Borneo) (43 animals examined)
<u>Ascaris sp.</u>	2*	2	3
<u>Strongyloides sp.</u>	14	21	12
<u>Hookworm</u>	8	10	36
<u>Trichuris sp.</u>	6	4	8
<u>Spiruridae</u>	0	0	2
<u>Enterobius sp.</u>	0	1	2
<u>Ternidens sp.</u>	4	11	0
<u>Balantidium coli</u>	14	21	12
<u>Giardia sp.</u>	1	0	0
<u>Iodamoeba sp.</u>	0	1	1
<u>Endolimax nana</u>	0	0	1
<u>Entamoeba sp.</u>	1	21	6
<u>Entamoeba coli</u>	0	0	1
<u>Dicrocoelidae</u>	1	0	13
<u>Oesophagostomum sp.</u>	0	0	1
<u>Unidentified protozoa</u>	0	0	5
<u>Trichomonas sp.</u>	0	1	0
<u>Chilomastix sp.</u>	0	2	0
<u>Oxyuridae</u>	0	1	0

* Number positive

REFERENCES

1. Galdikas-Brindamour, B., Orangutans, Indonesian people of the forest. National Geographic, 4:148, front page, pp 444-472, 1975.
2. Walker, E.P., Mammals of the World. Second Ed., Baltimore: Johns Hopkins Press, 1968. P 474.
3. Hsieh, H.C., A test-tube filter-paper method for the diagnosis of Ancylostoma duodenale, Necator americanus, and Strongyloides stercoralis. TECHN. REP. SER. 225:27-30. Washington, D.C. World Health Organization, 1962.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER SPECIAL REPORT 78-9	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Enteric Parasites of Orangutans (<u>Pongo pygmaeus</u>) in Indonesia	5. TYPE OF REPORT & PERIOD COVERED	
	6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s) Erich E. Stafford, Austin L. Moede, LCOL Richard J. Brown, USAF VC, Purnomo, Birute Galdikas-Brindamour, and Monica Boerner	8. CONTRACT OR GRANT NUMBER(s)	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Aerospace Medical Research Laboratory Naval Air Station Pensacola, FL 32508	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Medical Research & Development Command National Naval Medical Center Bethesda, MD 20014	12. REPORT DATE 27 October 1978	
	13. NUMBER OF PAGES 7	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report) Unclassified	
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Orangutans; Enteric Parasites; Indonesia		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Diarrheal diseases are a common problem in nearly all species of non-human primates. The treatment of diarrheal diseases in some of the less widely used non-human primates, such as orangutans, is difficult because of the lack of information as to possible etiologic agents. This paper tabulates identified enteric parasitic ova in three groups of orangutans living in their native habitat. This information will be useful to those laboratories attempting to treat parasitic diarrheal diseases in orangutans.		

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE
S/N 0102-014-6601

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)