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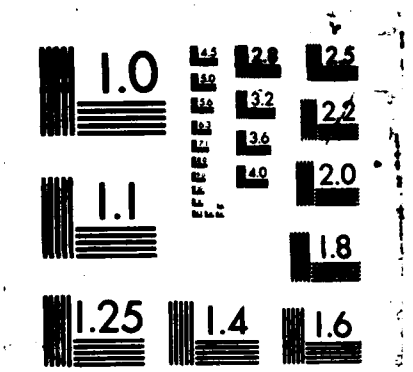

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Mosquito Information Management Project (MIMP): APPLICATION OF A COMPUTERIZED GENERAL PURPOSE INFORMATION MANAGEMENT SYSTEM (SELGEM) TO MEDICALLY IMPORTANT ARTHROPODS (DIPTERA: CULICIDAE)

Annual Report

Terry L. Erwin

August 1986

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U.S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND

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Smithsonian Institution

Washington, DC 20560

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The Mosquito Information Management Project is a collaborative venture between the Walter Reed Biosystematics Unit, Walter Reed Army Institute of Research, and the Department of Entomology, National Museum of Natural History, Smithsonian Institution. The project was established in September 1979 to develop a computer-based systematic and ecological data base for the approximately one million mosquito specimens in the National Museum of Natural History collection. This collection is the largest and most complete mosquito collection in the world and represents a national treasure. The data management system, SELGEM (Self-Generating Master), was selected as the primary data storage/management system. Data recorded on collection forms are submitted to a Honeywell Series 60 Level 66/80 computer system via a Nixdorf 600/55 minicomputer data entry system.

Development continues for the seven separate geographic files, incorporating data from Mexico and Central America, South America, the Caribbean Region, and Eastern Africa. These files allow for a rapid and inexpensive search capability that will be a major advantage as the data base expands.

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SUMMARY

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FOREWORD

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INTRODUCTION

The National Museum of Natural History, Smithsonian Institution (SI), houses a mosquito collection of over one million specimens from all over the world. This collection is the largest of its kind and well curated. During the past five years the collection has grown 5-fold, primarily due to several U.S. Army Medical Research and Development Command contracts, i.e., The Southeast Asian Mosquito Project (SEAMP), the Mosquitoes of Middle America (MMAP) and the Medical Entomology Project (MEP). World areas that are particularly well represented in the collection are the Nearctic, Neotropical, Oriental and South Pacific faunal regions. These specimens, combined with their associated collection data/records, represent a major scientific resource for Medical Entomologists, Epidemiologists and Public Health Workers. Unfortunately, the collection has received very little attention to date (except by taxonomists).

The Mosquito Information Management Project (MIMP) was established in 1979 to develop this outstanding source of data on known and potential vectors of human pathogens into a computer-based systematic and ecologic data base. This computer file is based on data from specimens identified by taxonomic authorities and (1) provides important, easily accessible, systematic and ecologic data for species of known or potential importance to the military, public health organizations and other scientific and enviromental agencies; (2) enhances current and future laboratory and field mosquito research efforts; (3) provides knowledge of deficiencies in the National Mosquito Collection and suggests new collection strategies; (4) alleviates managerial problems by providing a timely and cost-efficient collection inventory; and (5) serves as a model for the storage/analysis of mosquito biological data.

The project is located at the Smithsonian Institution and works in close association with: (1) Walter Reed Biosystematics Unit (WRBU), from the Walter Reed Army Institute of Research (WRAIR); (2) the Systematics of *Aedes* Mosquitoes Project (SAMP); (3) Department of Entomology, Smithsonian Institution; and (4) Systematic Laboratory, U.S. Department of Agriculture. It was designed to be responsive to the needs of these organizations, as well as other governmental or institutional scientific organizations.

REVIEW OF PROGRESS FOR THE PERIOD
1 SEPTEMBER 1985 TO 31 AUGUST 1986

I.Personnel

A. Museum Technician Letitia Neal (IS-5/2) resigned her position as of 7 April 1986.

B. Prospective candidates for a data entry position (IS-4/1) have not been available either because of present employment or were unreachable.

II.Progress to Date

A. Museum Technician Letitia Neal successfully completed three classes in the micro-computer software system *Lotus 1-2-3* through the USDA Graduate School program.

B. Project Manager Ellen Alers successfully completed 2 courses in the software system dBASE III through the USDA Graduate School program.

C. Letitia Neal developed an application of Lotus 1-2-3 for Mr. E.L. Peyton; which allows him to enter measurements directly into the computer which simultaneously calculates the mean, max., min., and standard deviation of those measurements.

D. Converted WRBU's specimen registration file from SELGEM to the database manager, *Scimate*. Now, access, query, editing, which in the past were cumbersome time-consuming tasks, are quick and simple with this menu-driven system.

E. Ellen Alers attended several training sessions offered through Smithsonian, these included:

(5/86) a. Introduction to the IBM 4381
b. Introduction to *SAS* (statistical analysis package on the 4381)
c. *PAUP* seminar (another stats package)

F. Established links with the following computers: WRAIR Vax VT-100, SI libraries, SI IBM 4381 mainframe. Files have been sent and worked on over a modem using MIMP's IBM-AT and *Crosstalk* communications software.

III.In Progress:

. Currently downloading and installing a bibliographic database. LTC. Harrison used it recently to conduct a search for papers concerning *Ae. albopictus*. His

search uncovered 256 citations of which he chose approximately 70 items. This search along with the time spent by LTC Harrison on his choices took approximately 1 hour. He was able to obtain a hard copy of his selections with a single keystroke.

IV. Requests:

A. Dr. Joel Margalit, of Ben Gurion University in Beer Sheva, Israel, requested a list of the mosquitoes collected in Israel that are housed in the Smithsonian collection.

B. Dr. J. Keirans of NIH requested a literature search for arboviruses associated with ticks and seabirds.

C. Dr. Martin Hugh-Jones, on sabbatical at Fort Detrick, requested maps of Guadelupe in the Lesser Antilles.

D. Visiting researcher Ms. Varuni Kulasekera requested a literature search of several authors and species related to the group with which she is now working.

V. Visitors:

A. MIMP staff have been involved since October 1985 in providing technical support to visiting researcher Bernard Geoffroy. He utilizes a unique French software program, *XPER*,which runs on any IBM-PC or compatible system. In addition, MIMP has shown and developed software applications for him using both software and owned by MIMP as well as the Smithsonian software library. We also helped him to procure an IBM compatible for his research. This has demanded much time and effort from the MIMP staff, but it has honed their software skills and facility for easy, effective expression of ideas and computer concepts.

B. MIMP has been working closely with another visitor to WRBU, Ms. Varuni Kulasekera of Sri Lanka. We have developed seven spreadsheets in *Lotus 1-2-3* to help her to record and calculate her measurements.

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