Minnesota State Zoological Board. Zoo-Related Organizations Files.

Copyright Notice:

Version 3
August 20, 2018

IMS (1515 grant)

Original sent to Nate Flesness
gd

$ Grants

INSTITUTE OF MUSEUM SERVICES • Department of Education • Washington, D.C. 20202

Also SD, DB, SF — Make certain that we use wherever practical, info from Ed
gd

Dear Grant Recipient:

I am pleased to announce that you have been awarded a Fiscal Year 1981 grant from the Institute of Museum Services. Your museum was selected to receive support from a field of more than 1,300 applications submitted by museums in every state, the District of Columbia, Virgin Islands and Puerto Rico.

The amount of your award is listed in Item 4 of the enclosed Notification of Grant Award. Please note that the amount may differ from your grant application request for one of two reasons: 1) The National Museum Services Board changed the maximum grant ceiling of $35,000 for Fiscal Year 1981 to $33,460 in order to provide general operating support grants to an additional number of eligible institutions; or 2) Your museum is eligible to receive not more than 10 percent of the operating budget for the most recently completed fiscal year (as of March 1981).

Because of the Institute's limited budget size, it is important that the public recognize how IMS has allocated its Fiscal Year 1981 grant funds. Therefore we are asking each grant recipient to include an appropriate credit line in annual reports, newsletters, publicity brochures or special-project materials:

> "A portion of the museum's general operating funds for this fiscal year has been made available through a grant from the Institute of Museum Services, a Federal agency that offers operating and program support to the nation's museums."

or

> "This special project is made possible through a grant from the Institute of Museum Services, a Federal agency that offers general operating and program support to the nation's museums."

Payment and reporting procedures for your grant are explained in the attachments to the Notification of Grant Award. If you are a previous IMS grantee, the Fiscal Year 1981 grant will be added to your account in the Department of Education's Federal Assistance Financing System (DFAFS). You will be able to draw funds in the usual manner, using the cash-request forms included with your last DFAFS quarterly reporting forms.

If you are a new grantee, the Department of Education's Federal Assistance Finance Branch (FAFB) will establish your DFAFS account and send you cash-request forms and an explanatory booklet within one to two months. It is recommended that you submit cash requests monthly. Any questions about payment should be referred to the appropriate section of FAFB, whose address and telephone number are listed in Attachment A to the Notification of Grant Award.

The award period for Fiscal Year 1981 grants is October 1, 1981, through September 30, 1982. All grant funds must be obligated during this period. Your first cash request may include reimbursement for expenses previously obligated during the grant period. No time extensions can be given for General Operating Support grants because a grantee may use funds for any allowable operating costs during the grant period. Time extensions for Special Project grants must be requested in writing from the Department's Office of Procurement and Assistance Management.

In addition to the cost principles detailed in the attached Appendices to 45CFR Part 74, please note the following items pertaining to grants awarded by the Institute of Museum Services:

- Unallowable costs can not be covered by grant funds or constitute part of the grantee's matching requirement.
- Renovation and construction costs are unallowable.
- Purchase of single items of equipment costing $500 or more, with more than two years of usable life, are allowable only upon prior Institute approval.
- Costs of purchasing objects to be included in the museum's collection are unallowable.
- Development costs are allowable.

If you have any questions concerning your grant, please feel free to contact the Institute's program staff at 330 C Street, S.W., Room 4006, Washington, DC 20202. Tel.: (202) 426-6577.

The Institute of Museum Services looks forward to continued cooperation with the museum community to strengthen the services of the nation's museums. I hope that this grant will enable your institution to maintain and improve the fine services that you provide.

Very truly yours,

John B. Lyons

John B. Lyons
Acting Director

enc.

DEPARTMENT EDUCATION
GRANT AND PROCUREM. MANAGEMENT DIVISION
WASHINGTON, D.C. 20202
NOTIFICATION OF GRANT AWARD

GRANTEE

1. NAME AND ADDRESS OF INSTITUTION: MINNESOTA ZOOLOGICAL GARDEN STATE OF MINNESOTA 12101 JOHNNY CAKE RIDGE RD APPLE VALLEY MN 55124	3. PROPOSAL TITLE: INSTITUTE OF MUSEUM SERVICES SPECIAL PROJECT SUPPORT DATED 03/06/81	6. GRANT NUMBER: G008103173 7A. CRS ENTITY #: 1-416007162-H2 7B. DOCUMENT #: 02-G008103173 7C. PROJECT NUMBER: 115BH10043
2. MAKE CHECKS PAYABLE TO: SAME AS ABOVE	4. AMOUNT OF AWARD: $33,460 5. PERIOD OF AWARD: FROM 10/01/81 THROUGH 09/30/82	8A. GRANT AWARD IS NEW 8B. PAYMENT METHOD: DFAFS 8C.

9. SCOPE OF WORK AND/OR SPECIAL CONDITIONS:

A. THE GRANTEE'S APPLICATION, BEARING THE TITLE AND DATE SHOWN IN BLOCK 3, IS INCORPORATED HEREIN BY REFERENCE.

B. THE E.D. PROJECT OFFICER FOR THIS PROJECT IS MARY KAHN.

C. THE GRANTEE'S PROJECT DIRECTOR FOR THIS PROJECT IS NATHAN R FLESNESS.

D. THIS GRANT SHALL BE ADMINISTERED IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF TITLE 34 OF THE CODE OF FEDERAL REGULATIONS PARTS 75, 77, AND 78 (FORMERLY 45CFR PARTS 100A, 100C, AND 100D) INCLUDING ANY AMENDMENTS IN EFFECT ON THE DATE OF THIS GRANT AWARD AND 34 CFR 064 ALL OF WHICH ARE INCORPORATED HEREIN BY REFERENCE. SPECIAL GRANT TERMS AND CONDITIONS, IF ANY, ARE INCORPORATED AS ATTACHMENT(S) ABC.

10. GRANT AUTHORITY: MUSEUM SERVICES ACT TITLE II P.L. 94-462
CFDA: 84.115B

APPROPRIATION	FY & CAN	OBJECT CLASS	AMOUNT
9110801	81 E009008	4151	$33,460

NEGOTIATOR'S NAME:
ANDREA KLINE
81254
NEGOTIATOR'S PHONE NUMBER: 202-245-2392

11. NAME OF GRANTS OFFICER: PAUL KRAKES	SIGNATURE OF AUTHORIZED GOVERNMENT OFFICIAL:	12. DATE: 25 SEP

72

SPECIAL GRANT TERMS & CONDITIONS FOR PAYMENTS

The Method of Payment is indicated in Item 8B of the Notification of Grant Award. Instructions regarding the different payment methods follow.

ED DIRECT PAY

Payments under this award will be made available by Treasury Check issued through the Department of Education Finance Office. To request funds under this system you must complete and submit the enclosed form SF 270 (7/76) "Request for Advance or Reimbursement," for each Common Accounting Number (CAN) shown in Item 10 of the Notification of Grant Award (NGA). Requests for cash should be limited to the minimum amounts needed at the time to support the actual case requirements of the project. The amount requested must not exceed the amount shown in Item 4 if the NGA is new, or the cumulative amount of the grant shown in Item 9 if this is a revised NGA (See Item 8A).

Inquiries regarding payments and the forwarding of Form SF 270 (7/76) should be directed to:

Supervisor, Program Payment Section
Fiscal Services Branch, Finance Division
Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202
Telephone Number: (202) 245-8040, 245-8044, 245-7959

ED LETTER OF CREDIT

Payments under this award will be made available under the Department of Education Letter of Credit Payment System. To request funds under this system you must complete and submit TFS Form 5401, "Payment Voucher on Letter of Credit". Be sure to enter Letter of Credit number from the Letter of Credit SF 1193, the grant number, and the Common Accounting Number (CAN) shown in item 10 of the Notification of Grant Award.

Inquiries regarding payment should be directed to:

Supervisor, Letter of Credit Section
Fiscal Services Branch, Finance Division
Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202
Telephone Number: (202) 245-8891

DFAFS

Payments under this award will be made available through the Department of Health and Human Services Departmental Federal Assistance Financing System (DFAFS). DFAFS is administered by the Federal Assistance Financing Branch (FAFB), Office of the Deputy Assistant Secretary, Finance.

HHS/Office of the Deputy Assistant Secretary
Federal Assistance Financing Branch
P.O. Box 6021
Rockville, Maryland 20852

Telephone inquiries regarding DFAFS direct payments should be directed to:

Regions 1,2,5,6, and 7

Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Puerto Rico, Virgin Islands, Ohio, Indiana, Illinois, Wisconsin, Michigan, Minnesota, Arkansas, Louisiana, Oklahoma, Texas, New Mexico, Iowa, Missouri, Nebraska, and Kansas.

Ms. Goldie Stippick - (301) 443-1350

Regions 3,4,8,9, and 10

Delaware, District of Columbia, Maryland, Virginia, Pennsylvania, West Virginia, Kentucky, North Carolina, Tennessee, South Carolina, Georgia, Alabama, Mississippi, Florida, North Dakota, South Dakota, Montana, Wyoming, Colorado, Utah, Nevada, California, Arizona, Hawaii, Guam, American Samoa, Trust Territories of the Pacific Islands, Idaho, Washington, Oregon, and Alaska.

Mr. Ted Willim - (301) 443-1200

All inquiries regarding DFAFS Letter of Credit (regardless of regional location) should be directed to Mr. Harry Bradford at (301) 443-1250.

PLEASE NOTE:

THE GRANT NUMBER, ENTITY NUMBER, PROJECT NUMBER, AND COMMON ACCOUNTING NUMBER SHOWN IN ITEMS 6, 7A, 7C, AND 10 OF THE NOTIFICATION OF GRANT AWARD SHOULD BE INCLUDED IN ALL CORRESPONDENCE WITH THE DIVISION OF FINANCIAL MANAGEMENT, DFAFS, AND THE OFFICE OF PROCUREMENT AND ASSISTANCE MANAGEMENT.

ATTACHMENT B

SPECIAL GRANT TERMS AND CONDITIONS

REPORTS SCHEDULES

The following performance and financial reports shall be submitted to:

Educational, Research, and Improvement Branch
Office of Procurement and Assistance Management
U.S. Department of Education
400 Maryland Avenue, S.W.
ROB #3 - Room 5678
Washington, D. C. 20202

ATTENTION: Grant Negotiator

(a) Performance Reports

Type of Report	Quantity	Due Date
Final Report	3	90 Days after the end of the budget period

(b) Financial Reports

Type of Report	Quantity	Due Date
Final (SF-269)	3	90 Days after the end of the budget period

**

PLEASE INCLUDE YOUR NAME, GRANT NUMBER AND TELEPHONE NUMBER ON ALL REPORTS.

ATTACHMENT C

SPECIAL TERMS AND CONDITIONS

PROJECT OFFICER

The Project Officer designated in 9(b) of the grant award is responsible for providing your organization with educational and technical assistance and is not authorized to make any commitments or authorize any changes which might affect the amount of the grant or any of the terms or conditions. All requests for changes shall be referred to the Grants Officer for action.

All correspondence concerning this project which propose changes in the project, e.g. requests from grantee for approval, and all performance reports and reports of expenditure must be sent to the Grants Officer (addressed to the attention of the Grants Negotiator named on the lower right hand corner of the Grant Award) for appropriate handling.

Please reference your telephone number and the grant number shown in Block 6 of the award on all correspondence.

Forward all correspondence referenced above to:

Educational, Research, and Improvement Branch
Office of Procurement and Assistance Management
U.S. Department of Education
400 Maryland Avenue, S.W.
ROB #3 - Room 5678
Washington, D.C. 20202

ATTENTION: Grant Negotiator

ANTI-LOBBYING PROVISION

No Federal funds received under this grant and no non-Federal funds used as matching funds required as a condition of the grant shall be used to pay the salary, expenses, fees, or to provide any other remuneration to any organization or individual engaged in any activity designed to influence legislation or appropriations pending before the Congress of the United States.

Violation of this provision is a material failure to comply with the terms of the grant within the meaning of 34 CFR 74.115(a), Termination for cause.

ISIS International Species Inventory System

1515

Minnesota Zoological Garden
12101 Johnny Cake Ridge Road
Apple Valley, Minnesota 55124
Telephone (612) 432-9010

AAZPA
ISIS

A Program of the American Association of Zoological Parks and Aquariums

31 January 1980

Mr. Robert O. Wagner
Executive Director
AAZPA
Oglebay Park
Wheeling, WV 26003

Dear Bob,

Thank you for passing on the word about IMS grant renewal applications. It is our intent to prepare another application, as past success bodes well for another try. We appreciate your efforts on our behalf.

Regarding the AAZPA grant payment methods, I'm sorry that we did not respond. The practice in current use generates income during the financially tight part of ISIS' fiscal year, and is therefore desirable for continued operations support funds.

As you know, this amount basically subsidizes the minimum level of sustained operations of ISIS. When arrangements are made to provide developmental support, it might be more appropriate to handle funding by lump sum or twelve equal monthly payments. Please keep us informed of deadlines and appropriate methods for proposing developmental funds from the AAZPA for coming fiscal years. If my mail is a fair indicator, there is widespread demand for increased ISIS services.

I enclose as well some materials you may not have seen, which are now in use as general informational packets on ISIS.

Best regards,

Nate Flesness

Nate Flesness
ISIS Project Director

Encl.

ISIS PARTICIPATION

WHY PARTICIPATE IN ISIS?

1. ISIS participation provides the basis for a good internal records system, with ISIS providing the forms, instructions, data checking, and data recovery in the event of fire or loss.

2. ISIS participation entitles you to receive annual reports on your own inventory, a summary of all birth/death/purchase/sale/loan transactions, and a listing of who-has-what (the ISIS Species Distribution Report). Samples from these reports are enclosed. These reports are available more frequently, at extra cost.

3. ISIS participation ensures that your own collection is visible to others, whether for shared breeding arrangements or for institutions looking for animals.

4. ISIS participation ensures that coordinated conservation planning can be based on current, accurate information on everyone's holdings, a necessary precondition for success.

5. ISIS participation makes the new optional ISIS-PDS Reports available to your institution at reduced cost. These reports are designed to provide the technical information to help institutions develop and carry out long-term management or research projects.

WHO ELSE PARTICIPATES IN ISIS?

Currently about 100 zoos and about 30 other non-zoo captive animal holding facilities. A map is enclosed showing participants. The number of participants has been growing each year since 1974, when ISIS began operations. The more institutions which join, the more benefits each participant receives from information-sharing.

HOW DO I JOIN ISIS?

Simply complete the enclosed ISIS participation Sign-Up Sheet, enclose your registration fee, and return to ISIS. We will then ship all of the necessary forms, directories, and manuals to you.

WHAT WILL I RECEIVE FROM ISIS?

ISIS provides participants with all needed forms, a set of directories which assign numbers to all taxa of mammals and birds (reptiles and amphibians are underway), a directory of all known captive-animal holding facilities in the world, and a manual of instructions for ISIS forms.

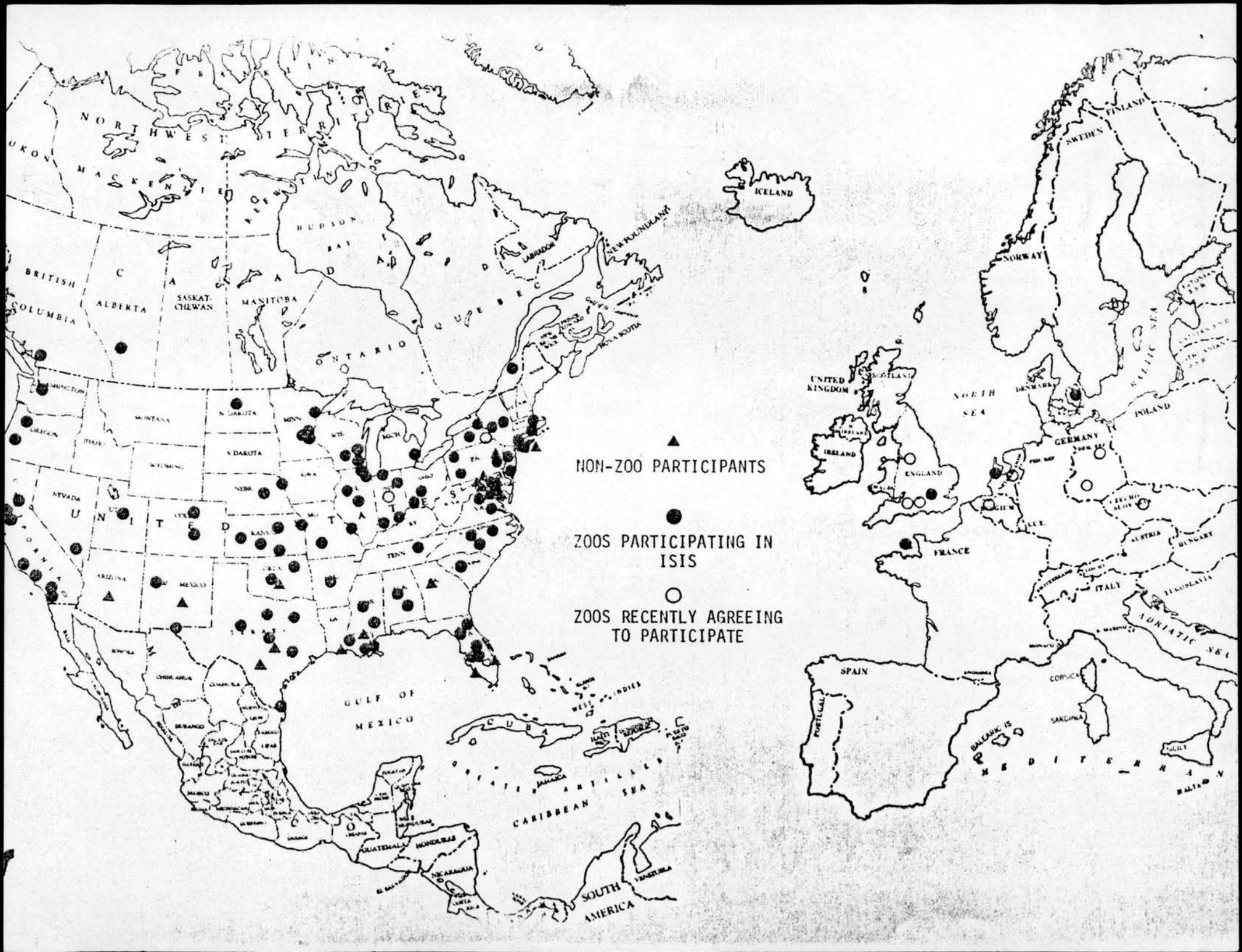
Participants receive from ISIS three routine reports. One is the Inventory Report for their institution, which shows their current holdings. Another is the Acquisition/Release Report, which summarizes all changes in their inventory. The third is the Species Distribution Report, which gives a brief summary of the holdings of any chosen mammal or bird.

The first two reports above are printed on paper, and the only copy shipped to you. The Species Distribution Report is nearly 3,000 pages and weighs upwards of 20 kilos per copy when printed on paper, so it is distributed on microfiche. This report can be read by a fiche reader, a lab microscope, or even a good hand lens.

In addition, ISIS has new capabilities to report to you on the ISIS participant population of any species or subspecies. A new ISIS subsystem, called the PDS, Pedigree-Demography-Studbook Subsystem, will now print reports which resemble studbooks for any taxa you choose. This is based on the ISIS data base, and is very current. Fees for this optional service are shown on the accompanying ISIS Special Reports and Services Fee Policy.

HOW MUCH WILL IT COST?

New participants pay a Registration Fee of (United States) $100.00, which is deducted from their first year's annual fee. The annual fee is $1.00 per animal in ISIS alive on 31 December. ISIS minimum fee is $100.00 per year.


▲
NON-ZOO PARTICIPANTS
●
ZOOS PARTICIPATING IN ISIS
○
ZOOS RECENTLY AGREEING TO PARTICIPATE
ICELAND
NORWAY
SWEDEN
FINLAND
UNITED KINGDOM
IRELAND
ENGLAND
SCOTLAND
NORTH SEA
DENMARK
POLAND
GERMANY
FRANCE
SPAIN
PORTUGAL
ITALY
AUSTRIA
HUNGARY
CORSICA
SARDINIA
MEDITERRANEAN
ADRIATIC SEA
BALTIC SEA
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
QUEBEC
NEWFOUNDLAND
LABRADOR
HUDSON BAY
NORTHWEST TERRITORIES
MONTANA
NEVADA
ARIZONA
MEXICO
GULF OF MEXICO
CUBA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
SOUTH AMERICA

AMERICAN ASSOCIATION OF ZOOLOGICAL PARKS AND AQUARIUMS
A·A·Z·P·A 1924

American Association of Zoological Parks and Aquariums

EXECUTIVE OFFICE AT OGLEBAY PARK, WHEELING, WV 26003 (304) 242-2160

28 January 1980

Mr. Edward Kohn, Director
Minnesota Zoological Garden
12101 Johnny Cake Ridge Road
Apple Valley, MN 55124

Dear Ed:

We recently received word that the deadline for the submission of Institute of Museum Service grant applications has been established as 7 March 1980. Please note that the maximum has apparently been increased from $25,000 to $35,000. As you know, IMS is the only identified federal granting agency offering grants for general operating support. IMS also continues to accept grant applications for special projects. I trust ISIS will prepare another application for an IMS grant. If any assistance is needed, please call upon Scott Schultz, Philadelphia Zoological Garden. Scott is Chairman of our Grants/Development Committee. I will be pleased to write a letter of support for the grant if you desire. I will use the same format I used last year.

On another matter, I have not received a response to my letter in which I asked if there was a need to change AAZPA's method of payments to ISIS for the Board-approved grant of $20,000. As you know, in previous years we made five payments of $4,000 on the first day of the last five months in the year. Do you wish us to continue this practice, or would another method of payment be more beneficial to the operation of ISIS?

All best regards,

Bob.

Robert O. Wagner
Executive Director

ROW/ljb

Copies to: AAZPA Board of Directors
Judith Block
Nate Flesness
Scott Schultz

AAZPA/ISIS

ZOO
MINNESOTA ZOOLOGICAL GARDEN

12101 Johnny Cake Ridge Road
Apple Valley, MN 55124
612/432-9010

September 12, 1979

Mr. Edward J. Maruska, President
American Association of Zoological Parks & Aquariums
Detroit Regional Meeting
Detroit Plaza Hotel
Detroit, Michigan

Dear Ed:

The Minnesota Zoo is pleased to submit our annual report on Project ISIS. Under the direction of Nate Flesness a good rate of progress has been sustained in all of the project's dimensions. Yesterday we received confirmation of the award of $25,000 from the Institute of Museum Sciences (IMS) to the Minnesota Zoo for the continued development of ISIS. Coupled with the AAZPA grant of $20,000, and other contributions, our funding strategy for FY 1980 has thus been successful.

In my letter to you of March 3, 1979 I forecast the need for an increased level of AAZPA grant support in FY 1981 in order to sustain the necessary development level for the project following the single year contribution by IMS. With the success of other grant and contract relationships in enabling a modest level of continued project development, a level of AAZPA grant support of $20,000 in FY 1981 should assure effective operations through the next fiscal year.

Over and above this basic level of support it would appear to be particularly helpful for AAZPA to additionally reserve a fund to further enable discreet species by species PDS report production and distribution, for example, on a matching fund basis. Though I cannot be in St. Louis in time for discussions before the Board, Nate's availability will more than assure meaningful discussion of all facets of the project's operation and needs.

On behalf of the Minnesota Zoo I am pleased to reconfirm our commitment to the sustained wellbeing and growth of ISIS in service to the cause of effective captive management nationally and worldwide.

Sincerely,

Edward Kohn
General Director

EK:bd
cc: Robert Wagner
Judith Block

AAZPA/ISIS Committee

Ms. Judith Block, Chairperson
National Zoological Park
Washington, D. C. 20008

Mr. Robert O. Wagner
Executive Director
American Association of Zoological
Parks and Aquariums
Oglebay Park
Wheeling, West Virginia 26003

Mr. Edward J. Maruska, President
American Association of Zoological
Parks and Aquariums
Detroit Regional Meeting
Detroit Plaza Hotel
Detroit, Michigan

c/ISIS, N Flesness, SAE

American Association of Zoological Parks and Aquariums

EXECUTIVE OFFICE AT OGLEBAY PARK, WHEELING, WV 26003 (304) 242-2160

7 April 1980

Mr. Ed Kohn, Director
Minnesota Zoological Garden
12101 Johnny Cake Ridge Road
Apple Valley, MN 55124

Dear Ed:

This is to advise you that the matter of the $20,000 loan extended to ISIS by AAZPA two years ago and was payable on or before 31 March 1980 was extended for one year by the Board in a unanimous vote.

There are a number of other items relative to ISIS that came up for discussion during the course of our meetings in Tulsa. I will be in touch with you, Nate Flesness and Judith Block as time permits to discuss these matters with you. However, I did want to inform you regarding the ISIS loan at this time.

I hope all is well with you and that spring is finally arriving in Minnesota.

All best regards,

Bob

Robert O. Wagner
Executive Director

ROW/ljb

Copies to: AAZPA Executive Committee
Nate Flesness
Judith Block

file
ISIS
grant

MINNESOTA ZOOLOGICAL GARDEN

12101 Johnny Cake Ridge Road
Apple Valley, MN 55124
612/432-9010

August 29, 1979

Robert O. Wagner
Executive Director
American Association of Zoological Parks
and Aquariums
Oglebay Park
Wheeling, West Virginia 26003

Dear Bob:

This is to acknowledge receipt of $4,000 from the AAZPA, as the first part of the $20,000 granted to ISIS for fiscal year 1980 (1 July 1979 to 30 June 1980).

The 1979 ISIS Annual Report is nearly completed and will be along soon. No formal word has been received on the IMS grant as yet, but Nate Flesness reports that telephone conversations with HEW grant office officials sound quite promising.

Sincerely yours,

Edward Kohn
Director

EK:NF:bd
cc: Nate Flesness

AUG 23 1979

Ed:

Retype on MZG stationery if that seems more appropriate.

Mark

B MZB stationery
Please retype
and mail
as directed
w/signed

ISIS **International Species Inventory System**

Minnesota Zoological Garden
12101 Johnny Cake Ridge Road
Apple Valley, Minnesota 55124
Telephone (612) 432-9010

22 August 1979

A Program of the American Association
of Zoological Parks and Aquariums

Robert O. Wagner
Executive Director,
American Association of Zoological Parks and Aquariums
Oglebay Park
Wheeling, WV 26003

Dear Bob,

This is to acknowledge receipt of $4,000 from the AAZPA, as the first part of the $20,000 granted to ISIS for fiscal year 1980 (1 July 1979 to 30 June 1980).

The 1979 ISIS Annual Report is nearly completed and will be along soon. No formal word has been received on the IMS grant as yet, but Nate Flesness reports that telephone conversations with HEW grant office officials sound quite promising.

Sincerely yours,

Ed Kohn
Director

1515 file K

American Association of Zoological Parks and Aquariums

EXECUTIVE OFFICE AT OGLEBAY PARK, WHEELING, WV 26003 (304) 242-2160

5 April 1979

Mr. Ed Kohn, Director
Minnesota Zoological Garden
12101 Johnny Cake Ridge Road
Apple Valley, MN 55124

Dear Ed:

William Conway, Board member liaison representative for ISIS has asked that I contact you regarding the details of the Board's deliberations regarding ISIS as they affect your institution and its commitment to the system.

In that regard, I am enclosing a copy of the minutes which indicate the Board's action. Ed, you will note that the specific language used by Bill Conway clearly indicated the Board's appreciation of the Minnesota Zoological Garden's offer to provide housing for the system and to work with AAZPA in determining the most feasible housing for the future of the system. Additionally, you will note that the Board altered its 1979 operating budget to reflect a $20,000 line item for the ISIS system; such funds will be used for ISIS "operations." I suggest to you that we establish the following financial arrangement: AAZPA shall make five monthly payments of $4,000 each to ISIS, such payments will begin on 1 August 1979 and continue through 1 December 1979. This is the same sort of arrangement we made during 1978 when the Board established the $20,000 loan to ISIS.

It would be helpful to the Board if you provided us with copies of the annual operating budget for ISIS. This budget should be structured in such a way as to clearly separate operations from development work and include salaries, fringe benefits, travel, office equipment, supplies, etc. Additionally, it would be helpful if both you and Ulie kept Bill Conway and Judith Block advised as to the continuing development of ISIS programs and the results of the application for the IMS grant.

All best regards,

Bob.

Robert O. Wagner
Executive Director

ROW/ljb

Copies to: AAZPA Board of Directors
Judith Block

Enclosure

animals. The Chairman has previously requested assistance from the Legislative Committee on this matter, but reported that the Legislative Committee had taken no action to his knowledge. Dir. Rabb moved, Dir. Lindemann seconded, M/C (unanimous) that the Exec. Dir. implement discussions with Agriculture regarding PPEQ as soon as possible.

Past Pres. Meeker moved, Dir. Rabb seconded, M/C (unanimous) - to accept the report of the Animal Health Committee.

B. Infant Diet/Care (Steve Taylor, Chairman)

The Chairman's report was reviewed by Pres.-Elect Farst. He reported that the committee had approximately 125 diets prepared for the notebook. Exec. Dir. Wagner requested that the Board approve the necessary expenditure of funds to purchase binders for the notebook. The matter of an AAZPA disclaimer regarding the diets appearing in the notebook was discussed. Dir. Conway offered to assist Dr. Farst and the Infant Diet/Care Committee in drafting the disclaimer. Past Pres. Meeker moved, V.-Pres. Chaffee seconded, M/C (unanimous) - that upon the completion of the Animal Health Committee's review of the diets that they be printed, put in three-ring binders and distributed to AAZPA I/S members.

12. PUBLIC RELATIONS: Eugene Walter, Chairman (Sausman).

A. No report was submitted. Pres. Maruska advised the Board that he was relieving Eugene Walter of his duties as Chairman of the Public Relations Committee and was negotiating the committee chairmanship with Joyce Gardella of the Brookfield Zoo. (For the record and for clarity, we are inserting here that Pres. Maruska reported that Ms. Gardella has accepted the chairmanship of the Public Relations Committee.)

13. RESOLUTIONS: Robert O. Wagner, Chairman, appearing.

A. Exec. Dir. Wagner advised the Board that he had prepared Resolutions of Appreciation for all of the 1979 Regional Workshop hosts. V.-Pres. Chaffee moved, Past Pres. Meeker seconded, M/C (unanimous) - to accept the Resolutions as proposed by Exec. Dir. Wagner.

14. INTER-ASSOCIATION LIAISON: Vernon Kisling, Advisor.

A. Dir. Conway moved, Dir. Kitchener seconded, M/C (unanimous) - to accept the report of the Advisor on Inter-Association Liaison.

15. HUMANE ASSOCIATION LIAISON: Pat Burchfield, Advisor.

A. Exec. Dir. Wagner advised the Board that a report had not been received but that he had received a letter from Mr. Burchfield. The letter was read to the Board. Dir. Kitchener moved, V.-Pres. Chaffee seconded, M/C (unanimous) - to accept the letter from the Advisor on Humane Association Liaison.

16. ISIS: Judith Block, Chairman, appearing (Conway).

A. Chairman Block summarized her committee's report for the Board. She detailed the committee meeting held in Minneapolis and summarized the committee's requests from the Board.

Dir. Conway moved, Dir. Rabb seconded, M/C (unanimous) - that the Board thank the ISIS Committee for its report and endorse the Committee's plan to provide more information about ISIS through the NEWSLETTER, its plan to query the membership through approved questionnaires and its proposal to offer ISIS taxonomic directories and species distribution reports for sale to libraries, universities, etc.; further, the Board endorses the Committee's recommendation that zoo historical records on selected species be entered into ISIS provided that the problem of additional required support can be resolved and that the Board endorses the ISIS NIH study of chimpanzees.

B. ISIS Financial Status and Immediate Future

U.S. Seal appeared before the Board to update the Board on the progress of several ISIS projects and to explain the Siberian Tiger data available through ISIS. The Board spent considerable time discussing the finances of ISIS, which included the following major points:

1. Dr. Seal read a letter from Ed Kohn, Director of the Minnesota Zoological Garden setting forth the fact that Minnesota will extend the availability of space for the ISIS system for 18 months.

2. Exec. Dir. Wagner pointed out that the ISIS system had received more than $300,000 from all sources since its inception and that such monies do not include numerous grants that Dr. Seal had obtained from outside sources, nor did this amount include an assessment of the thousands of donated man-hours put into the system.

3. Minnesota Zoological Garden is attempting to obtain an IMS grant for $25,000 for the continued development of ISIS systems.

4. Mr. Kohn indicated a financial need for ISIS of approximately $20,000 beyond the potential of a $25,000 grant from IMS.

5. Dir. Conway reported that the New York Zoological Society's Conservation Committee had recently voted to donate $3,000 to AAZPA specifically for the ISIS program.

After lengthy discussion, Dir. Conway moved, V.-Pres. Chaffee seconded, M/C (Lindemann opposed; Farst abstained) - that the AAZPA Board notes with gratitude the receipt of Minnesota Zoological Garden Director Ed Kohn's letter and directs that it be filed with the report of the ISIS Committee; the AAZPA accepts the MZG offer to shelter ISIS through 1981 and notes with gratitude the MZG intent to affect a transition of identity from MZG to AAZPA as proposed by Mr. Kohn. The Board further notes that unless investigation should provide an alternative responsive to the serious support problems Mr. Kohn has noted for the ISIS program, that it intends to modify its 1979 budget so as to provide $20,000 in funds for the program. The AAZPA Board affirms that it has no higher priority than the long-term survival of captive wild animal stocks, and the AAZPA notes with gratitude the MZG's willingness to study with it the feasibility of other funding sources and other homes for the ISIS program should that prove practical.

17. PUBLIC EDUCATION: Beverly Serrell, Chairman, appearing (Rabb).

A. Chairman Serrell summarized her brief outlined report for the Board and brought them up to date on the seven projects currently being worked on by the committee. Dir. Rabb moved, Dir. Kitchener seconded, M/C (unanimous) - to accept the PEC report.

American Association of Zoological Parks and Aquariums

EXECUTIVE OFFICE AT OGLEBAY PARK, WHEELING, WV 26003 (304) 242-2160

26 March 1979

Mr. William Conway, General Director
New York Zoological Park
Bronx Zoo
Bronx, NY 10460

Dear Bill:

Thank you for your letter of 20 March which clarifies the manner in which AAZPA is to handle the $3,000 contribution made by NYZS. This amount will be included in AAZPA's $20,000 to ISIS.

I have not specifically written to Ed Kohn regarding the Board meeting references to ISIS, because I was waiting for your initial response to him as Board member liaison for ISIS. Once I get a copy of your letter to him, I will establish the terms of AAZPA's payments.

Again, many thanks for the excellent contribution to AAZPA for this worthy program.

Bill, your letter to me did not indicate copies to those persons I sent copies of my letter dated 16 March. Therefore, I am sending copies of your letter and my response to them so that all parties are apprised.

All best regards,

Bob.

Robert O. Wagner
Executive Director

ROW/ljb

Copies to: AAZPA Executive Committee
Ed Kohn
Judith Block

NEW YORK ZOOLOGICAL SOCIETY

New York Zoological Park
New York Aquarium

Bronx Zoo
Bronx, New York 10460
Telephone: (212) 220-5100

Center for Field Biology and Conservation
Osborn Laboratories of Marine Science

Office of the General Director

March 20, 1979

1515
R

Mr. Robert Wagner
AAZPA
Oglebay Park
Wheeling, West Virginia 26003

Dear Bob:

We have been more specific than was our intent. NYZS intends that its $3,000 contribution be used by AAZPA to aid it to defray ISIS expenses as the AAZPA Board directs. The appropriation need not be restricted to the PDS program of ISIS.

Sincerely,

Bill

William Conway

MAR 2 4 1979

American Association of Zoological Parks and Aquariums

EXECUTIVE OFFICE AT OGLEBAY PARK, WHEELING, WV 26003 (304) 242-2160

16 March 1979

Ms. Lee Kimche, Director
Institute of Museum Services
Hubert Humphrey Building
Room 326 H
200 Independence Avenue, S.W.
Washington, DC 20201

Dear Ms. Kimche:

Please accept this letter as a request that the Institute of Museum Services very carefully consider the grant application submitted by the Minnesota Zoological Garden, Apple Valley, Minnesota for continued development work for the International Species Inventory System (ISIS).

ISIS is utilized by virtually all professionally operated zoological institutions throughout the United States and Canada, and many European institutions are beginning to provide important data for the system. The Board of Directors of the American Association of Zoological Parks and Aquariums has provided substantial funds to support this system; because we believe that the data now available and, more importantly, that which will become available in the future through the continued development of this system, is vital to the future management of wild animal populations.

I cannot overemphasize the importance of the continued development of ISIS. Therefore, in behalf of the Board of Directors of the AAZPA, I wholeheartedly support the application from the Minnesota Zoological Garden for a grant.

Most sincerely,

Robert O. Wagner.

Robert O. Wagner
Executive Director

ROW/ljb

Copies to: AAZPA Board of Directors
Gary K. Clarke
Edward H. Kohn
Jo Ann Secor
U.S. Seal, Ph.D.
Judith Block
Jan Olsen

NEW YORK ZOOLOGICAL SOCIETY

New York Zoological Park
New York Aquarium

Bronx Zoo
Bronx, New York 10460
Telephone: (212) 220-5100

Center for Field Biology and Conservation
Osborn Laboratories of Marine Science

Office of the General Director

March 20, 1979

Mr. Robert Wagner
AAZPA
Oglebay Park
Wheeling, West Virginia 26003

Dear Bob:

We have been more specific than was our intent. NYZS intends that its $3,000 contribution be used by AAZPA to aid it to defray ISIS expenses as the AAZPA Board directs. The appropriation need not be restricted to the PDS program of ISIS.

Sincerely,

William Conway

cc: C. Palacio
E. Maruska
D. Farst
P. Chaffee
J. Block
E. Kohn

American Association of Zoological Parks and Aquariums

EXECUTIVE OFFICE AT OGLEBAY PARK, WHEELING, WV 26003 (304) 242-2160

16 March 1979

Mr. William G. Conway, General Director
New York Zoological Park
Bronx Park
Bronx, NY 10460

Dear Bill:

We were delighted to receive your check #25145 for $3,000 and a letter of transmittal from Ms. Christina Palacio.

Bill, the letter indicates that the $3,000 is to be given to ISIS, which is clearly understood. However, the letter further dictates that the monies be used by ISIS specifically for the Pedigree Demography System. Obviously, we will follow through on the wishes of the New York Zoological Society's Conservation Committee; but this does cause for AAZPA to be forwarding to ISIS a total of $23,000 rather than the $20,000 I requested to be tranferred in the budget adjustment discussion during the course of the Board meeting in Detroit. Am I correct in assuming that AAZPA is to deposit your $3,000 donation and issue a $3,000 check to ISIS with instructions that the funds be utilized for the further development of PDS and later AAZPA is to make payments totaling $20,000 as approved by the Board?

I am enclosing a copy of Ms. Palacio's letter. Please advise.

All best regards,

Bob.

Robert O. Wagner
Executive Director

ROW/ljb

Copies to: AAZPA Executive Committee
Ed Kohn
Judith Block

NEW YORK ZOOLOGICAL SOCIETY

New York Zoological Park
New York Aquarium

Bronx Zoo
Bronx, New York 10460
Telephone: (212) 220-5100

Center for Field Biology and Conservation
Osborn Laboratories of Marine Sciences

March 9, 1979

Robert O. Wagner
AAZPA
Oglebay Park
Wheeling, West Virginia 26003

Dear Mr. Wagner:

At its 22 February 1079 meeting the Conservation Committee approved partial support of the AAZPA-ISIS Pedigree Demography System in the amount of $3,000.00 A check in that amount is enclosed.

We are delighted that we could provide this support and look forward to the successful conclusion of your project.

Sincerely,

Cristina Palacio
Staff Conservationist

CP:rg
enc.

MAR 16 1979

American Association of Zoological Parks and Aquariums

EXECUTIVE OFFICE AT OGLEBAY PARK, WHEELING, WV 26003 (304) 242-2160

1 November 1978

U. S. Seal, Ph.D.
Minnesota Zoological Garden
12101 Johnny Cake Ridge Road
Apple Valley, MN 55124

Dear Ulie:

Enclosed is our check #3554 for $4,000 which is the fourth installment on our $20,000 loan to ISIS.

A similar check will follow early in the month of December which will complete the five installments of $4,000 each in the AAZPA loan agreement with ISIS.

All best regards,

Bob.

Robert O. Wagner
Executive Director

ROW/br

Enclosure

Copies to: AAZPA Board of Directors
Jerry Hegstrom, Interim Director, Minnesota Zoological Garden

(31)

AAZPA CONTRIBUTIONS TO ISIS

1973		
11 December	$ 2,500	
1974		
12 February	3,500	
18 October	10,000	
1977		
13 January	6,000	
13 April	4,817	
1978		
23 January	10,000	
12 May	5,000	
3 August	4,000	*Loan
1 September	4,000	*Loan
	$49,817	

The total figure of $49,817 represents two $4,000 payments on the AAZPA loan to ISIS, which was established by the Board of Directors during our special Board meeting in Denver on 18 January 1978. It is important to remember that we are also obligated to make an additional $12,000 available to ISIS, payable in $4,000 monthly installments for the months of October, November and December. Thus, at the end of this calendar year, we will have paid a total of $61,817. Of this amount, ISIS had previously agreed that $20,000 would be repayable on or before 31 March 1979.

Robert O. Wagner.

Robert O. Wagner
Executive Director

ROW/ljb

ADMIN 1000

STATE OF MINNESOTA

DEPARTMENT_____

Office Memorandum

TO : ISIS Control Group

DATE: February 9, 1977

FROM : Donald D. Bridgwater

PHONE: _____

SUBJECT: Additional Funding from USDI for Studbook and Pedigree Analysis

I had a call February 9 from the Wildlife Permit Section of the USDI. The contact was Mr. Arthur Lazarowitz (202-343-9443).

He indicated that he was Rick Parson's Administrative Assistant "sort of", and was calling to clarify the recent request of January 10 for the additional $20,000. The basic questions revolved around 1) what had been done under the existing grant, 2) was this proposed as an amended extension of the existing grant or as a new request, 3) a whole series of questions concerning the nature of the task to be accomplished with this additional funding as opposed to what we had done under the task statement in the original contract concerning studbook and pedigree analysis.

Had a neat discussion which basically informed him under the terms of the existing grant we had completed the theoretical and base line work needed to put such a program on line, but now needed funding to actually do the tape transfer, convert it to the University language, and do all necessary work to actually input into the system in a real way. We then talked about all the neat things this would do with regard to USDI needs, etc. The basic summary premise which I gave him was this: that through the use of this system any listed or even unlisted animal for which data was available could be analyzed to produce information 1) with regard to sustained captive breeding populations and the subsequent reduction of demand for wild animals, 2) logic and numbers to make judgments on reintroduction schemes, 3) hard numbers on any permit requests with regard to endangered species transfer, for example the gaur that went out of Oklahoma City, etc.

He seemed quite enthused and the conversation was left with the following agreements:

1) They will thoroughly examine this request and within one week provide a response.

2) The response will indicate the degree of likelihood that such an extension can be effected.

3) That in no case, whether there are funds left over this year or whether it would come from new funds, could any funds be released or any agreement permanently reached until September 1, 1977 which is the beginning of their next fiscal year. In short, left over funds or new funds would be treated in the same time span.

He did, however, indicate that to the degree possible, he would indicate the percentage chance that this is going to be approved. Judging from the conversation and little hints here and there, I think we're in for some additional funds.

DDB/je

MINNESOTA ZOOLOGICAL GARDEN

January 10, 1977

Mr. Rick Parsons
U.S. Fish & Wildlife Service, Permit Office
Matonic Building - Room 514
1717 H Street NW
Washington, D.C. 20240

Dear Mr. Parsons:

Subsequent to your recent conversations with Dr. U. S. Seal, the following supporting information is provided with reference to securing supplemental funding to our existing contract with the Department of the Interior, U.S. Fish and Wildlife Service (Grant No. 14-16-0008-2049). The supplement is in particular reference to the International Species Inventory System (ISIS) development of studbooks, pedigree analysis and demographic analysis subsystems.

Through the use of ISIS, managers of wild captive animal populations are beginning to move from the practice of uncontrolled random breeding and dispersal dictated by short term considerations, toward reproductive strategies leading to the development of captive self-sustaining populations, reduction of pressure on wild population, and potential reintroduction programs.

ISIS is currently operating a census and vital statistics system for mammals and birds, with reptiles, amphibians and fishes under development. Five other subsystems including historical census, physiological norms, behavioral data, studbook-pedigree analysis and demographic analysis are in various stages of development.

In view of increasing concern, both national and international, over wild animal populations, endangered species, captive populations, and the need for better management tools, ISIS is concentrating on the early operational development of the studbook, pedigree analysis and demographic analysis systems. Since the basis for these systems in the form of an operational census and vital statistics program is essentially complete, using the data provided by this census system, basic studbook data can be developed and subjected to pedigree and demographic analysis providing information without which meaningful management decisions for long-term purposes cannot be made.

During the past year considerable effort has been devoted to theoretical evaluation, systems analysis of desirable or potential outputs and the identification of needed additions to the present program to permit implementation. Two papers by Nate Flesness and Tom Foose and a draft systems analysis by Nate Flesness was given to you by Ulie Seal basically summarizing this work which was supported by the U.S.D.I. and Minnesota Zoological Garden.

With this base we are now ready to move ahead during the next nine months to make the subsystems operational.

The contract supplement will permit the necessary additions to the existing ISIS census and vital statistics computer program and allow for the following reports for any species for which data are available in the system:

1) An annual status report for all endangered species held in captivity.
2) Provide pedigree analysis reports.
3) Provide demographic analysis reports.
4) Provide studbook reports.

ISIS Studbook Report Content. It will be possible to generate studbook reports which will be available in two possible organizations: a list of individual animals and associated information by studbook number, and by institution name, alphabetically and by studbook number within each institutional list.

Two additional kinds of information will be included: studbook numbers of grandparents and those individuals who are parents of studbook-numbered animals but do not themselves have an assigned number.

A sample studbook format is indicated below and will include: lists of individual specimens by studbook number or institution of last residence, sex, house name, studbook name, ISIS ID number, dam and number, sire and number, grandparents and number, birth and death dates, residence(s), acquisition and release dates and wild or captive origin, if known.

STDBK NO.	SEX	HOUSE NAME	STDBK NAME	ISIS SPEC ID	SIRE	DAM	SIRE'S SIRE	SIRE'S DAM	DAM'S SIRE	DAM'S DAM
12345	M	CHARLIE	STDBK1	123456	12344	12342	12339	12338	12337	12336

BIRTH DATE	DEATH DATE	LOCATIONS	ACQUIRED	RELEASED
01/01/1900	08/12/1923	SOMEPLACE	01/01/1900	30/11/1905
		SOMEWHERE	30/11/1905	07/02/1918
		ELSEWHERE	07/02/1918	08/12/1923

STDBK NO.	SEX	HOUSE NAME	STDBK NAME	ISIS SPEC ID	SIRE	DAM	SIRE'S SIRE	SIRE'S DAM	DAM'S SIRE	DAM'S DAM
12346	F	GRETA	STDBK2	13348	12346	12887	12254	12267	12245	12289

BIRTH DATE	DEATH DATE	LOCATIONS	ACQUIRED	RELEASED
01/05/1915		SAMEPLACE	01/05/1915	

In order to develop management models with goals of long term, captive, self-sustaining populations three basic types of information are needed: pedigree analysis (genetic), demographic analysis, and behavioral knowledge. Use of ISIS generated reports will develop the needed information for the pedigree and demographic analysis.

Pedigree Analysis Subsystem. The pedigree analysis subsystem will provide lists of individual animals detailing all possible matings and indicate breeding choices to maintain the greatest degree of genetic variability through three reports:

1) Calculation of inbreeding and "risk" coefficients for all individuals of a given species or subspecies. It will contain a list of specimens by studbook number, their inbreeding coefficients, a plot of inbreeding coefficients of annual births over known history and a chi-square type analysis of life span, and fertility data on individuals for possible inbreeding effects.

2) A report on all inbreeding coefficients from all possible matings.

3) A calculation and plot of parameters relevant to analyzing the effect of artificial selection on the population.

The Demographic Analysis Reports would indicate the number of progeny that should be produced within a given time interval and specify ages, numbers of animals needing to be bred in order to produce these offspring. Four reports will be generated:

1) Life Tables. A calculation and plot of fertility and mortality by sexes.

2) Population Projections. A calculation of numbers and age classes by sexes and time intervals and expected population growth rates.

3) Birth Rates for Zero Population Growth. Production of required birth rates to maintain a stable size population with appropriate age and sex distributions through time.

4) Evaluation of Management Options. Production of expected population courses if particular management variables or options are introduced or exercised.

As indicated earlier, the basic theoretical work and a draft systems analysis have been completed. We are now asking that a supplement funds agreement to bring the studbook, pedigree analysis and demographic analysis subsystems to an operational level be extended under our present contract with the Department of the Interior, U.S. Fish and Wildlife Service (Grant No. 14-16-0008-2049), to provide outputs allowing evaluation of the status of captive populations of endangered species with particular reference to the evaluation and development of captive self-sustaining populations.

A summary budget is proposed as follows:

A. Costs of programming and computer time to additionally develop the current ISIS census and vital statistics computer program to allow outputs described earlier.

1)	Addition of counters for differentiating wildborn vs. captive individuals	600.00
2)	Addition of counters for total animals	66.00
3)	Addition of counters for males and females	66.00
4)	Addition of counters for number of institutions holding each type species	66.00

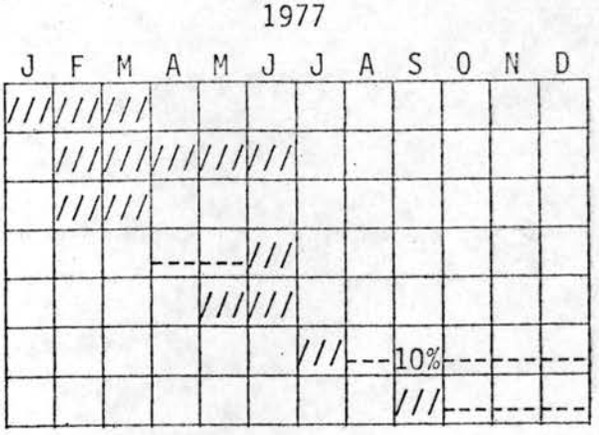
5)	Addition of longevity summaries including separation of males, females and combined	539.00
6)	Addition of century indicators for incorporating data prior to 1900 and beyond 1999, and relaxation of editing procedures permitting historical data entry where missing	600.00
7)	Addition of space for sire and dam institution codes for specimens born on loan or born to parents not residing at the same institution	540.00
8)	Revision of special data allowing separation of studbook names, numbers, tag numbers, tattoo numbers and house names	270.00
9)	Relaxation of edit procedures on loaned animals	945.00
10)	Addition of code for removal of loaned specimens by owner	405.00
11)	Addition of new types of birth records to accurately record births of an animal on loan to another institution or where progeny belongs to the parents owner	810.00
12)	Establishment of a rejection override control allowing entry of historical studbook data where some vital statistics elements are not known, i.e. data of birth or death	540.00
B.	Programming for studbook generation tapes including historical data.	3,000.00
C.	Programs for pedigree and demographic report generation:	
	Computer time	3,000.00
	Developmental work	6,000.00

Total Cost Summary:

1)	Additions to existing computer program	5,447.00
2)	Production of studbook generation tapes	3,000.00
3)	Programs for pedigree and demographic report generation	9,000.00
	TOTAL SUPPLEMENTAL REQUEST	$17,447.00

Regarding a timetable for completion of the program described and based on the already completed analysis noted earlier, the table that follows is felt to be realistic.

Studbooks, Pedigree and Demography Analysis



The contract administration will continue as per our existing contract. If you need further detail, please feel free to contact myself or Dr. Seal.

Thank you so much for your time and interest in the ISIS program and for your consideration of the detail submitted in this transmittal.

Sincerely,

Donald D. Bridgwater
General Director, Minnesota Zoological Garden
Contract Administrator, International Species Inventory System

DDB/je

ZOO
MINNESOTA ZOOLOGICAL GARDEN

ISIS

12101 Johnny Cake Ridge Road
Apple Valley, MN 55124
612/432-9000

March 15, 1977

Mr. Jerry Houghlan
Hill's Division
Riviana Foods, Inc.
P.O. Box 148
Topeka, Kansas 66601

Dear Jerry:

Thanks much for your personal note.

After an intense three-day review in Arizona, we were not particularly disappointed about not getting the position. It came down to the selection between myself and the guy currently there. It also became clear that the real job of the director, at least in the next few months or years, was to raise $13,000,000. This just isn't my bag. I know how to organize fund-raising campaigns but this isn't why I was born as far as I am concerned. The net result is that there were some discomfort levels regarding my feelings there both ways. At any rate, we are infinitely happy where we are and the zoo is making good progress.

How is the ISIS grant coming? We could sure use the assistance. ISIS is developing a pace. The Federation of Zoological Gardens of Great Britain and Ireland have voted to come into the system initially with the anthropoid apes, those animals listed as rare and endangered, and any species that an individual zoo would anticipate managing well into the future. This is an excellent break into the European zoo area.

The studbook and pedigree analysis subsystem is increasingly being urged for final development. Therefore, anything you might be able to do to encourage the release of a $10,000 grant would surely be appreciated.

Best regards and give a jingle one of these days.

Sincerely,

Donald D. Bridgwater
AAZPA-ISIS Representative

DDB/je

ISIS International Species Inventory System

Minnesota Zoological Garden
~~Wentworth Office Center~~
~~33 East Wentworth Avenue~~
~~West Saint Paul, Minnesota 55118~~
~~Telephone (612) 227-9216~~

12101 Johnny Cake Ridge Road
Apple Valley, Minnesota 55124
Telephone: (612) 432-9000

February 15, 1977

Dr. Wilbur B. Amand, Treasurer
American Association of Zoo Veterinarians
34th Street and Girard Avenue
Philadelpha, Pennsylvania 19104

Dear Dr. Amand:

This letter acknowledges receipt of check #1048 in the amount of $2,000 from the AAZV. We in ISIS are most grateful to receive this sum and it will be directed toward the development and implementation of the Physiological Norms subsystem in the ISIS program.

At the present time we have begun the necessary program development and dependent upon time provided from the computer section, we are hopeful that a test program can be punched somewhere around the 1st or 15th of May.

Please extend our appreciation to the officers, directors and members of the AAZV for this contribution, and relate to them that the Physiological Norms subsystem indeed is rolling along. Hopefully, it will provide a tool of excellence for use in the betterment of animal management in captive situations in the future.

Best regards,

Donald D. Bridgwater
AAZPA-ISIS Representative

DDB/je

AMERICAN ASSOCIATION OF ZOO VETERINARIANS

February 1, 1977

Dr. U. S. Seal
Research Biochemist, VA Hospital
54th Street & 48th Avenue S.
Minneapolis, Minn. 55417

Dear Ulie,

Enclosed please find a check for two thousand dollars from the American Association of Zoo Veterinarians. We are pleased to be able to offer this modest amount in support of the physiologic norms segment of ISIS. Our association looks forward to continued progress in the area of hematologic and biochemical data of wild animals. We applaud your leadership in this field and look forward to years of mutual association.

Sincerely,

Wilbur

Wilbur B. Amand, V.M.D.
Treasurer

WBA/eb
Enclosure

original

REQUEST FOR GRANT IN AID

Submitted October 15, 1976

to

HILL'S DIVISION RIVIANA FOODS INC.

P.O. Box 148
Topeka, Kansas 66601

Submitted by:

Donald D. Bridgwater, Director
Linda E. Murtfeldt, Systems Manager

ISIS - International Species Inventory System
Minnesota Zoological Garden
12101 Johnny Cake Ridge Road
Apple Valley, Minnesota 55124

TABLE OF CONTENTS

APPENDICES

I. IDENTIFICATION OF APPLICANT ORGANIZATION

This application for a grant from the Hill's Division Riviana Foods, Inc. is submitted by ISIS (International Species Inventory System), an organization housed and supported in part by the Minnesota Zoological Garden, an agency of the State of Minnesota, and sponsored by the American Association of Zoological Parks and Aquariums. The official address for ISIS is: Minnesota Zoological Garden, 12101 Johnny Cake Ridge Road, Apple Valley, Minnesota 55124.

A. Confirmation of Eligibility.

The Minnesota Zoological Garden Board of Directors agreed to serve as headquarters for the International Species Inventory System and incorporate it as a working component of its research studies and programs on October 5, 1973 (Appendix A 2 documents)

Confirmation of the eligibility of this agency, Minnesota Zoological Garden, to receive grants and gifts may be found in Minnesota Statutes 1971, Section 85A.02, Subd. 5; and in a copy of an unofficial engrossment of the above statute incorporating changes made by the Legislature as reflected in Minnesota Laws 1973, Chapter 207. (Apendix B)

B. Operating Authority.

The Minnesota Zoological Garden is operated subject to Minnesota Statutes; and under the direction of the State Zoological Board, appointed by the Governor of Minnesota. The General Director of the Minnesota Zoological Garden serves as executive secretary of the Board and as the principal administrator of the agency; exercising operational direction under statutory authority and policy guidance established by the State Zoological Board.

II. TAX EXEMPT STATUS

As an agency of State government created and governed by statute, the Minnesota Zoological Garden is automatically exempt from Federal taxes under Section 501 (c) (3) of the Internal Revenue Code. Further, the Minnesota Zoological Garden is exempt from Minnesta taxes under provisions of Minnesta Statutes 1971, Sections 272.02 and 290.05, Subd. 1m. (Appendix C)

III. BASIS FOR GRANT APPLICATION

A. Background.

ISIS is the development of a proposal made to the board and membership of the American Association of Zoological Parks and Aquariums at their annual meeting in Houston, Texas in October 1973. (Appendix D) They adopted the proposal,

provided some support, and recommended participation by all of their membership. (Appendix E) ISIS was charged with the responsibility of developing and maintaining vital statistics data for all captive vertebrate species. At this time 176 zoological institutions of the U.S.A., Canada, and Europe have agreed to participate. The same program and a subsystem designed to handle laboratory data for construction of physiological norms were presented to the American Association of Zoo Veterinarians at their annual meeting in Columbus, Ohio in November 1973. (Appendix F) They also adopted the proposal and provided some support. (Appendix G) Further financial support has been received from the Earl C. Sams Foundation; William V. Frankel Animal Preservation Foundation; the Office of Endangered Species, U.S. Fish and Wildlife Service, U.S. Department of the Interior; Animal Keepers Forum. Basic operational monies have come through zoo participation fees beginning with the year 1974.

The ISIS system has its origins in the Seamak system for physiological norms of zoo animals developed by U. S. Seal and Dale G. Makey in 1971 in cooperation with the AAZV. Extensive use has also been made of the acquisition and release code developed by Dave Zucconi, Director of the Tulsa Zoological Park, Tulsa, Oklahoma, for his computer-based zoo animal inventory system. He has had his system in operation for several years and generously shared with us his experience. This significantly shortened development time. A third major contribution to the development of the system, particularly in the area of data editing and data management, was made by the staff of the Bird Banding Laboratory, Laurel, Maryland. Mr. Jay Sheppard provided a very thorough and thoughtful description of their system's operation during a visit to the facility. Also, during the course of the systems analysis for ISIS, a number of other existing and proposed computer systems oriented to biological collections of various kinds were examined.

B. Basis for Application.

The basis for this grant application arises from the need to secure additional funds to assist in the realization of a studbook-pedigree analysis subsystem with ISIS.

IV. PURPOSE OF REQUESTED GRANT

A. Grant Purpose.

A grant in the amount of $10,000 over the next year is requested in order to assist the International Species Inventory System as follows:

1) To provide systems analysis and programming necessary for the final review of the studbook-pedigree analysis subsystem and the correction and program revision of the existing vital statistics system necessary for incorporation of studbook-type information.

2) To incorporate all existing studbook data into the ISIS files.

B. Relationship of Requested Grant.

The major areas in the mission and activities of ISIS include maintenance of vital statistics data for all captive vertebrate species, physiological norms, life histories and studbook-pedigree analysis. Present operating designs are based on annual participation fees from zoos calculated on the number of specimens in each collection. Funds for all development and addition of subsystems must become available as a result of receipts of grants, gifts and donations of the type requested in this application.

V. APPLICANT ORGANIZATION PROGRAMS, AND GRANT ASSISTANCE NEEDS

Overview.

The specific grant being requested would be used to assure the development, existence, and start-up operational use of a studbook and pedigree analysis subsystem which would function as an integral part of the total ISIS system.

The original purpose of ISIS was to collect, tabulate, and report vital statistics data as individual zoo inventories and a species distribution report of all captive exotic vertebrates. Such reports are essential for local management and also provide a major information source for zoos in their efforts to wisely maintain self-sustaining populations of exotic and endangered species in captivity over many generations. However, the vital statistics data already collected offers much broader opportunities for intelligent management than simple inventory and census reports.

To take an important case: in animals as well as in humans, marriages of convenience are usually not the best kind. Yet, most zoo mates are chosen from whomever is close at hand. Of course, readily available mates are often relatives and inbreeding is the result.

Already under way is a study, supported by the Minnesota Zoological Garden, John Shedd Aquarium, Henry Doorly Zoo, San Diego Zoological Park, and the American Association of Zoological Parks and Aquariums, evaluating the risks associated with inbreeding and developing computer-based methods to measure and to minimize them. Considerable effort has gone into the development of computer programs to evaluate the consequences of various mating systems.

To study past inbreeding, a large FORTRAN program designed for human pedigree analysis (MacLean, 1969, in Computer Applications in Genetics) has been acquired and modified for use with historical breeding data (studbooks). This will produce a measure of the inbreeding in the history of today's animals, an important consideration for future mating choices. Another portion of this program will tabulate all ancestors and descendants of a given animal in studbook fashion. This will be of real value in finding, tracing, and eliminating specific genetic defects.

Thus, the studbook pedigree analysis subsystem of ISIS will provide studbook reports on any and all desired species or subspecies, facilitate genetic management, provide detection of inbreeding-caused problems, and suggest solutions when such problems appear.

A. Final Review, Correction, and Program Revision of Existing Vital Statistics Program.

1) Studbooks. In order to provide studbooks in a format similar to those now in use by a variety of studbook keepers certain problems must be solved and their solutions made a part of the ISIS vital statistics system. To name a few: a) century indicators must be added for incorporation of data prior to 1900 and subsequent to 1999; b) provisions must be made to accept data on an animal when no exact accession date or transaction type is known; c) studbook names must be separated physically within the computer files from studbook numbers and likewise tag and tattoo numbers from house names; d) linkages must be made to connect a given specimen from one transfer of ownership and/or location to another; and e) transaction codes must be added to indicate births and deaths on loan.

2) Pedigree Analysis. The same problems as noted under studbooks must be overcome for the complete and accurate operation of a pedigree analysis subsystem. Those problems relating to linkage when an animal is transferred between institutions appear to be the most critical.

B. Incorporation of Existing Studbook Data.

Przewalski's horse has been used as a test case during development of the initial systems analysis and programming of the studbook pedigree analysis subsystem. It is estimated that preparation of the available data and its computer entry for some 650 specimens in this studbook will cost $2,000. Incorporation of the data on gorillas and orangutans will also cost around $2,000. All official studbook keepers have been contacted and have been asked to submit data. All are willing to do so if necessary funds are provided.

In addition to existing studbook data, we are also incorporating historical records from all interested participating zoos in order to provide the broadest possible base for any pedigree analysis necessary and/or desired in the future.

VI. USE OF GRANT MONIES

A. Final Review, Correction, and Program Revision of Existing Vital Statistics Program - $3,000 Total

The requested amount would be used for systems analysis, programming and computer time necessary to implement all changes indicated in Section V.A.

The requested funds in the area of program revision are sought according to the following timetable:

1) Fourth quarter 1976 - $1,500.00
2) First quarter 1977 - $1,500.00

B. Incorporation of Existing Studbook Data - $7,000 Total.

The requested funds in this area would be used for the professional services provided by studbook keepers, data processing, editing, and computer time. The requested funds in the area of studbook data incorporation are sought according to the following timetable:

1) Fourth quarter 1976 - $1,000.00
2) First quarter 1977 - $2,000.00
3) Second quarter 1977 - $2,000.00
4) Third quarter 1977 - $2,000.00

C. Summary Schedule of Payments.

In summary, it is proposed that a grant be made totaling $10,000; to be distributed to ISIS - Minnesota Zoological Garden during the last quarter period of 1976 in the amount of $2,500, the first quarter of 1977 in the amount of $3,500, and the second and third quarters of 1977 in equal amounts of $2,000 each quarter. It is anticipated that all grant receipts which may result from this request would be expended and/or accounted for by December 31, 1977.

D. Other Grant Applications.

As part of the total fund development effort of the International Species Inventory System, applications will and are being made to other private and corporate foundations for specific areas of financial assistance. At the present time ISIS has received a grant from the Earl C. Sams Foundation in the amount of $10,000, three grants from the Frankel Foundation in the total amount of $13,500, three grants from the American Association of Zoological Parks and Aquariums totaling $18,500, two grants from the American Association of Zoo Veterinarians totaling $4,500, and two grants from the Office of Endangered Species, U.S. Department of the Interior in the total amount of $50,000.

Additionally, individual gifts and donationshave been received totaling $1,154. In addition, zoo participation fees during the past two years have totaled $32,550. It is expressly understood that there will be no duplication of grant funds from other sources, even though there may be overlap in their use regarding a given program area or activity.

VII. IMPACT OF GRANT

This grant will provide a major step forward toward the realization of the full potential of the International Species Inventory System as the major animal inventory and animal statistics resource for North American zoos, and eventually zoos worldwide. The studbook-pedigree analysis subsystem of ISIS could well be the link necessary for the proper management and breeding of rare and endangered species in captivity.

VIII. EVALUATION AND REPORTING MECHANISMS

As with all phases of the operation of the ISIS - Minnesota Zoological Garden, there will be both on-going and periodic critiques made regarding the utilization of grant proceeds in relation to their stated intent. The International Species Inventory System is prepared to furnish any reports required by the Hill's Division to show how grant monies were spent and to certify that they were spent for the indicated purposes. Such reports will be in any form specified by the Hill's Division Riviana Foods or the Internal Revenue Service. The control point for all record keeping and accounting functions related to the use of grant funds will be through the offices of the Minnesota Zoological Garden and its accounting officer. The Minnesota Zoological Garden utilizes the facilities of the Statewide Accounting System, with appropriate account coding for receipts and disbursements as directed by the Accounting Officer for the Minnesota Zoological Garden.

IX. ADMINISTRATION OF GRANT

The General Director of the Minnesota Zoological Garden, as principal administrator of the Minnesota Zoological Garden and Chairman of the AAZPA ISIS Committee, would be the chief administrator of grant funds. The Financial Officer of the Minnesota Zoological Garden, in conjunction with the Systems Manager of the International Species Inventory System, would be the chief agent for record keeping and reporting processes. The Systems Manager of ISIS would have cognizance over and responsibility for operational use of grant funds.

Questions of clarification or amplification of information presented in this request, or regarding the subsequent use of any grant proceeds, should be directed to the General Director of the Minnesota Zoological Garden, Mr. Donald D. Bridgwater, or the Systems Manager of the International Species Inventory System, Mrs. Linda E. Murtfeldt.

Needs
Corrections
see Linda
File

REQUEST FOR GRANT IN AID

Submitted October 15, 1976

to

HILL'S DIVISION RIVIANA FOODS INC.

P.O. Box 148
Topeka, Kansas 66601

Submitted by:

Donald D. Bridgwater, Director
Linda E. Murtfeldt, Systems Manager

ISIS - International Species Inventory System
Minnesota Zoological Garden
12101 Johnny Cake Ridge Road
Apple Valley, Minnesota 55124

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APPENDICES

I. IDENTIFICATION OF APPLICANT ORGANIZATION

This application for a grant from the Hill's Division Riviana Foods, Inc. is submitted by ISIS (International Species Inventory System), an organization housed and supported in part by the Minnesota Zoological Garden, an agency of the State of Minnesota, and sponsored by the American Association of Zoological Parks and Aquariums. The official address for ISIS is: Minnesota Zoological Garden, 12101 Johnny Cake Ridge Road, Apple Valley, Minnesota 55124.

A. Confirmation of Eligibility.

The Minnesota Zoological Garden Board of Directors agreed to serve as headquarters for the International Species Inventory System and incorporate it as a working component of its research studies and programs on October 5, 1973 (Appendix A 2 documents)

Confirmation of the eligibility of this agency, Minnesota Zoological Garden, to receive grants and gifts may be found in Minnesota Statutes 1971, Section 85A.02, Subd. 5; and in a copy of an unofficial engrossment of the above statute incorporating changes made by the Legislature as reflected in Minnesota Laws 1973, Chapter 207. (Apendix B)

B. Operating Authority.

The Minnesota Zoological Garden is operated subject to Minnesota Statutes; and under the direction of the State Zoological Board, appointed by the Governor of Minnesota. The General Director of the Minnesota Zoological Garden serves as executive secretary of the Board and as the principal administrator of the agency; exercising operational direction under statutory authority and policy guidance established by the State Zoological Board.

II. TAX EXEMPT STATUS

As an agency of State government created and governed by statute, the Minnesota Zoological Garden is automatically exempt from Federal taxes under Section 501 (c) (3) of the Internal Revenue Code. Further, the Minnesota Zoological Garden is exempt from Minnesta taxes under provisions of Minnesta Statutes 1971, Sections 272.02 and 290.05, Subd. 1m. (Appendix C)

III. BASIS FOR GRANT APPLICATION

A. Background.

ISIS is the development of a proposal made to the board and membership of the American Association of Zoological Parks and Aquariums at their annual meeting in Houston, Texas in October 1973. (Appendix D) They adopted the proposal,

provided some support, and recommended participation by all of their membership. (Appendix E) ISIS was charged with the responsibility of developing and maintaining vital statistics data for all captive vertebrate species. At this time 176 zoological institutions of the U.S.A., Canada, and Europe have agreed to participate. The same program and a subsystem designed to handle laboratory data for construction of physiological norms were presented to the American Association of Zoo Veterinarians at their annual meeting in Columbus, Ohio in November 1973. (Appendix F) They also adopted the proposal and provided some support. (Appendix G) Further financial support has been received from the Earl C. Sams Foundation; William V. Frankel Animal Preservation Foundation; the Office of Endangered Species, U.S. Fish and Wildlife Service, U.S. Department of the Interior; Animal Keepers Forum. Basic operational monies have come through zoo participation fees beginning with the year 1974.

The ISIS system has its origins in the Seamak system for physiological norms of zoo animals developed by U. S. Seal and Dale G. Makey in 1971 in cooperation with the AAZV. Extensive use has also been made of the acquisition and release code developed by Dave Zucconi, Director of the Tulsa Zoological Park, Tulsa, Oklahoma, for his computer-based zoo animal inventory system. He has had his system in operation for several years and generously shared with us his experience. This significantly shortened development time. A third major contribution to the development of the system, particularly in the area of data editing and data management, was made by the staff of the Bird Banding Laboratory, Laurel, Maryland. Mr. Jay Sheppard provided a very thorough and thoughtful description of their system's operation during a visit to the facility. Also, during the course of the systems analysis for ISIS, a number of other existing and proposed computer systems oriented to biological collections of various kinds were examined.

B. Basis for Application.

The basis for this grant application arises from the need to secure additional funds to assist in the realization of a studbook-pedigree analysis subsystem with ISIS.

IV. PURPOSE OF REQUESTED GRANT

A. Grant Purpose.

A grant in the amount of $10,000 over the next year is requested in order to assist the International Species Inventory System as follows:

1) To provide systems analysis and programming necessary for the final review of the studbook-pedigree analysis subsystem and the correction and program revision of the existing vital statistics system necessary for incorporation of studbook-type information.

2) To incorporate all existing studbook data into the ISIS files.

B. Relationship of Requested Grant.

The major areas in the mission and activities of ISIS include maintenance of vital statistics data for all captive vertebrate species, physiological norms, life histories and studbook-pedigree analysis. Present operating designs are based on annual participation fees from zoos calculated on the number of specimens in each collection. Funds for all development and addition of subsystems must become available as a result of receipts of grants, gifts and donations of the type requested in this application.

V. APPLICANT ORGANIZATION PROGRAMS, AND GRANT ASSISTANCE NEEDS

Overview.

The specific grant being requested would be used to assure the development, existence, and start-up operational use of a studbook and pedigree analysis subsystem which would function as an integral part of the total ISIS system.

The original purpose of ISIS was to collect, tabulate, and report vital statistics data as individual zoo inventories and a species distribution report of all captive exotic vertebrates. Such reports are essential for local management and also provide a major information source for zoos in their efforts to wisely maintain self-sustaining populations of exotic and endangered species in captivity over many generations. However, the vital statistics data already collected offers much broader opportunities for intelligent management than simple inventory and census reports.

To take an important case: in animals as well as in humans, marriages of convenience are usually not the best kind. Yet, most zoo mates are chosen from whomever is close at hand. Of course, readily available mates are often relatives and inbreeding is the result.

Already under way is a study, supported by the Minnesota Zoological Garden, John Shedd Aquarium, Henry Doorly Zoo, San Diego Zoological Park, Gladys Porter, and the American Association of Zoological Parks and Aquariums, evaluating the risks associated with inbreeding and developing computer-based methods to measure and to minimize them. Considerable effort has gone into the development of computer programs to evaluate the consequences of various mating systems.

To study past inbreeding, a large FORTRAN program designed for human pedigree analysis (MacLean, 1969, in Computer Applications in Genetics) has been acquired and modified for use with historical breeding data (studbooks). This will produce a measure of the inbreeding in the history of today's animals, an important consideration for future mating choices. Another portion of this program will tabulate all ancestors and descendants of a given animal in studbook fashion. This will be of real value in finding, tracing, and eliminating specific genetic defects.

Thus, the studbook pedigree analysis subsystem of ISIS will provide studbook reports on any and all desired species or subspecies, facilitate genetic management, provide detection of inbreeding-caused problems, and suggest solutions when such problems appear.

A. Final Review, Correction, and Program Revision of Existing Vital Statistics Program.

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Questions of clarification or amplification of information presented in this request, or regarding the subsequent use of any grant proceeds, should be directed to the General Director of the Minnesota Zoological Garden, Mr. Donald D. Bridgwater, or the Systems Manager of the International Species Inventory System, Mrs. Linda E. Murtfeldt.

APPENDIX A

MINNESOTA ZOOLOGICAL GARDEN

October 5, 1973

Computer Data Committee
- and -
Board of Directors
American Association of Zoological Parks
and Aquariums

Gentlemen:

The Minnesota Zoological Board at its meeting of October 5, 1973 received a description from Doctor U. S. Seal, a member of the Board, of a proposed national computer inventory system for zoo animals and endangered species. The Board unanimously passed a motion to offer to act as the zoo location for a project in cooperation with the AAZPA for an AAZPA sponsored national census program for all zoo animals, to inventory endangered species and to provide a central inventory of stud books.

It is understood that financial resources from other agencies would be obtained to operate such a service on a national basis. This program has the full support of the Director of the Minnesota Zoological Garden and the Minnesota Zoological Board.

Chairman,
State Zoological Board

Director,
Minnesota Zoological Garden

Veterans Service Bldg., Columbus Circle, St. Paul, Minnesota 55155

APPENDIX A

MINNESOTA ZOOLOGICAL GARDEN

December 18, 1973

Dr. U. S. Seal
Room 205 - Building 49
Veterans Hospital
Minneapolis, Minnesota 55417

Dear Dr. Seal:

The Minnesota Zoological Garden is prepared to furnish any reports required to show how grant monies were spent and to certify that they were spent for the indicated purposes. Reports will be submitted on an annual basis for the Animal and Endangered Species Inventory System and the Physiological Norms Program. The control point for all record keeping and accounting functions related to the use of grant funds will be through the offices of the Minnesota Zoological Garden. This office is prepared to submit any necessary financial data and records for inspection in keeping with the terms of the grant.

Sincerely yours,

Richard D. Bengtson
Financial Officer

RDB 1b

APPENDIX B. Authorizing Statutes
Minnesota Zoological Garden

UNOFFICIAL ENGROSSMENT

(For official source refer to 1971 Minnesota Statutes, 85A and Minnesota Laws 1973, Chapter 207.)

An act relating to the state zoological board; regulating the powers and duties of the state zoological board; appropriating money from the Minnesota zoological garden account in the general fund for the acquisition and betterment of public lands, buildings, and improvements of a capital nature needed for the Minnesota zoological garden; authorizing the issuance and sale of bonds for this purpose under the provisions of Article IX, Section 6 of the Constitution, and appropriating money in connection therewith; creating a state zoological garden bond account in the Minnesota state bond fund; amending Minnesota Statutes 1971, Sections 85A.02, Subdivisions 2 and 5; 85A.03, by adding a subdivision; and 85A.04; Chapter 85A, by adding a section; and repealing Minnesota Statutes 1971, Section 85A.02, Subdivision 8.

85A.01 CREATION; ORGANIZATION. Subdivision 1. The Minnesota zoological garden is hereby established under the supervision and control of the state zoological board which is hereby created. The board shall consist of 11 members appointed by the governor with the advice and consent of the senate. Three of such members shall be appointed for terms ending the first Monday in January, 1971, four for terms ending the first Monday in January, 1973, and four for terms ending the first Monday in January, 1975. Thereafter each member shall be appointed for a term of six years and until his successor is appointed and qualified. The commissioner of economic development or his designee shall be an ex officio member of the board but shall not have a vote.

Subd. 2. The board shall annually elect a chairman from among its members and such other officers as it may deem necessary for the performance of its duties. It shall appoint a director to serve at its pleasure who is in the unclassified service of the state and who shall be chosen solely on the basis of his training, experience and other qualifications in the field of zoo management. The director shall act as

executive secretary and appoint administrative officers and employees of the board with the approval of the board. With the approval of the board, he shall exercise the powers and duties set forth in section 85A.03.

Subd. 3. The director, officers and employees are included in the meaning of state employee under the provisions of section 352.01, subdivision 2A.

Subd. 4. The board shall meet at such times and places as it may determine. Each voting member of the board shall be paid a per diem compensation of $35 and shall be reimbursed for all reasonable expenses incurred in the performance of his duties in the same manner as other state employees and officers are reimbursed for such expenses.

85A.02 POWERS AND DUTIES. Subdivision 1. The board shall possess the powers and shall be charged with the duties and responsibilities prescribed in this section.

Subd. 2. The board shall acquire, construct, equip, operate and maintain the Minnesota zoological garden at a site to be selected by the board but which must be located within the area comprised of the counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington. Prior to selection of the site the board shall prepare a comprehensive plan for site location and development which shall be submitted to the metropolitan council for consideration under provisions in section 473B.06, subdivision 6. Any of the above named counties may acquire by gift, purchase, or condemnation a site for the Minnesota zoological garden if the site has been designated by the board as the site for the Minnesota zoological garden, after review by the appropriate legislative committee, and shall convey, without consideration any such site to the state of Minnesota for zoological garden purposes. The zoological garden shall consist of adequate facilities and structures for the collection, habitation, preservation, care, exhibition, examination or study of wild and domestic animals, including, but not limited to mammals, birds, fish, amphibians, reptiles, crustaceans, and mollusks. The board may provide such lands, buildings and equipment as it deems necessary for parking, transportation, entertainment, education or instruction of the public in connection with such zoological garden.

Subd. 3. The board may conduct research studies and programs, collect and analyze data and prepare reports, maps,

charts and other information relating to the zoological garden or any wild or domestic animals or may contract for any of such services without complying with the requirements of chapter 16.

Subd. 4. The board may appoint an advisory committee consisting of persons who are members of zoological societies or who have shown a background or interest in such societies or zoo management.

Subd. 5. ZOOLOGICAL GARDEN. The board may accept and use gifts, grants or contributions from any source or appropriations made by the legislature for the purpose of the establishment and operation of the zoological garden or for the establishment, improvement or operation of facilities related thereto and necessary therefor at the sites of other zoological gardens owned by governmental subdivisions of the state of Minnesota.

Subd. 6. Lands necessary for any of the purposes enumerated in this section may be acquired by eminent domain proceedings under the authority of chapter 117.

Subd. 7. The board may enact regulations governing the efficient protection of the Minnesota zoological garden and the related facilities and the conduct of persons entering therein. Regulations shall become effective in the manner provided by law for the promulgation of rules and regulations by state departments and agencies. A violation of any regulation promulgated by the board under this section is a misdemeanor.

(Subdivision 8 was repealed in 1973 and the following subdivisions have been renumbered by this office.)

Subd. 8. The board shall comply with all federal laws and any rules or regulations prescribed by any agency of the federal government, relating to the quarantine, transportation, examination, habitation, care, and treatment of wild animals. The department of natural resources may prescribe rules and regulations supplemental to such federal regulations, relating to the transportation, examination, care and treatment of wild animals native to this state held or proposed to be acquired by the board and may inspect all such wild animals as often and at such times as it shall deem necessary.

Subd. 9. The board shall not be subject to the provisions of chapters 17, 19, 97, 98, 99, 100, and 101, and

section 346.21, subdivision 8, relating to purchase, barter, sale, possession, breeding, or transporting wild animals.

Subd. 10. The board shall have all powers necessary or convenient to discharge the duties imposed upon it by law, and to operate the zoological garden in the manner which will best serve the public.

Subd. 11. The board shall report to the department of economic development on or before December 1 of each year on the activities of the board and the operation of the zoological garden. The commissioner of economic development shall evaluate the activities of the board and the operation of the zoological garden and report thereon to the legislature on or before January 15 of each odd numbered year.

85A. 03. Subdivision 1. Subject to the other provisions of sections 85A.01 to 85A.04 the director shall have the powers and duties prescribed in this section.

Subd. 2. Subject to the approval of the board the director shall organize the Minnesota zoological garden and provide for such officers, agents and employees necessary for the operation thereof. All such persons employed shall be in the classified service of the state civil service with the same rights and privileges as other state officers and employees.

Subd. 3. As the executive secretary and principal administrative officer of the board and subject to its approval, the director shall operate the Minnesota zoological garden and enforce all regulations and policy decisions of the board in regard thereto. He shall perform such other duties as may be directed by the board.

Subd. 4. As directed by the board, the director may establish a schedule of charges for admission to or the use of the Minnesota zoological garden or any related facility, provide for the sale of gifts, souvenirs, food and beverages, and grant concessions for the sale of such items. The granting of any concessions shall be subject to the terms and provisions of chapter 16, unless the commissioner of administration determines that it is not feasible and not in the public interest to award a contract for the operation of such concession to the highest responsible bidder.

Subd. 5. In order to encourage and permit the use of and access to the Minnesota zoological garden, the board shall establish an admissions policy providing for free admission to the Minnesota zoological garden for all visitors on certain days distributed throughout each year.

85A.04 ZOOLOGICAL GARDEN ACCOUNTS IN THE GENERAL FUND. Subdivision 1. MINNESOTA ZOOLOGICAL GARDEN GENERAL ACCOUNT. A Minnesota zoological garden general account is created in the general fund. All receipts from the operation of the Minnesota zoological garden shall be deposited to the credit of such account and are hereby appropriated annually to the state zoological board to carry out the terms and provisions of this chapter. Money in this account may be expended for operation, capital improvements, and equipment of the Minnesota zoological garden and for acquisition of wild and domestic animals therefor and for payment of the principal of and interest on Minnesota state zoological garden bonds. From and after the completion of the Minnesota zoological garden and related facilities, the balance, if any, on hand in this account on November 1 in each year, in excess of the amount determined by the board to be needed for the maintenance of an adequate working capital and for compliance with the terms of any gifts of money then in the account, shall be transferred to the state zoological garden bond account in the state bond fund, to the amount required for compliance with section 3, subdivision 4.

Subd. 2. MINNESOTA ZOOLOGICAL GARDEN BUILDING ACCOUNT. A Minnesota zoological garden building account is also created in the general fund, for the purpose of providing money to the state zoological board for the acquisition and betterment of public land, buildings, and improvements of a capital nature needed for the Minnesota zoological garden; including but not limited to interest to accrue during the period of the construction thereof on money borrowed by the state for such construction. On November 1 in each year prior to the completion of the Minnesota zoological garden and related facilities the balance, if any, on hand in this account in excess of the amount determined by the board to be needed for the payment of claims then due and payable for necessary expenses of such completion shall be transferred to the state zoological garden bond account in the state bond fund, to the amount required for compliance with section 3, subdivision 4. Proceeds of state bonds credited to this fund are appropriated for construction and other permanent improvement and shall be available until the purposes for which the appropriation was made have been accomplished or abandoned, and none of such money shall be canceled. Income from investment of such money shall be credited to this account in each fiscal year. When the purpose of any such appropriation has been accomplished or abandoned, the state zoological board shall so certify to the state auditor. Thereupon the unexpended balance of such appropriation, unless transferred under authority of the appropriation act to another purpose therein designated, shall be transferred and credited to the state bond fund.

Amounts so transferred and credited are appropriated for the purpose of reducing the amount of tax otherwise required to be levied for the state bond fund by Article IX, Section 6, Subdivision 4 of the Constitution, or for reimbursing the bond fund for amounts previously transferred to the state zoological garden bond account so as to eliminate any prior deficiency covered by the state bond fund, the general fund in the state treasury, or through a tax levy.

85A.05 MINNESOTA STATE ZOOLOGICAL GARDEN BONDS. Subdivision 1. PURPOSE AND APPROPRIATION. For the purpose of providing money appropriated to the state zoological board from the Minnesota zoological garden building account for the acquisition and betterment of public land, buildings, and improvements of a capital nature, when authorized by law and requested by the board, the state auditor shall sell and issue bonds of the state of Minnesota for the prompt and full payment of which, with interest thereon, the full faith, credit, and taxing powers of the state are irrevocably pledged. The proceeds of such bonds shall be credited to the building account, except that accrued interest and any premium received on sale of the bonds shall be credited to the state bond fund account referred to in subdivision 4, together with any additional sum directed to be so credited by any law authorizing an issue of such bonds. Bonds shall be issued pursuant to this section only as authorized by subdivision 6 or by another law in accordance with the provisions of the Constitution, Article IX, Section 6, Subdivision 4. Any law authorizing the issuance of bonds in the manner provided in this section shall, together with this section, constitute complete authority for such issue, and such bonds shall not be subject to restrictions or limitations contained in any other law.

Subd. 2. ISSUANCE OF BONDS. Upon request by resolution of the state zoological board and upon authorization as provided in subdivision 1 the state auditor shall sell and issue Minnesota zoological garden bonds in the aggregate amount requested, upon sealed bids and upon such notice, at such price, in such form and denominations, bearing interest at such rate or rates, maturing in such amounts and on such dates, without option of prepayment or subject to prepayment upon such notice and at such times and prices, payable at such bank or banks within or outside the state, with such provisions for registration, conversion, and exchange and for the issuance of notes in anticipation of the sale or delivery of definitive bonds, and in accordance with such further regulations, as the auditor shall determine, subject to the approval of the attorney general, but not subject to the provisions of sections 15.0411 to 15.0422. The bonds shall be executed by the state auditor

and attested by the state treasurer under their official seals. The signatures of the officers on the bonds and any appurtenant interest coupons and their seals may be printed, lithographed, engraved, or stamped thereon, except that each bond shall be authenticated by the manual signature on its face of one of the officers or of an officer of a bank designated by them as authenticating agent. The state auditor shall ascertain and certify to the purchasers of the bonds the performance and existence of all acts, conditions, and things necessary to make them valid and binding general obligations of the state of Minnesota, subject to the approval of the attorney general.

Subd. 3. EXPENSES. All expenses incidental to the sale, execution, delivery and other expenses of bonds pursuant to this section, including but not limited to actual and necessary travel and subsistence expenses of state officers and employees for such purposes, shall be paid from the Minnesota zoological garden building account in the general fund, and the amounts necessary therefor are appropriated from that account; provided that if any amount is specifically appropriated for this purpose in an act authorizing the issuance of bonds pursuant to this section, such expenses shall be limited to the amount so appropriated.

Subd. 4. MINNESOTA STATE ZOOLOGICAL GARDEN BOND ACCOUNT IN THE STATE BOND FUND. The state auditor shall maintain in the state bond fund a separate bookkeeping account which shall be designated as the state zoological garden bond account, to record receipts and disbursements of money transferred to the fund to pay Minnesota zoological garden bonds and income from the investment of such money, which income shall be credited to the account in each fiscal year. The amounts directed by section 85A.04, subdivisions 1 and 2 to be transferred annually to this bond account are appropriated thereto, and the legislature may also appropriate to the bond account any other money in the state treasury not otherwise appropriated. On November 1 of each year there shall be transferred to the bond account all of the money then available under any such appropriation or such lesser sum as will be sufficient, with all money previously transferred to the account and all income from the investment of such money, to pay all principal and interest then and theretofore due and all principal and interest to become due to and including July 1 in the second ensuing year on Minnesota zoological garden bonds. All money so transferred and all income from the investment thereof shall be available for the payment of such bonds and interest thereon, and so much thereof as may be necessary is appropriated for such payments. The state auditor and treasurer are directed to make the appropriate entries in the

accounts of the respective funds.

Subd. 5. TAX LEVY. On or before December 1 in each year the state auditor shall levy on all taxable property within the state whatever tax may be necessary to produce an amount sufficient, with all money then and theretofore credited to the Minnesota zoological garden bond account, to pay the entire amount of principal and interest then and theretofore due and principal and interest to become due on or before July 1 in the second year thereafter on Minnesota zoological garden bonds. This tax shall be levied upon all real property used for the purposes of a homestead, as well as other taxable property, notwithstanding the provisions of Minnesota Statutes, Section 273.13, Subdivisions 6 and 7, and shall be subject to no limitation of rate or amount until all such bonds and interest thereon are fully paid. The proceeds of this tax are appropriated and shall be credited to the state bond fund, and the principal of and interest on the bonds are payable from such proceeds, and the whole thereof, or so much as may be necessary, is appropriated for such payments. If at any time there is insufficient money from the proceeds of such taxes to pay the principal and interest when due on Minnesota zoological garden bonds, such principal and interest shall be paid out of the general fund in the state treasury, and the amount necessary therefor is hereby appropriated, with such sums from tax levies and the general fund subject to future reimbursement to the bond fund by the Minnesota zoological garden bond account as indicated in section 2, subdivision 2 of this act.

Subd. 6. BOND AUTHORIZATION AND APPROPRIATIONS. For the purpose of providing money for the acquisition and betterment of public land, buildings, and improvements of a capital nature needed for the Minnesota zoological garden in accordance with the comprehensive plan of the state zoological board adopted in accordance with section 85A.02, subdivision 2, the state auditor is directed to sell and issue Minnesota zoological garden bonds in the amount of $23,025,000 in the manner and upon the conditions provided in subdivisions 1 to 5. The state auditor may sell or issue an additional $2,350,000 of bonds, but no part thereof shall be expended unless equally matched by other than state appropriations. The bonds may include a sum representing interest to accrue on the bonds from and after its date of issue through the anticipated period of construction and development of the zoological garden, which sum is needed for the payment and security of the interest payments during that period, but in no event shall the bonds exceed the maximum amount stated above. The bonds shall be sold, issued, and secured as provided in subdivisions 1 to 5 and in Article IX, Section 6, Subdivision 4 of the Constitution, except that none of the

bonds of any series issued pursuant to this authorization shall mature earlier than one year after the date of completion of the Minnesota zoological garden and related facilities as estimated by the state zoological board at the time of the issuance of such series. The proceeds of the bonds, except premium and accrued interest, are appropriated to the Minnesota zoological garden building account in the general fund for expenditure by the state zoological board for the purpose for which the bonds are authorized in accordance with the provisions of section 85A.04, subdivision 2. In order to reduce the amount of taxes otherwise required by the Constitution to be levied for the payment of interest and principal on the bonds, there is also appropriated annually to the Minnesota state zoological bond account in the state bond fund from the general fund a sum of money sufficient in amount, when added to the balance on hand on November 1 in each year in the bond account, to pay all principal and interest due and to become due on the bonds to and including July 1 in the second ensuing year. The money received and on hand pursuant to this annual appropriation is available in the state bond fund prior to the levy of the tax in any year required by the Constitution and by subdivision 5 and shall be used to reduce the amount of the tax otherwise required to be levied.

APPENDIX C: Tax Exempt Statutory References
Minnesota Zoological Garden

(Taken from Minnesota Statutes, 1971)

272.02 EXEMPT PROPERTY. Subdivision 1. Except as provided in other subdivisions of this section, all property described in this section to the extent herein limited shall be exempt from taxation:

(7) All public property exclusively used for any public purpose;

290.05 EXEMPT INDIVIDUALS, ORGANIZATIONS, ESTATES, TRUSTS. Subdivision 1. The following corporations, individuals, estates, trusts, and organizations shall be exempted from taxation under this chapter, provided that every such person or corporation claiming exemption under this chapter, in whole or in part, must establish to the satisfaction of the commissioner the taxable status of any income or activity:

(m) The United States of America, the state of Minnesota or any political subdivision of either agencies or instrumentalities, whether engaged in the discharge of governmental or proprietary functions;

APPENDIX D

COMPUTER USAGE FOR

TOTAL ANIMAL AND ENDANGERED SPECIES INVENTORY SYSTEMS:

A SPECIFIC PROPOSAL

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Presented at AAZPA Meeting October 1973

Houston, Texas

CENSUS AND INVENTORY PROPOSAL

This proposal provides a basis for standardizing the formats used for inventorying zoo animals. The proposed format includes data to be used for a national census, endangered species census, studbook purposes, and inventory purposes.

The coding system utilized by SEAMAK ZOOGAD Systems has been used in this proposal for the taxonomic code number, the zoo location code and the zoo code for vendor/purchaser names. The Mohawk Zoo system of Tulsa uses a method Acquisition/Removal code and Source/Disposal code which appears to be a satisfactory coding system. The latter system may well serve as a basis for inventory output and acquisition/release summary reports. See page 7 for a summary of the Mohawk system.

The proposed system would involve recording of data on sheets by the participating zoo (see page 6). One sheet would be filled out for each animal and punched onto data cards suitable for computer input.

For those zoos having access to a computer, it will be possible for them to maintain their own inventory files. However, a copy of these sheets will also be sent to a central computer agency to provide data for the related inventory functions listed below. Those zoos not having access to a computer could have their inventory reports generated by the central agency.

Functions of the System

A. Total Species Inventory

A summary of data from all participating zoos to include:

(1) Species
(2) Sex
(3) Age
(4) Location.

B. Endangered Species Inventory and Census

(1) Species
(2) Sex
(3) Age
(4) Location
(5) Births
(6) Deaths
(7) Transfers.

C. Studbook Inventories, Census, and Tabulations

Same as item B above.

D. Individual Zoo Inventory

E. Annual or Semiannual Acquisition/Release Summary for Individual Zoos

Note: In addition to the current A/R Summary, it would be possible to review A/R's for past years.

F. Family Tree (Studbook Genealogy)

1. Determination of an individual's lineage until blanks appear.

2. Summary data on each individual of the tree to include:

(a) Sex
(b) Individual I.D. number
(c) Location/locations (with dates of acquisition/removal)
(d) Removal code if other than sale (i.e., death, reason)
(e) Birth date
(f) Sire I.D. number and location
(g) Dam I.D. number and location.

G. Purchase Cost Summary by Species by Year

Additional Notes

1. Individual Animal I.D.

a. It is recommended that numbers be used exclusively for animal identification. Experience with SEAMAK ZOOGAD Systems has demonstrated that spelling of names by people is unreliable identification for a computer. Animal accession number may be a solution to this problem.

b. For inter-zoo transfers of animals, it is essential to record the animal's previous identification number as well as the previous zoo location code. This establishes a chaining of records which is essential for the generation of a family tree.

c. If the proper chaining of records is established as indicated above, the identification of sire and dam need only be recorded on the one data sheet indicating the animal's birth.

2. Vendor/Purchaser Coding

a. Major animal dealers should be assigned a unique code number. This provision has already been designed into the SEAMAK ZOOGAD zoo coding system.

2.

b. Donations of animals from private parties may be indicated by a unique code number, with the name and address of the party being maintained by recipient institution since this is not of general interest.

3. Cause of Death

The system used by the Mohawk Zoo could be expanded to include autopsy findings as well as cause of death. Also could use the numerical system of the Standard Nomenclature of Veterinary Diseases and Operations - a 9 digit code.

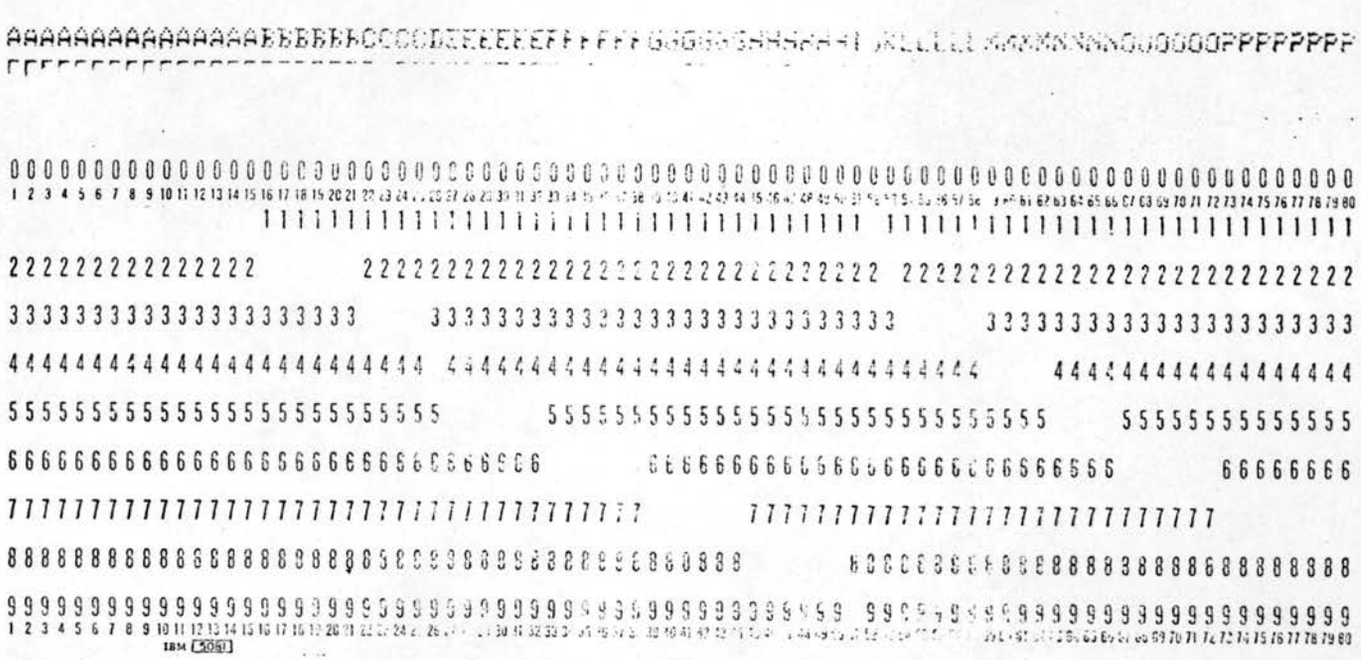
4. Other Data

Page 8 of this proposal contains a brief review of some studbooks now in effect and the data used by them. This is compared to the proposed system.

Consideration must be given to other data to be included in the basic system, such as breeding fitness, etc. so that a system of maximum productivity can be made with a minimum of data entry.

DATA CARD FORMAT

Parameter	Number of Characters	Card Code
Taxonomic ID	15	A
Individual ID Number	6	B
Location (Zoo code)	4	C
Sex	1	D
Birth Date	6	E
Sire (Individual ID Number)	6	F
Dam (Individual ID Number)	6	G
Date In or Out	6	H
Acquisition/Removal Code	1	I
Source/Disposal Code	1	J
Cause of Death	1	K
Purchase/Sale Price	5	L
Delivery Cost	4	M
Vendor/Purchaser (Zoo code)	4	N
Previous Owner ID Number	6	O
Unused Card Columns	8	P

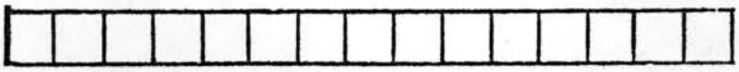


BASIC DATA SHEET

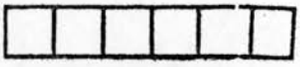
Zoo _____ Scientific Name _____

Date _____ Common Name _____

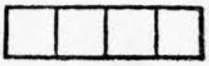
Recorded by _____



1 Taxonomic Code Number

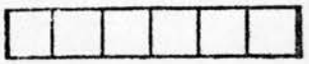


16 ID Number

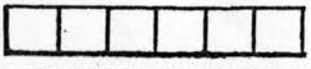


22 Zoo Code Number

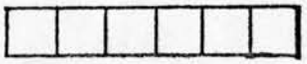
26 Sex



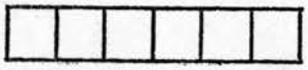
27 Birthdate



33 Sire ID Number



39 Dam ID Number

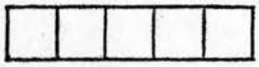


45 Date In or Out

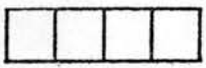
51 Acquisition/Removal Code

52 Source/Disposal Code

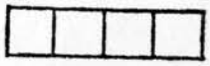
53 Cause of Death



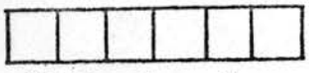
54 Purchase/Sale Price



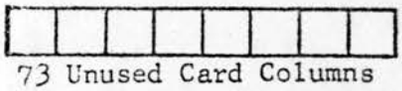
59 Delivery Cost



63 Vendor/Purchaser Code Number



67 Previous Owner ID



73 Unused Card Columns

STATUS CODE

R Rare
E Endangered
S Studbook

-- IN OR OUT CODE --

1ST CHARACTER

ACQUISITION CODE

A Birth
B Trade
C Purchase
D Donation, Private
E Donation, ZS
F Loan to Us
G Capture by Staff
H Recapture (after escape)
I Retrieval (after theft)

REMOVAL CODE

N Death
O Trade
P Sale
Q Donation, Institutional
R Donation, Private
S Loan to Another
T Release
U Escape
V Theft
W Loan to us Returned

2ND CHARACTER

SOURCE -RECIPIENT CODE

A Dealer
B Zoo
C Private
D Institution

DISPOSITION OF CARCASS

N Incinerated
O Conventional
P Given or sent to Institution
Q Mounted or Preserved
R Given or sent to (?)
S Other

-- DEATH CODE --

1ST CHARACTER

CAUSE OF DEATH

A Sacrifice
B Self-inflicted Injuries
C Injury from other Agency
D Malicious Destruction
E Degenerative Causes
F Infectious non-Parasitic
G Parasitic
H Metabolic
I Other

2ND CHARACTER

AUTOPSY

A Yes

INFORMATION COLLECTED FOR SEVERAL STUDBOOKS

	Lama vicugna (#12 p 147)	European bison (#7 p 187)	Mongolian Wild Horse	Golden Marmoset	Pere David's Deer	Proposed System
Taxonomic Code						X
Individual I.D.	X	X	X	X		X
Sex	X	X	X	X	X	X
Studbook Name	X	X	X	X		X
House Name	X	X	X	X		
Born	X	X	X	X	X	X
Died	X	X	X	X	X	X
Sire	X	X	X	X		X
Dam	X	X	X	X		X
Location	X	X	X	X	X	X
Breeder		X				
Change of Owner		X	X	X		X
List of Offspring		X	X			X
List of Forebears		X	X			X
Location of Birth		X	X			X
Disposal of Corpse			X			X
Breeding Fitness		X				
Pure Blood/Hybrid		X				

COMPUTER PROGRAMMING

INTRODUCTION

The concept guiding the design of the computer programs for the proposed system is centered around program language and file structure. Some well accepted language such as COBOL must be used for programming so that these programs may be easily adapted to other computer facilities. The file structure must be designed to use a minimum of rapid access storage space since this space is usually at a premium on most computer systems. Thus, the basic programs and file structure suitable for maintaining zoo animal inventory lists would be adapted to most medium sized computers. This will allow individual zoos to maintain their own inventory on a computer already maintained by city or state governments.

The system defined in further detail on the following pages requires three file systems and the interpretive programs for input and output of data. The inventory data file contains all the animal inventory data records in the coded form previously illustrated. Due to the coding of taxonomic name and the zoo/dealer names, two files containing the code number/name relationships are needed for the output of these data records into a format which is readily interpreted.

Comment on immediate access system via teletype: According to the tables showing the mass storage requirements for a nation-wide storage system, it is apparent that a large amount of storage area which is immediately accessible by the computer is required. Utilizing a conservative estimate (1 cent/track/day), the initial costs for the storage space required would be approximately $50 per month and would increase to $150 per month in ten years. In addition to these costs, the computer required to handle these large amounts of data are approximately $1,000 per CPU hour or $0.28 per CPU second.

The remote site at the zoo would require a teletype to communicate with this computer. The cost of a teletype is approximately $1,000 for purchase and the related transmission devices approximately $500, for a total investment per zoo of approximately $1,500. In addition to these costs, telephone transmission to the computer may be as high as 40 cents per minute for those zoos located remotely to the central computer. At this rate one line of teletype printing costs 4.9 cents.

Totaling the direct costs for remote terminal operation, it is not unreasonable for 50 lines of teletype printing to cost $2.50. One must also note that this figure does not include the cost of the teletype for the individual zoo nor does it include the mass storage costs which must be shared by the participating zoos. Finally, the program development costs previously described have not entered into this figure. Thus, it appears that an "on-line" approach, while technically feasible, is not a practical approach to the problem at hand.

A. INVENTORY PROGRAM

1. Define file structure for zoo inventory data, taxonomic code system, and zoological code system. System must have compatible blocking for disc and tape reads and writes. System should be defined with enough detail for access by assembly language programs if desired.

Programming (30 hrs)	$1,050
Computer time (1.0 hr CPU, 10 hr PE)	100
	$1,150.

2. Master taxonomic code list - from SEAMAK.

   a. Reorganize mammal taxonomic code to include 4 digit subspecies code and a marker between taxonomic name and common name.

   b. Insertion of 4 digit subspecies code and marker in taxonomic code system for birds.

   c. Construct taxonomic code system for reptiles and amphibians.

   d. Development of program to place the mammalian, avian, reptilian and amphibian codes into a tape structure compatible with the overall program structure.

Programming (10 hrs)	$ 350
Computer time (0.5 hrs CPU, 5 hrs PE)	80
	$ 430.

3. Master zoo code list.

   Direct incorporation of SEAMAK code with only minor changes and additions.

Programming (5 hrs)	$ 165
Computer time (0.2 hrs CPU, 2 hrs PE)	32
	$ 197.

4. Taxonomic code/name table.

   a. Creation of a table containing name and code numbers of all animals contained in zoo inventory data.

   b. Table made by scanning master record tape to determine exact species present.

   c. Create table by extracting appropriate code/names from the taxonomic/zoo code tape.

4.

d. Table must be made accessible by the output program.

Programming (20 hrs)	$ 700
Computer time (0.5 hrs CPU, 5 hrs PE)	70
	$ 770.

5. Zoo code/name table.

a. Create a table containing the code number and name of all zoos or dealers found in the zoo inventory system.

b. Table constructed by scanning master record tape to determine zoo codes used.

c. Extract code/names from taxonomic/zoo code tape.

d. Table must be made accessible by the output program.

Programming (10 hrs)	$ 350
Computer time (0.3 hrs CPU, 3 hrs PE)	46
	$ 396.

6. Zoo inventory data input.

a. Reading of the data inventory cards and placing these records in a format compatible with the recall programs.

b. Storage of these records on the master record tape.

Programming (10 hrs)	$ 350
Computer time (0.5 hrs CPU, 5 hrs PE)	65
	$ 415.

7. Individual zoo (monthly) inventory.

a. Read transaction data records from master tape by zoo onto disc.

b. Sort transaction data on basis of taxonomic code and animal sex.

c. Searches made of both taxonomic and zoo code tapes to provide names matching the code numbers found on data records.

d. Write headers for classes, orders, etc. of animals.

e. Output format of data record with interpretation of codes.

f. Total of animals by sex for species, order, class, etc.

Programming (30 hrs)	$1,050
Computer time (1 hr CPU, 10 hrs PE)	170
	$1,220.

8. Total species inventory (Endangered species census; Studbooks)

   a. Scan of master record tapes with the accumulation of data from individual records pertinent to this report.

   b. Sort of this data by species, sex, and location.

   c. Formated output of the data by species with subdivisions by sex within species.

   d. Data output - species, individual I.D., sex, age, and location.

   e. Individual totals for each species by sex.

Programming (20 hrs)	$ 700
Computer time (0.8 hrs CPU, 8 hrs PE)	130
	$ 830.

B. ACQUISITION/RELEASE SUMMARY

1. Read zoo inventory data records from master tape to disc for the year requested.

2. Sort inventory data by parameters

   a. Zoo

   b. Date within year

   c. Taxonomic code.

3. Formating and output of data for zoo(s). Format essentially as monthly with exception of date emphasis. Interaction with taxonomic and zoo code/name tables required.

Programming (40 hrs)	$1,400
Computer time (1.5 hrs CPU, 15 hrs PE)	245
	$1,445.

C. ANCILLARY PROGRAMS

1. Security copy tapes of records and codes

   a. Provide security tape copies of all zoo data records, taxonomic code lists, zoo code name lists, and all programs utilized in the total information system.

C.

1.

b. Developmental cost.

Programming (21 hrs)	$ 735
Computer time (0.4 hrs CPU, 4 hrs PE)	70
	$ 805.

2. Alter/delete program

a. Program needed to alter data records which contain erroneous information or delete records which are invalid.

b. Developmental cost.

Programming (20 hrs)	$ 700
Computer time (0.4 hrs CPU, 4 hrs PE)	70
	$ 770.

3. Record tabulation by species

a. For individual zoo.

b. For total inventory (sort by zoo, species within zoo, individual I.D., sex, age).

c. Developmental cost for combined programs.

Programming (30 hrs)	$1,050
Computer time (0.4 hrs CPU, 4 hrs PE)	80
	$1,130.

4. Card proof reading

a. Program basis: (1) alpha characters in numeric fields
(2) mandatory fields filled, i.e., A, B, C, D, H, I, J, E, F and G if I, K if I, N if I.

b. Developmental cost.

Programming (10 hrs)	$ 350
Computer time (0.1 hr CPU, 1 hr PE)	18
	$ 368.

c. Estimate approximately 20,000 cards per hour for proof reading inventory data cards.

C. 5. Zoo proof read of initial data.

a. Formated listing of zoo data to be entered.

Requirements: (1) taxonomic codes and names accessible by program
(2) zoo codes and names accessible by program
(3) all alpha field codes must be accessible by program.

b. Developmental cost.

Programming (15 hrs)	$ 525
Computer time (0.1 hr CPU, 1 hr PE)	20
	$ 545.

c. Estimate approximately 10,000 cards per hour can be printed in a format for proof reading.

COMPUTER CAPABILITY

Statistics for Individual Zoos

(using 80 column cards)

Parameter	Entries	Characters
Taxonomic code	500 - 2,000	40 K - 160 K
Zoo code	100 - 1,000	8 K - 80 K
Inventory of entries	500 - 6,000	40 K - 480 K
Initial totals	1,100 - 9,000	
at 20% increase in inventory entries		88 K - 720 K
10 year inventory	550 - 6,600	92 K - 792 K

COMPUTER CAPABILITY

Statistics for National Inventory System

(using 40 column cards)

Initial totals:		157,000 inventory entries
	or	6,600 K characters
At 10% increase/yr for 10 yrs		471,000 inventory entries
	or	19,480 K characters

COMPUTER CAPABILITY

Statistics for National Inventory System

(using 80 column cards)

Parameter	Entries	Characters
Taxonomic codes	6,000	480 K
Zoo codes	2,000	160 K
Mammal inventory	60,000	4,800 K
Bird inventory	65,000	5,200 K
Reptile and Amphibian inventory	24,000	1,920 K
Initial totals	157,000	12,560 K
at 20% increase in inventory entries/year (31,000 entries/yr)		
10 year inventory	467,000	37,360 K
10 year total	475,000	38,000 K

ESTIMATED START-UP COSTS

Programming & computer time	$10,500
Forms and cards	2,150
Computer tapes & discs	1,160
Key punch - 1 year rental (purchase $7,400)	1,800
Telephone & mailing costs	1,550
Salary (Keypuncher/Secretary)	8,000
Mammals code - revision & printing	2,500
Birds code - printing	4,000
Reptiles & Amphibians code - completion and printing	3,500
Data assembly and printouts - computer time	4,000
Project coordinator (20% time) - 1 year	6,000
Travel (presentations to regional workshops and visits to selected zoos)	2,000
	$47,160.

ESTIMATED ANNUAL OPERATIONAL COSTS

Salary (Keypuncher/Secretary)	$ 8,000
Forms and cards	675
Key punch - rental	1,800
Tapes and discs	290
Telephone & mailing costs	2,000
Data assembly and printouts (computer time)	4,000
Project coordinator (10% time)	3,000
	$19,765 per yr

American Association of Zoological Parks and Aquariums

EXECUTIVE OFFICES AT OGLEBAY PARK, WHEELING, W. VA. 26003 AREA CODE 304 - 242-2160

APPENDIX E

October 29, 1973

Dear AAZPA Member:

The AAZPA at its annual meeting in Houston, Texas on October 11, 1973 agreed to establish a current and continuing census of vertebrate animals in collections based on the program presented by Dr. U. S. Seal, D. G. Makey, and the Computer Data Committee. All members are urged to give their cooperation since complete coverage is necessary for full success of the project. Your cooperation does not obligate you to any financial expense - it is input which we need now.

It is the intention of the committee to begin the project with a survey of mammals to permit testing and establishment of the system. The survey of birds is planned to begin in about six to nine months and shortly thereafter the census of reptiles and amphibians will be added. The same basic data form will be used for all of the groups. Enclosed is a copy of the proposed data form and a response check list.

It is important for you to respond now if you have any comments or suggestions regarding this form or the data to be included. You are requested to identify a specific individual in your organization who will be responsible for completion of the data forms in order to facilitate direct communication with the data center on any problems that may arise. You will be given the name, telephone number, and address of a primary contact at the data center with your first shipment of data forms.

The Computer Data Committee will provide further information on the status of the project, as it develops, in the AAZPA Newsletter and by direct communication with active participants. It is anticipated, in the future, that the system will be capable of generating zoo inventories for those interested, at a minimal fee.

Sincerely,

William P. Braker
President

WPB/ksr

Enclosure

APPENDIX F

THE AAZV PHYSIOLOGICAL NORMS PROGRAM FOR CAPTIVE NATIVE AND EXOTIC SPECIES: A COMMENT AND PROPOSAL

U. S. SEAL and D. G. MAKEY

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Minneapolis, Minnesota 55417

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St. Paul, Minnesota 55155

Presented at AAZV Meeting November 1973

Columbus, Ohio

I BASELINE LABORATORY DATA PROPOSAL - AAZV

This proposal provides a basis for standardizing the formats used for zoo animals. The proposed format includes data to be used for clinical, laboratory, ongoing records, and production of norms.

The coding system utilized by SEAMAK ZOOGAD Systems has been used in this proposal for the taxonomic code number, the zoo location code, and the zoo code for source of data names.

The proposed system would involve recording of data on sheets by the participating zoo (see page). One sheet would be filled out for each blood sample from each animal and punched onto data cards suitable for computer input.

For those zoos having access to a computer, it will be possible for them to maintain their own inventory files. However, a copy of these sheets will also be sent to a central computer agency to provide data for the related inventory functions listed below. Those zoos not having access to a computer could have their inventory reports generated by the central agency. They can also simply develop a manual filing system for their copy of the data sheets.

The concept guiding the design of the computer programs for the proposed system is centered around program language and file structure. Some well accepted language such as COBOL must be used for programing so that these programs may be easily adapted to other computer facilities. The file structure must be designed to use a minimum of rapid access storage space since this space is usually at a premium on most computer systems. Thus, the basic programs and file structure suitable for maintaining zoo animal clinical data would be adapted to most medium sized computers. This will allow individual zoos to maintain their own information on a computer already maintained by city or state governments.

The system defined in further detail on the following pages requires three file systems and the interpretive programs for input and output of data. The laboratory data file contains all the animal laboratory data records in the coded form previously illustrated. Due to the coding of taxonomic name and the zoo/laboratory names, two files containing the code number/name relationships are needed for the output of these data records into a format which is readily interpreted.

II Functions of the System

A. Laboratory data tabulation

(1) Collection of laboratory data on a standard data sheet of suitable size and format to serve as a record sheet at each zoo and to allow keypunching at a central data facility. The headers of the form would be compatible with the AAZPA census format to allow full cross-referencing of data.

(2) A summary of data from all participating zoos to include summary of data entries by species with a breakdown by sex.

(3) A summary of entries by zoos.

(4) An annual (semi-annual) printout for each zoo of its data by species and collated by individuals within the species. This would provide a running clinical history summary.

(5) Statistical Summaries - the baseline laboratory data norms - to be made when sufficient data are accumulated as indicated by tabulation in item (1) above. These would be printed on a heavy duty stock suitable for permanent notebook file.

(6) Further data analysis when warranted to include effects of age, season, disease, handling, and geography.

B. Vital statistics and autopsy analysis

(1) Tabulation of deaths by species.

(2) Individual zoo summaries.

(3) Tabulations of deaths by categories.

(4) Neonatal and perinatal mortality by species and by cause.

(5) Tabulation of borths by species (AAZPA form).

(6) Geographic patterns.

(7) Age patterns.

C. Permits compatible development of additional programs in such areas as parasitology, bacteriology, urinalysis, x-ray, etc.

D. Programs are developed in COBOL to allow adaptation to local usage.

III RECOMMENDATIONS

1. Approval and participation in AAZPA inventory, census, and vital statistics program. Important that problem of <u>animal identification number</u> be given high priority and its use on all records become routine (see International Zoo Yearbook article and symposium on this subject, Vol. 8, 1968, pp. 384-408). Essential for census, vital statistics, and the clinical history of individuals.

2. Adoption and support of revised version of the physiological norms program.

   (a) A standardized laboratory data form compatible with existing clinical chemistry forms and the census format should be agreed upon and adopted. It should be usable by clinician and by data processing people, if possible. See the included sample data form for a suggested format. Could be on carbonless paper in two or three copies as needed. Cost about 1¢ /page for printing.

   (b) A standardized autopsy form with headers compatible with the census and norms program should be agreed upon and adopted. It should be usable by clinicians as well as pathologists to provide as wide a scope of application as possible. A suggested form prepared by Dr. Ward Richter and Robert Hinckley at Lincoln Park is available. It could be available also on carbonless paper in 2-3 copies at a cost of 1¢/page.

   (c) A standardized clinical history form with headers compatible with census program should be formulated, adopted, and supported. System should use a check list which allows easy adaptability to computer storage and obtains a complete history with a minimum of effort.

   (d) A standardized laboratory form with headers compatible with census program should be considered now for areas of bacteriology, parasitology, and urinalysis.

3. A deliberate data collection program should be formulated and actively supported. This might include five components:

   (a) Data inputs from zoos and organizations currently engaged in active local laboratory programs. This is currently being done systematically by the National Zoo, Bronx, St. Louis, Oklahoma City, Omaha, and Denver.

   (b) Collection of available data in files of various institutions and clinicians by either providing copies to a central collation center or by sending a person with copier to make copies on location, and complete necessary header information.

   (c) Sample input to cooperating laboratories with the effort made to obtain a sample from every animal handled. Busch Gardens (Florida), Omaha, and Como now doing.

   (d) Special collections of samples from high priority species might be made to obtain sufficient samples to establish norms.

   (e) Obtain samples from animals in quarantine stations and as imported and send to a cooperating laboratory.

IV (a) AAZV PHYSIOLOGICAL NORMS

LABORATORY DATA SHEET

AND REQUEST FORM

Taxonomic code number _____ Common name _____ I.D. Number _____ Sex

Time _____ Date _____ Zoo code _____ Zoo name _____

Age (mo.) _____ Weight (kg) _____ Temp (°C) _____ Chemical/hematology data source _____

Hematology

Hemoglobin	g%
Red Blood Count	$10^6/mm^3$
White Blood Count	$10^3/mm^3$
Hematocrit	%
MCV	μ^3
MCHC	volume %
Sedimentation Rate	mm/hr

Differential

Segments	$10^3/mm^3$
Bands	$10^3/mm^3$
Lymphocytes	$10^3/mm^3$
Monocytes	$/mm^3$
Eosinophils	$/mm^3$
Basophils	$/mm^3$
Reticulocytes	% RBC

Electrophoresis

Total Protein	g%
γ Globulin	g%
β Globulin	g%
α_2 Globulin	g%
α_1 Globulin	g%
Albumin	g%

Blood Chemistry

Cholesterol	mg%
Calcium	mg%
Phosphorus	mg%
Total Bilirubin	mg%
Uric Acid	mg%
BUN	mg%
Glucose	mg%
LDH	IU
Alk Phosphatase	IU
SGOT	IU
Sodium	meq/l
Potassium	meq/l
Chloride	meq/l
CO_2	meq/l
T_4	μg%
CPK	IU
SGPT	IU
Creatinine	mg%
Fibrinogen	mg%

08/12/73

IV (b) SAMPLE OF INDIVIDUAL ANIMAL DATA FORMAT

ID AGE RX DATE TPAT PAPT CBG PLA FIB TRI 17H ALKP CHO HAL CER HAP

ID= SS NUM ON STUDY DATE 110972

62 4 111572 031 131 746 QNS QNS QNS
62 4 112272 035 163 573 140 215 127
62 4 112972 034 161 584 084 190 127
62 4 120672 039 175 506 153 236 078
62 4 022173 0060 0046 044 172 506 212 0122 279 076 057
62 4 052373 0025 0016 031 172 465 091 0076 191 024 133

ID= SS NUM ON STUDY DATE 010373

75 4 111572 0372 0350 032 098 541 080 0107 221 054 222
75 4 011073 032 123 494 113 190 219
75 4 011773 032 103 445 104 205 245
75 4 012473 030 079 439 100 188 232
75 4 013173 031 116 483 137 197 262

ID= SS NUM ON STUDY DATE 020773

79 3 010373 0035 0024 031 180 805 074 0126 350 060 284
79 3 021473 028 150 500 191 295 137
79 3 022173 027 151 569 106 311 156
79 3 022873 027 197 518 132 339 148
79 3 030773 027 147 513 196 345 127
79 3 051073 0026 0013 028 199 417 085 0062 275 024 149

ID= SS NUM ON STUDY DATE 052273

62 4 032873 0078 0066 030 126 283 024 0075 262 039 139
62 4 060573 030 142 301 048 159 178
62 4 061973 027 157 370 070 173 198

ID= SS NUM ON STUDY DATE 070169

57 8 070169 0015 0005 040S 138 558 173 012 192 999
57 8 070769 0013 0003 999 999 999 999 999 999
57 8 072269 0017 0005 999 445 999 999 999 999
57 8 072869 0017 0007 999 454 999 999 999 999
57 8 102069 9999 9999 088S 351 369 148 020 280 172
57 8 012670 0021 0007 038S 195 574 177 014 0077 178 172
57 8 072870 0009 0006 087S 266 469 130 028 0061 236 088
57 8 070672 0008 0003 034 119 372 095 0204 156 142 128
57 8 011573 0012 0004 036 145 416 035 0091 186 033 177

ID= SS NUM ON STUDY DATE 091569

67 7 091569 0013 0009 037S 196 592 318 006 0098 320 112
67 7 092369 0006 0005 037 189 499 261 010 326 088
67 7 092969 999 999 259 999 999 999 999 999
67 7 100669 042 253 300 150 013 318 999
67 7 101369 039 250 544 116 012 260 999
67 7 011270 0013 0007 097S 248 155 163 044 278 030
67 7 040670 0008 0007 033S 182 293 191 008 0078 338 042
67 7 091570 0008 0006 034S 178 223 067 013 396 080
67 7 031571 0008 0004 039S 191 342 127 0070 308 053 116
67 7 091571 0006 0003 042S 194 292 106 310 084

V. COMPUTER PROGRAMING REQUIREMENTS

1. Master taxonomic code list - from SEAMAK

   a. Reorganize mammal taxonomic code to include 3 digit subspecies code and a marker between taxonomic name and common name.

   b. Insertion of 3 digit subspecies code and marker in taxonomic code system for birds.

   c. Construct taxonomic code system for reptiles and amphibians.

   d. Development of program to place the mammalian, avian, reptilian and amphibian codes into a tape structure compatible with the overall program structure.

Programing (10 hrs)	$ 350
Computer time (0.5 hrs CPU, 5 hrs PE)	80
	$ 430.

2. Master zoo code list

   Direct incorporation of SEAMAK code with only minor changes and additions.

Programing (5 hrs)	$ 165
Computer time (0.2 hrs CPU, 2 hrs PE)	32
	$ 197.

3. Record format production

   This new record format must be compatible with the format proposed to the AAZPA. The new data format will contain only the data commonly used in clinical chemistry of zoo animals (see Data Recording Sheet). This record format must be flexible enough to be able to add other information such as pathology, clinical data, etc.

Programing (10 hrs)	$ 350.

4. Data record proof reading program

   This program checks keypunched records to ascertain that the data cards composing each record are in their proper order. This program also checks each data field to determine if mandatory data are present or if alpha characters are in numeric fields or vise versa.

Programing (20 hrs)	$ 700
Computer time (0.2 hrs CPU, 4 hrs PE)	88
	$ 788.

5. Data input program

This program assembles the data found on the data cards into the proper format for computer storage. The program then places this record on the master record tape.

Programing (15 hrs)	$ 425
Computer time (0.2 hrs CPU, 4 hrs PE)	58
	$ 483.

6. Create program for duplicating master record tape and/or producing special record tapes from the master tape. The latter function is necessary for creating tape copies of a complete zoo's records, or a tape of records by order, family, or genus of the animals in consideration.

Programing (15 hrs)	$ 425
Computer time (0.3 hrs CPU, 3 hrs PE)	72
	$ 497.

7. Reformat existing SEAMAK data records to the new record format and add those records to the master record tape.

Programing (25 hrs)	$ 875
Computer time (0.4 hrs CPU, 8 hrs PE)	110
	$ 885.

8. Taxonomic code/name table

   a. Creation of a table containing name and code number of all animals contained in data records.

   b. Table made by scanning master record tape to determine exact species present.

   c. Create table by extracting appropriate code/name from the taxonomic/zoo code tape.

   d. Table must be made accessible by the output program.

Programing (20 hrs)	$ 700
Computer time (0.5 hrs CPU, 5 hrs PE)	70
	$ 770.

9. Zoo code/name table

   a. Create a table containing the code number and name of all zoos or dealers found in the data records.

   b. Table constructed by scanning master record tape to determine zoo codes used.

9.

c. Extract code/names from taxonomic/zoo code tape.

d. Table must be made accessible by the output program.

Programing (10 hrs)	$ 350
Computer time (0.3 hrs CPU, 3 hrs PE)	46
	$ 396.

10. Data record recall

a. Recall of data by animal order, family, genus, or species, as well as all animals located in a zoo to provide summaries.

b. Recall of data on individual animals, given their ID number and location.

c. Provide summaries of deaths and longevities for animals on a periodic basis.

d. Birth records coupled with perinatal and neonatal mortality.

e. Design the recall parameters for special studies, such as pathology and clinical systems.

Programing (50 hrs)	$1,750
Computer time (2 hrs CPU, 20 hrs PE)	510
	$2,260.

VI (a). Estimates of Possible Input for Blood Data

Class	Species Exhibited	Specimens Exhibited	Blood Samples Possible	Deaths
Mammals	885	45,000	5,000	6,000
Birds	3,000	50,000	2,000	10,000
Reptiles	1,200	24,000	1,000	3,000
Totals	5,085	119,000	8,000	19,000

We estimate that data on about 50 blood samples are necessary to establish an acceptible set of provisional baselines. This would allow estimation of sex effects, but the effects of age, zoo, laboratory, reproductive status, handling, and season would remain uncertain depending upon the sampling distribution.

The time and effort required to complete these provisional norms for exhibited mammalian species may be estimated as follows:

885 species x 50 samples = 44,250 samples

45,000 samples 5,000 samples/yr = 9 years

However, this implies a deliberate effort to acquire this data on these species and not just to handle high priority species or species requiring a great deal of clinical attention.

(b) Since the system is designed to provide an ongoing clinical history on individual animals, we have found at least 50% of current incoming data are on sick animals and on repetitive data on animals for whom other data are on file. Thus, the number of samples handled per year will have to be increased at least 2-fold to provide a reasonable 10-year goal. Also, a priority list should be established and circulated to all zoos and zoo veterinarians requesting that they make a deliberate effort to procure samples and data on these species. I would suggest the list of rare and endangered species as a starting point. There should be added to this those species of especial clinical and exhibit interest.

VII (a). Computer Capability Requirements Statistics for National Norms Program

Parameter	Entries	Characters
Taxonomic codes	6,000	480 K
Zoo codes	2,000	160 K
Mammal (deaths)	5,000	1,200 K
Bird (deaths)	2,000	480 K
Reptiles (deaths)	1,000	240 K
Initial totals	16,000	2,560 K
10-year total	88,000	19,840 K
Total blood samples & autopsy (10 years)	358,000	41,440 K

Based on each blood sample entry requiring three 80 column cards.

VII (b). Computer Capability Requirements Statistics for Autopsy Report Program

Parameter	Entries	Characters
Taxonomic codes	6,000	480 K
Zoo codes	2,000	160 K
Mammal (deaths)	6,000	480 K
Bird (deaths)	10,000	800 K
Reptiles (deaths)	3,000	240 K
Initial totals	27,000	2,160 K
Ten Year Total	270,000	21,600 K

Based on each autopsy entry requiring one 80 column card.

VIII (a) Estimated Start-up Costs of Basic Norms Program

Programing and computer time	$ 7,200
Computer tapes and discs	600
Taxonomies revision and reprinting	AAZPA
Data forms (a) Laboratory norms (5,000/yr) (b) Pathology (19,000/yr)	500
Key punching (320 hrs)	2,000
Telephone and mailing	1,000
Data assembly and printouts (computer time)	2,000
Printout summaries (200 copies)	500
Secretarial - Management (a) Data transcription (b) Data editing (c) Data corroboration (d) Literature search & abstraction (e) Statistics	8,000
Travel (record copying, sample collection)	2,000
	$23,800.

VIII (b) Continuing costs would be about $16,500 per year. These estimates do not include any laboratory or technologist costs.

APPENDIX G

AMERICAN ASSOCIATION OF ZOO VETERINARIANS

JACK M. BRUNDRETT, D.V.M.
VICE PRESIDENT
336 No. MANUS DRIVE
DALLAS, TEXAS 75224
(214) 948-9431

November 29, 1973

Dear AAZV Member:

The executive board and membership of the Association at its national meeting in Columbus, Ohio, November 6, 1973, agreed by vote to support and develop a physiological norms program including use of a standardized laboratory data form as presented by Dr. U.S. Seal. The program is under the direction of the AAZV Research Committee chaired by Dr. Marty Dinnes and of Dr. U.S. Seal. The Minnesota Zoological Garden and its Board have officially offered to provide space for this program and we have accepted. We also have endorsed and support the AAZPA program for a continuing national census of all zoo animals.

There is enclosed an information sheet which I urge you to complete and return. There is also enclosed a copy of the suggested format for a standardized laboratory data sheet. Examine it and return it with any comments or suggestions promptly since we wish to adopt a standard record form. The identification codes are the same as those being used for the AAZPA census and will allow collation of vital statistics and clinical information on species and on individual animals. When complete, copies of the codes and directions for use of the forms and the forms will be provided.

AMERICAN ASSOCIATION OF ZOO VETERINARIANS

JACK M. BRUNDRETT, D.V.M.
VICE PRESIDENT
336 No. MANUS DRIVE
DALLAS, TEXAS 75224
(214) 948-9431

The data gathered in this program will be available as norms on sheets for each species similar to those distributed at the AAZV meeting in Columbus as soon as sufficient numbers are collected for a particular species. Thus the success of the program and the availability of norms will depend upon the continuing active cooperation of each and every member of the AAZV.

Dr. Martin Dinnes

Martin Dinnes, D.V.M.
Chairman, Biological Research Committee

J. M. Brundrett

Jack Brundrett, D.V.M.
President, AAZV