

## UTILIZATION OF ZOO INTERNS

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### Abstract

The field of nutrition in the zoo community is still in its infancy with many an unsolved riddle lying ahead. One tool that has been effective in aiding the collection of nutritional information has been a collaborative internship program between the Denver Zoological Gardens and Colorado State University. The internship program allows nutritionally-related projects to be completed at little cost, while simultaneously providing valuable information on dietary requirements and needs of the animal collection. Interns are selected based on animal experience, work ethic and responsibility. Students are required to maintain a 3.0 minimum grade point on a 4.0 scale. Actual selection of interns is made by the consulting nutritionist and selected zoo staff. Interns are required to complete the following: 1) literature search on selected topic and species; 2) data collection; 3) daily journal; 4) data analyses; 5) oral presentation of data to keepers and staff; and 6) a written final report. Some projects done in the past include: 1) development of a browse data base; 2) pelican behavior modification; 3) neonate pronghorn care; 4) psittacine intake study; and 5) primate intake studies. Students are jointly supervised by zoo staff and the nutritionist. We have a unique situation where we can help develop students at an advantage to the zoo and its animal collection. This program has resulted in presentations and proceedings at regional and national meetings. Programs like this are contributing to the laying of a foundation for this new field.

**Key words: intern, nutrition, evaluation, intake**

### Introduction

Zoo nutrition is still in its infancy. There is much to learn about the nutritional idiosyncrasies of many species with a limited number of trained individuals and little time to accomplish it. Also, funding is difficult to obtain. One way that the Denver Zoological Gardens in Denver, Colorado has successfully begun to solve these concerns is through the use of internships. In cooperation with Colorado State University, a nutritional internship program has been implemented. This internship helps provide much needed nutritional information to the zoo at a minimal cost. The approach to nutrition at the Denver Zoo is a holistic one, emphasizing the interaction of not only nutrition, but animal behavior, environment and zoo management. There are non-monetary costs involved with the internships consisting primarily of time spent by the nutritionist, zoo keepers and zoo management staff in planning and supervision of the intern.

### Methods and Discussion

Because there are many people who "want to work in the zoo", the selection process is quite rigorous in an attempt to select only those individuals who are dedicated to finishing the project. An application form for the internship is available in November of each year, with

selections being made in the spring, prior to the summer break when most interns are available. Eligibility for a potential intern is requires: 1) student status at Colorado State University (any major); 2) a 3.0 grade point average on a 4.0 scale; 3) animal experience; 4) good people skills; and 5) a strong work ethic.

Student status is needed in order to reward students with college credits for the internship. A total of sixty contact hours of research for the internship is required for each college credit awarded. Substantial animal experience is required, with preference being given to those individuals having worked with the species involved in the internship. It has been found that those individuals with previous animal experience are more likely to succeed than those with little or no experience. Strong people skills are essential to ensure that an individual can successfully work and communicate with a diverse group of people including the nutritionist, zoo management, veterinarians and keepers. In order for the project to succeed, open communication is essential between all of these individuals. The internships that we have completed at the zoo take a lot of time and effort. Since there is no monetary reward, a strong work ethic is critical to ensure that these individuals will not only complete the project, but complete it to the best of their ability. In evaluating an individual's people skills and work ethic, student references are contacted, as well as faculty members in the student's home department within the university .

Once an intern is selected, it is essential that they are aware of what is expected of them prior to starting project. To successfully fulfill the requirements of a nutrition internship, an intern must: 1) complete a literature search on the selected topic and species; 2) collect all pertinent data; 3) maintain and submit a daily journal; 4) analyze all data collected; 5) present a summary of the data collected to keepers and zoo staff; and 6) prepare and submit a written final report summarizing the project.

Topics for an internship are usually selected based on a concern or problem with one of the species within the zoological institution. For example, in one incident, keepers were having problems convincing the pelicans to eat fish supplemented with thiamine and vitamin E. In addition to eating their "medicine" fish, the animals also had a seasonal problem with bumble foot. Thus, an intern spent several months "encouraging" the animals to eat their supplemented fish and developing management techniques to help lower the incidence of bumble foot.

Once the topic is selected, the intern meets with the zoo nutritionist to evaluate the potential problem and discuss solutions. Then the intern is responsible for completing a literature search on the species being studied and the potential problem. The use of Internet is encouraged, however, interns are encouraged to scrutinize that information carefully. Once the student has completed the literature search, a brief proposal is completed and the intern, nutritionist and key zoo personnel (including one of the veterinarians) meet to discuss the project. It is essential to meet with the zoo personnel involved as they are the ones who have worked with the animals and have a good idea about what is feasible and what is not. Their input and cooperation is essential or the project will never work.

When the student and zoo personnel agree on the approach to the study, a brief written proposal is used to document all agreements and a time line for completion of the research is determined. The written documentation reminds everyone involved exactly what was agreed upon and keeps the project focused. Approval from the research director (Conservation Biology Steering Committee) and committee is also necessary prior to initiation of the study.

Once the project is started, the intern must maintain a daily journal that documents all steps taken to complete the project and any observations of the animals made during that

research. The intern is responsible for all data collection, and, depending on the project, brief meetings may be held occasionally with the intern, nutritionist and zoo personnel to determine progress. A check system is built into the project to protect the animals. For example, one internship was working to convert six species of psittacines to a balanced commercial diet. Throughout the change, birds were weighed and evaluated weekly. If the animals lost 10% of their body weight, the project and time line were adjusted to protect the animal.

Steps are taken to protect not only the intern while working at the zoo, but also the animals. The selection process is intentionally rigorous to select only those students who are adequately prepared. While the intern is working for the zoo, they are responsible for carrying their own insurance. Prior to their first day, each intern is given an orientation talk that includes the potential dangers and concerns of working in an animal facility. Before interns can begin, they must provide evidence of a negative tuberculosis test and current tetanus shot vaccination. Animal experience is essential to ensure individuals are aware of the uncertainty involved when working with animals.

After the project is completed, the data are evaluated by the intern with the assistance of the nutritionist and zoo personnel. A final paper is written and presented to the zoo staff to document all steps taken, the resulting analysis and summary of the project. The intern is also responsible for preparing a oral presentation and presenting it to zoo personnel during a brown bag luncheon. At the present time, three of the internships that have been completed at the Denver Zoological Gardens and Colorado State University , have resulted in presentations at national meetings.

### **Internships Completed**

As of this summer (1997), 15 internships have been completed or are in process of being completed in conjunction with the Denver Zoological Gardens. In addition to those listed, two other internships involved an international focus. One internship was completed in Zaire (primate rehabilitation) and one in Kenya (veterinary care). Obviously those that involve overseas travel have an entirely different format than what is presented here.

Pelican Nutrition and Behavior

Marine Gel Diet Formation

Neonatal Pronghorn Nutrition

Pale-headed Saki Intake Trials

Fairy Bluebird Intake Trials

Riverside Zoo Evaluation -3 interns

Browse Survey and Data Base Development -3 interns

Browse Palatability Observations

Neotropical Primate Intake Studies -2 interns

Psittacine Intake and Diet Evaluation

### **Benefits**

There are a myriad of benefits from this type of program. From the zoo's perspective, the improvement of animal feeding, management, health and contentment are gained from a well thought out and implemented intern project. If pertinent, this information is then passed on to the zoo community for the benefit of other institutions. For the intern, the benefits are amazing. They

have the chance to evaluate, plan and facilitate a research project. After the completion of the project they reevaluate and analyze the results. Finally they summarize the project in a written and oral format. Working on an internship in this type of setting enables the interns to work in a "real life" setting, having their project success depend a great deal on their personality and work ethic. It is gratifying to see the growth and maturation process of these individuals. With the confidence gained from completing an internship, several of the interns have gone on to graduate work in the nutrition area or to study veterinary medicine.

### **Concerns**

There are always concerns when a project such as an internship program is implemented. One of the major concerns is the animals themselves. Many times, no matter how carefully planned a project is, the animals will create new challenges. In the pelican project mentioned earlier in the text, the intern was never able to succeed in getting the animals to consume the medicine fish "on command". She, not the animals, was the experiment and the animals would run to her to "play" with their pet project. No matter what she tried, or how hard she tried, the animals were always one step ahead of her. When evaluating the project, it was not obvious who designed what.

Another area of concern is the personnel involved. Sometimes the intern just never fits in. If the intern cannot communicate with all individuals involved they are not effective and the project fails or does not meet its potential. Also, there may be times when a zookeeper disagrees with the project. Without the support of the keepers, there is no way any project will ever succeed. It is critical that the support of all involved is acquired before the intern even steps one foot into an animal holding area.

### **Summary**

The nutritional internship program at the Denver Zoological Gardens has been an evolving process. Each project gets better and each project is tailor-made for the situation and the individuals involved. It is critical that the intern selection process is very rigorous to ensure that the "right" people are selected. For an internship to succeed, there will also need to be a support person, such as a nutritionist, who will assume the responsibility to make the initial contacts, organize the project and supervise all steps that the intern will be completing. It is also very time consuming process but essential for the success of the project. There also has to be a commitment from zoo management to make this program a success. If any of the "people" links are compromised, the success of the internship will be limited. If the process is successful, the pride of all involved is evident and the animals are the ones to gain.