

Role Of Nutrition Programs In Zoological Institutions

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There is nothing more fundamental to the care of wild animals in captivity than the need to provide an adequate and appropriate diet. The impact of nutrition on the physical and psychological health, productivity and longevity of wild animals in captivity has been clearly recognized. Contributions to *in situ* conservation programs made by individuals professionally trained in nutritional sciences, and the ability to relate that information back to the care of captive wildlife has been made evident. Like all specialty sciences, the ever-changing field of nutrition requires trained individuals that can interpret, evaluate and implement therapies and programs, as well as appropriately investigate alternatives. Several AZA institutions have fortified their technical staff with persons trained in the discipline of nutrition. To promote the advancement of the profession, the function and contributions of nutritionists and related positions to enhance the programs of AZA institutions must be further defined.

Key words: zoos; animal health; animal husbandry; staff development

INTRODUCTION

As zoos, aquaria and other facilities charged with the care of captive wildlife have driven advancements in methods of husbandry, breeding and health care, improvements have been made in understanding the nutritional needs of these same species. Until very recently, zoo animal diets and feeding programs were nothing more than a product of tradition, trial and error methodology, and sometimes just blind luck. Yet today, the science of comparative animal nutrition has impacted almost every AZA facility in some form: whether by the direct support from a full time, trained staff nutritionist; the recommendations of an AZA Nutrition Advisory Group advisor; or simply through the purchase of scientifically formulate foods.

In many zoos and aquaria, the financial commitment associated with foods needed to support the animal collections is the single largest, non-labor line item in their budgets. Yet, most AZA institutions lack the appropriately trained personnel to effectively manage those foods and budgets insuring the institution receive their greatest return on this significant investment.

Animal diets are in a constant state of flux [Crissey, 2001b]. Adjustments are routinely required based upon physiological status (e.g., gestation, lactation, growth), health concerns (e.g., diabetes mellitus, food allergies), body condition (e.g., obesity, anorexia) and management related challenges. Without personnel designated to coordinate the nutrition plan, the entire animal care program is subject to discontinuity and inefficiencies. Those AZA institutions that are lacking a trained animal nutritionist on staff have not yet realized the positive impact that such individuals would have to their animal care program. Such programs are truly just feeding programs and not nutrition programs and as such, are performing at less than their full potential.

The following is a brief description of the some of the roles, responsibilities of nutritionists, currently found in AZA institutions [Edwards, 1998]. The responsibility of those positions will vary based on demands of the collections. In some cases, one individual may be charged with the responsibilities of more than one of the positions listed.

Animal Food Management

The acquisition, allocation and distribution of foods to appropriate areas within the collections are typically coordinated through the "commissary" or "forage warehouse". Staff members that operate these facilities and administer related programs are the frontline component of the animal care program. These individuals must be competent in inventory management, accounting, food handling and food safety. The unique foods used for feeding captive wildlife require different procurement; handling and management strategies when compared to foods or products used in human food service/restaurant operations or other warehouse type environments.

Diet Management

As with other components of animal record systems, careful documentation of animal diets, including food items, feeding strategies, and deviation from accepted standards, is essential. These records should be readily available to accompany animals on transfers within the home institution or to other institutions. Individuals charged with this responsibility may work closely with, or be part of, the Animal Food Management staff. However, since this position does involve the interaction between the prescribed foods and the animals, some background in both animal and diet management should be considered a prerequisite.

Applied Nutrition

The primary role of an applied nutritionist is providing nutrition and dietary husbandry support for the animal collections. This is best accomplished through direct interaction with the specimens and the staff charged with their daily care. An applied nutritionist serves as a facilitator between multiple “levels” of staff involved with animal care (e.g., curators, veterinarians, managers, keepers), as well as a resource providing insight to the science of animal feeding and nutritional health. Persons filling this role must be proficient in interpreting animal response to various feeding programs, examination of body condition, and evaluation of biological response criteria. Broader issues of quality control, formulation of custom manufactured feeds, and screening edible materials used in animal living areas may also fall within the responsibilities of this position. The role of the applied nutritionist in managing issues of nutrition and dietary husbandry is analogous to that of the clinical veterinarian managing health and disease.

Research Nutrition

The role of research in zoo-sponsored conservation programs continues to expand. The research nutritionist provides a valuable resource, not only for projects initiated by scientists in that discipline, but also as a collaborative resource for researchers from other disciplines. As some of the first professionally trained nutritionists in AZA institutions adopted the role of the research nutritionist, many people mistakenly perceive the responsibilities (and benefits) of a zoo animal nutritionist to be limited strictly to research [Crissey, 2001a]. Although the obligations of the research nutritionist typically fall outside the daily management of the animal collections, the research programs may ultimately provide benefit to the health of the collection.

DISCUSSION

Less than 30 years ago, few AZA institutions employed staff veterinarians to care for the medical health and disease issues of their animal collections. Today, most zoos have at least one, if not multiple veterinarians on staff providing a clearly recognized service that enhances the institutions entire conservation effort. These veterinarians not only have achieved baseline educational and practical standards, but also are licensed within the state they practice. This state certification is maintained, in part, through participation in annual continuing education opportunities, which fosters current skills and medical knowledge. Many of these veterinarians have further demonstrated their expertise and breadth of training in specialty fields, including zoo and wildlife medicine, through a board certification process.

The profession of zoo animal nutrition has been gradually expanding since the late 1960's and is now entering a period of rapid growth and expansion

[Crissey, 2001a]. This trend parallels other aspects of nutrition sciences, particularly in human and livestock nutrition. Within the last year, the field of zoo animal nutrition has been presented with the unique situation of having more positions offered than trained persons available to fill those positions.

Although the definition of any given nutritionist position may vary among institutions, it is possible that standards or specific training experiences should be considered for entry into the profession of zoo nutrition. There are certain standards that are established for multiple professions. This is particularly true with those professions that require a certain level of training, education and experience for the individual to perform with a specific degree of competence [Ullrey, 1996]. For example, state or federal agencies administer these standards for a variety of professions, ranging from veterinarians, physicians and registered dietitians to manicurists, beauticians, and commercial vehicle drivers. Yet, limited formal training programs, either university or zoo-based, are available to give individuals the specialized zoo nutrition training required.

As any profession grows, it must change and mature to meet the requirements of clients, as well as the demands of the overall marketplace. At the same time, changes are required to ensure the longevity of the profession. Several disciplines that work in the field of nutrition, including human, livestock and companion animals, have dealt with, or are dealing with, these issues [Patton, 2001].

CONCLUSIONS

1. As clearly demonstrated by the role of the zoo veterinarian in management issues of health and disease, an applied nutrition program associated with effectively administered animal food management plan is an necessary component of professional animal care within all AZA institutions.
2. The essentiality of this aspect of animal care should be promoted through the description of positions and support of formal training programs.
3. As this profession moves forward it may be appropriate to establish professional standards.

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