

Preventing Parasites: Developing a deworming protocol and screening animals at the Willow Park Zoo

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Objective

- The Willow Park Zoo is small zoo located in the south west of Logan, UT. Willow Park is currently in the process of obtaining Association of Zoos and Aquariums (AZA) accreditation.
- In order to successfully receive accreditation, zoological institutions must complete a long list of criteria, including following AZA established guidelines for preventative medicine.
- The primary object of this project was to research AZA and American Association of Zoo Veterinarian guidelines, write up a deworming protocol and schedule for the zoo, and finally begin screening collection animals.

AZA Requirements

Under the association of Zoo and Aquariums and American Association of Zoo Veterinarian requirements and guidelines:

- Parasite screening should be conducted at least twice annually.
- Groups recognized as susceptible (elderly, young, or chronically sick) should be screened more frequently.
- Animals should be retested after finishing treatment to ensure the treatment was successful.
- New animals should be screened/treated for internal parasites upon reception and should not be released until the end of the 30 day quarantine (longer for primates) and until tests come back negative.
- Whenever a zoonotic (humans can catch it) parasite is detected, appropriate local authorities should be notified.
- Health records must be kept for all animals. Recordings need to be made when an animal is identified as ill, the treatment, medication, dosaging, and outcome.

Challenges

- However, the staff at the Willow Park Zoo were concerned about excessive and improper use of deworming medications and possible drug resistance. There was also a concern that deworming certain individuals or groups would be a futile and a waste of money as these animals would be immediately reinfected either by their environment or by exposure to wildlife entering exhibits.
- The established protocol sought to balance AZA requirements while factoring in the needs of the Willow Park Zoo.



Image 1. Many of the Willow Park Zoo's Collection animals frequently come into contact with wildlife who could be carrying parasites.

Image 2. Young animals, such as these African Crowned Crane colts are vulnerable to parasites. Even parasites that would normally not harm them as adults can be detrimental to chicks and care must be taken to ensure they are properly screened and treated.



Protocol for treatment was based upon the "significance" of the parasite, or how detrimental the parasite was likely to be for its host. Significance was based upon four factors:

1. Overall health of the animal
 - Is the animal elderly? Are they already sick or chronically sick?
 - Immunocompromised animals can become sick or die from parasites which may not significantly affect otherwise healthy individuals.
2. The species infected
 - Certain species are more susceptible to parasitic infections and are more likely to experience harmful effects.
3. Parasite load
 - High numbers of parasites should be treated as this can be a sign the parasites are overwhelming the animal's immune system.
4. The Species of Parasite
 - Some parasites are more infectious and dangerous than others. Small numbers of parasites/eggs can still be significant depending on the parasite in question, for example *Baylisascaris procyonis*.

Implementation

- After a protocol was established, I performed fecal floats and fecal smears for many of the collection animals. Priority was given to individuals leaving the zoo and those who were overdue or due soon for a screening.
- I also developed a schedule for the zoo based upon animal histories and needs of the zoo. It is important for zoo staff to avoid having to handle and medicate animals during certain periods and these times vary from species to species. For example, I aimed to screen the elk before and after the rutting season to avoid the unnecessary risk of handling a more aggressive bull elk. For smaller, more sensitive animals, it was imperative to avoid handling and stressing the animals during breeding and pregnancy/incubation.
- Finally, I created a list of common parasites found in zoological collections using Fowler's Zoo and Wild animal medicine.

REFERENCES

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