

Behavior Seasonal of Parasites in 5 Species of Psittacines Guacamaya Militar (*Ara militaris*), Loro Frenteazul (*Amazona aestiva*), Loro Copete Rojo (*Amazona autumnalis*), Loro Montañés (*Amazona finschi*) and Perico Atolero (*Aratinga canicularis*) in Captivity in Jalisco, México.

Eliab De La Cruz Baltazar*

Zoológico Rancho Bonito. Jalisco, México

*Corresponding Author: Eliab De La Cruz Baltazar, Zoológico Rancho Bonito. Jalisco, México.

Received: December 21, 2018; Published: December 28, 2018

Abstract

With the objective of identifying the types of present parasites and their environmental preferences in 5 psittacines species (*Ara militaris*, *Amazona aestiva*, *Amazona autumnalis*, *Amazona Finschi* and *Aratinga canicularis*), it was carried out a traverse investigation, to study the effect of the humidity and the environmental temperature on the presence of gastrointestinal parasites, they were carried out fecal tests once a month, during 12 months analyzing 60 excrement samples using the Technique of Willis and direct observation with Lugol with increase of 40X, took data of humidity and environmental temperature every month to the captive wild birds in *Ara militaris*, the observed parasitic gender was of mature *Nematodes* with 91% of presence, *Ascaridia* spp 66%, *Cestodes adults* 50%, *Tetramers* spp 41% and *Eimeria* spp 25%, in *Amazona finschi*, the observed presence were cestodes mature 91%, nematodes mature 75%, *Raillentina* spp 41%, *Hymenolepis* spp and *Eimeria* spp 33%. For *Amazona autumnalis* to 21°C, it was more abundant in all the parasitic goods and in *Amazona aestiva* the presence of mature *Nematodes* was of 33% in temperatures from 13°C to 18.8°C and superior temperatures (19°C at 27°C), one observes in 0.83%, in *Aratinga canicularis* there was no significant difference, since of the 13°C at the 20°C 29 parasites were observed and of the 21°C at the 27°C 30 were observed.

Keywords: Samplings tests; Preferences; Present; Psittacines

Introduction

The wild birds are host of great variety of parasites however few works exist about the species of parasites that attack these animals in captivity, (Acuña and Hinojosa, 2005). Among the numerous problems of health that affect the wild birds, the parasitic illnesses stand out like one of the most frequent as it gave Fabbio, (1996). Lim., *et al.* (2008), it points out that the occurrence of parasites can vary according to the handling type and administered treatments,

regarding this, Epstein (2002), he mentions that the birds among other alive beings are indicative biological of the environmental contamination and of the illnesses that are in a certain place. For the study of anything species in particular and their later conservation is fundamental to have the knowledge of the natural atmosphere that surrounds it, (Parada 2000). According to Troncoso., *et al.* (2013) there are few studies on the

Citation: Eliab De La Cruz Baltazar. (2018). Behavior Seasonal of Parasites in 5 Species of Psittacines Guacamaya Militar (*Ara militaris*), Loro Frenteazul (*Amazona aestiva*), Loro Copete Rojo (*Amazona autumnalis*), Loro Montañés (*Amazona finschi*) and Perico Atolero (*Aratinga canicularis*) in Captivity in Jalisco, México. *Archives of Veterinary and Animal Sciences* 1(1).

microorganisms of the gastrointestinal tract of the psittacines neotropicales, but it is possible that some of the microorganisms that compose it can be zoonotic. The wild birds are hosts of a great variety of parasites, but few studies carried out in zoological exist and centers of rehabilitation of wild fauna, (Octavio, *et al.* 2013), many birds maintained in open aviary are easily infected by grounds of free wild birds which can contain a great number of parasites, (Cole, 2007), According to Martínez (2006), the captive and small populations are, particularly, susceptible to stochastic processes, including buds of illnesses that can end up causing them the death. Frequently *Trichomonas* spp., in the grounds of asymptomatic psittacines, (Samour, 2008), according to Müller, Greinert and Silva, (2005), most of the intestinal parasitic infections are asymptomatic, the young animals infected can be however gravely and to manifest illness signs. Blood and Rodostits (1992) they point out that the climate is an important factor so that they happen the infections for parasites. According to Beltrán, Angulo and González, (2009), the effect of the climate on the parasitic epidemiology is governed, mainly, for the humidity, that is to say, it is related with the patterns of the pluvial precipitation, to that which Gállego (2007), he mentions that, the environment plays a very important paper in to allow or to impede the development of the parasites in certain geographical areas. In Mexico few studies exist in populations of wild birds in captivity, for such a reason, presently work you estimate the parasitic frequency in 5 species of wild birds under captivity conditions in the state of Jalisco, Mexico.

Materials and Methods

They were carried out samplings fecal tests once a month, during 12 months, to a group of wild birds under captivity conditions, the population consisted of, *Amazona finschi* (n=3), *Amazona aestiva* (n=1), *Amazona autumnalis* (n=4), *Aratinga canicularis* (n=1) and *Ara militaris* (n=8), it was analyzed a total of 60 excrement samples using the Technique of Willis and direct observation with Lugol with increase of 40X, they took the environmental data as humidity and environmental temperature during every month.

Experimental design

Was carried out a traverse investigation, to study the effect of the stations on the presence of gastrointestinal parasites in the captive wild birds, that is to say that is related the problem with characteristic climatologically specific in certain moments. For it, it was considered in a combined way every month of the year of study, according to Pineda, Alvarado and Canales, (1994), a traverse

investigation is carried out when “the variables are studied, simultaneously, in certain moment, making a cut in the time”. It was also carried out a study correlational, because this it tries to verify the possible relationship between the climatic factors and the presence of parasites in the different months of the year of study. For Tamayo and Tamayo (1999) “In this investigation, it is pursued, fundamentally, to determine the grade in the one which the variations in one or several factors are concomitant with the variation in other or other factors”. The variables of this investigation were the following ones: 1) factors of the environment; temperature and environmental humidity, which were measured every month during 12 months, (as independent variable) and, 2) the presence of the gastrointestinal parasites, (as the dependent variable). All the materials and methods that are used to complete the study should be mentioned.

Results and Discussion

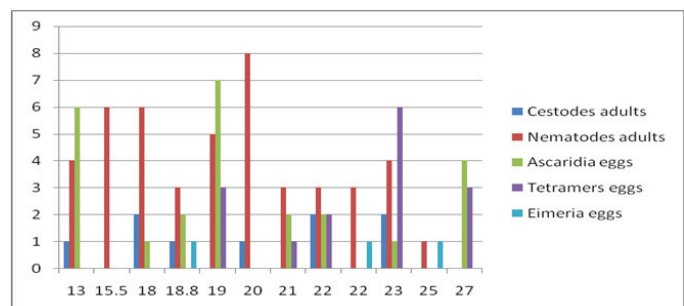


Figure 1: For the case of the copies of *Ara militaris* the following figure shows us the presence of mature parasites and eggs, in the 12 months with temperature of the 13°C up to the 27°C.

In the figure 1 are observed that the most frequent parasitic gender found in the 12 months of sampling, was the mature Nematodes with 91% of presence, continued by eggs of *Ascaridia* spp with 66%, adults Cestodes in 50%, eggs of *Tetramers* spp in 41% and *Eimeria* spp in 25%.

The previous table is observed that of the 12 samplings carried out during the year, in the case of *Amazona finschi*, the parasitic gender with more observed presence, they were the mature cestodes with 11 observations of the 12 samples, giving 91%, followed by the mature nematodes with 75% of presence, *Raillientina* spp with 41%, *Hymenolepis* spp and *Eimeria* spp with 33%.

Citation: Eliab De La Cruz Baltazar. (2018). Behavior Seasonal of Parasites in 5 Species of Psittacines Guacamaya Militar (*Ara militaris*), Loro Frenteazul (*Amazona aestiva*), Loro Copete Rojo (*Amazona autumnalis*), Loro Montañés (*Amazona finschi*) and Perico Atolero (*Aratinga canicularis*) in Captivity in Jalisco, México. *Archives of Veterinary and Animal Sciences* 1(1).

Parasitic gender	Number of samples	Observed positives	%
Cestodes adults	12	11	91%
Nematodes adults	12	9	75%
<i>Hymenolepis</i> spp	12	4	33%
<i>Raillientina</i> spp	12	5	41%
<i>Eimeria</i> spp	12	4	33%

Table 1: In this table the percentage of parasitic presence is shown in *Amazona finschi* during the 12 samplings that correspond to the 12 months of the year.

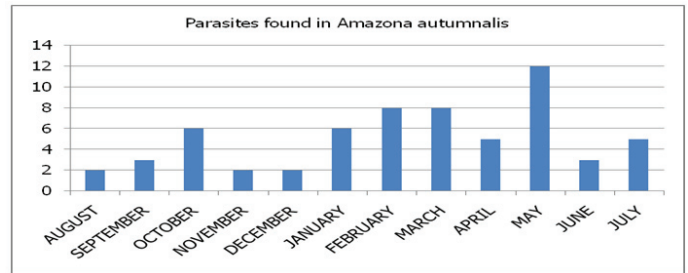


Figure 2: For the case of *Amazona autumnalis* it is observed that in the month of May with temperature of 21°C was more abundant in all the parasitic genders.

The previous figure is observed that during the months of November and December with temperatures of 18.8°C and 15.5°C the parasitic presence went respectively, smaller to the months of February and March with temperatures of 13°C and 22°C respectively.

As it is observed in the previous table the presence of mature Nematodes it was more observed in 33% in temperatures from 13°C to 18.8°C, while to superior temperatures (19°C at 27°C), alone one observes in 0.83%.

Temp°C	Nematodes	Cestodes	<i>Hymenolepis</i> spp	<i>Raillientina</i> spp	<i>Eimeria</i> spp	<i>Ascaridia</i> spp
13°C	+	+	-	-	-	+
15.5°C	+	+	-	+	-	-
18°C	+	+	-	-	-	+
18.8°C	+	+	-	-	-	-
19°C	-	+	-	-	-	-
20°C	-	+	-	-	-	+
21°C	-	+	-	-	-	+
22°C	-	+	-	-	-	-
22°C	-	+	-	+	-	-
23°C	-	+	-	-	-	+
25°C	+	-	+	-	-	+
27°C	-	+	-	-	-	+

Table 2: In the case of *Amazona aestiva* the following table shows us the positivity differences in the different monthly temperatures.

	13°	15.5°	18°	18.8°	19°	20°	21°	22°	22°	23°	25°	27°
Nematodes adults	2	2	2	3	5	2	5	5	3	3	0	2
Cestodes adults	0	1	2	0	0	0	0	3	0	0	0	0
Ascaridia eggs	1	0	0	0	0	1	0	0	3	0	0	1
Tetramers eggs	0	4	3	0	1	0	0	0	0	3	0	0
Eimeria eggs	0	0	0	0	0	0	0	0	1	0	0	1
Total	3	7	7	3	6	3	5	8	7	6	0	4

Table 3: It shows us the quantity of mature parasites and eggs in *Aratinga canicularis* in the different temperatures during the year of sampling.

Citation: Eliab De La Cruz Baltazar. (2018). Behavior Seasonal of Parasites in 5 Species of Psittacines Guacamaya Militar (*Ara militaris*), Loro Frentezul (*Amazona aestiva*), Loro Copete Rojo (*Amazona autumnalis*), Loro Montañés (*Amazona finschi*) and Perico Atolero (*Aratinga canicularis*) in Captivity in Jalisco, México. *Archives of Veterinary and Animal Sciences* 1(1).

As we can observe in the table 3, there was no significant difference since in the difference of temperature from the 13°C to the 20°C (that was the average of temperature) 29 parasites were observed and of the 21°C at the 27°C were observed 30 parasitic goods.

Conclusion

- For *Ara militaris* the most opposing parasitic gender was of mature Nematodes with 91% of presence, continued by eggs of *Ascaridia* spp with 66%, Cestodes adults in 50%, eggs of *Tetramers* spp in 41% and *Eimeria* spp in 25%.
- In *Amazona autumnalis*, during the months of November and December with temperatures of 18.8°C and 15.5°C the parasitic presence went smaller to the months of February and March with temperatures of 13°C and 22°C this coincides respectively, with that carried out by Gurler et al., (2010), where he found a decrease during the autumn of parasitic infections in birds of a zoological one of Turkey.
- In the case of *Amazona finschi*, the parasitic gender with more observed presence, they were the mature cestodes with 11 observations of the 12 samples, giving 91%, followed by the mature nematodes with 75% of presence, *Raillientina* spp with 41%, *Hymenolepis* spp and *Eimeria* spp with 33%.
- In the case of *Amazona aestiva* the presence of mature Nematodes was more observed in 33% in temperatures from 13°C to 18.8°C, while to superior temperatures (19°C at 27°C), alone one observes in 0.83%, what agrees with the works carried out by Opara et al., (2010) and Raja et al., (2014).
- In *Aratinga canicularis* there was no significant difference since in the difference of temperature from the 13°C to the 20°C (that was the average of temperature) 29 parasites were observed and of the 21°C at the 27°C were observed 30 parasitic goods.
- When carrying out a seasonal identification of the parasites of the captive wild birds, it allowed us to know the epidemic status of the birds and with it, to develop preventive, therapeutic measures and of adapted control, diminishing with this the negative effects that have the parasites on the birds and improving their quality of life, besides diminishing the risk of transmitting pathogens to the human beings in contact with these animals.

Conflict of interest

There are not conflict of interest exists.

References

1. Acuña D; Hinojosa A. (2005). "Estado actual del conocimiento de helmintos en aves silvestres de Chile". *Gayana*. 69 (2). 241-253.
2. Beltrán L., Angulo S. y González J.L. (2009). "Uso de metodologías de censos muestrales indirectos de fecas para evaluar endoparásitos en mamíferos silvestres: Un ensayo en la Reserva Privada de San Miguelito, Santa Cruz, Bolivia". *Ecología en Bolivia*. 44(1). 56-61. ISSN 1605-2528.
3. Blood D. y Radostits O. (1992). "Enfermedades del ganado vacuno, ovino, porcino, equino y caprino". (7a edición). México. Editorial Interamericana. 26. 1093-1140.
4. Coles B.H. (2007). "Essentials of Avian Medicine and Surgery". Third Ed. Blackwell Publishing. pp-90.
5. Di Fabbio J. "Ectoparásitos em aves". *Avicultura Industrial*, julio (1996). 46-48.
6. Epstein P. (2002). "Biodiversity, Climate Change, and Emerging Infectious Diseases". In: *Conservation Medicine. Ecological Health in Practice*. Oxford University Press. Inc. New York.
7. Gállego B. J. (2007). "Manual de Parasitología. Morfología y Biología de los Parásitos de interés sanitario" (2a edición). España. Publicacions i edicions. Universitat de Barcelona.
8. Gurler A., et al. (2010). "Helminths of mammals and birds at the Samsun Zoological Garden, Turkey". *J. Zoo. Wildl. Med.* 41(2). 218-223.
9. Lim Y.A., et al. "Intestinal parasites in various animals at a zoo in Malaysia". *Vet. Parasitol.* 157 (2008). 154-159.
10. Martínez F. (2006). "Aspectos veterinarios de la conservación ex situ. Curso Conservación Exsitu del Lince Ibérico".
11. Müller G.C.K; Greinert J.A. y Silva F.H.H. (2005). "Fre-qüência de parasitas intestinais em felinos mantidos em zoológicos". *Arquivos Brasileiros de Medicina Veterinária e Zootecnia*, 57(4). 559-561.
12. Octavio E., et al. (2013). "Nemaodes in Wild Birds of the private conservation area "GOTAS DE AGUA" Jaen, Cajamarca, Peru". *Asociación Peruana de Helminología e Invertebrados Afines (APHIA)* ISSN: 2218-6425 impreso / ISSN: 1995-1043 on line *Neotrop. Helminthol* 7(2).
13. Opara M., et al. (2010). "Gastrointestinal parasitism in captive animals at the zoological garden, Nekede Owerri, southeast Nigeria". *Report and opinion*. 2(5). 21-28.

Citation: Eliab De La Cruz Baltazar. (2018). Behavior Seasonal of Parasites in 5 Species of Psittácines Guacamaya Militar (*Ara militaris*), Loro Frentezazul (*Amazona aestiva*), Loro Copete Rojo (*Amazona autumnalis*), Loro Montañés (*Amazona finschi*) and Perico Atolero (*Aratinga canicularis*) in Captivity in Jalisco, México. *Archives of Veterinary and Animal Sciences* 1(1).

14. Parada M. (2000). "Herramientas de Conservación en Ambientes Lacustres Salinos del Norte de Chile". Encuentro universitario sobre conservación y manejo de fauna silvestre, Universidad de Chile. Santiago, Chile.
15. Pineda E., Alvarado E. y De Canales F. (1994). "Metodología de la Investigación. 2a Ed". Washington, D.C. E.U.A. Organización Panamericana de la Salud. Pp-225.

Benefits of Publishing with EScientific Publishers:

- ❖ Swift Peer Review
- ❖ Freely accessible online immediately upon publication
- ❖ Global archiving of articles
- ❖ Authors Retain Copyrights
- ❖ Visibility through different online platforms

Submit your Paper at:

<https://escientificpublishers.com/submission>