

DOG HEALTH AND ZONOTIC DISEASE RISK IN AN INDIGENOUS COMMUNITY IN GUYANA, SOUTH AMERICA



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BACKGROUND

- Dogs can act as bridges of disease between wildlife and humans.
- Among indigenous Waiwai in Amazonia, dogs are highly valued culturally, for hunting, as companions, and as trade objects.
- However, dogs frequently scavenge entrails of bushmeat and receive no veterinary care.

The aim of this study is to characterize Waiwai dog health and identify transmission pathways between wildlife, dogs and humans.

Hypothesis: Dogs serve as bridge hosts for wildlife pathogens and as a source of human disease.

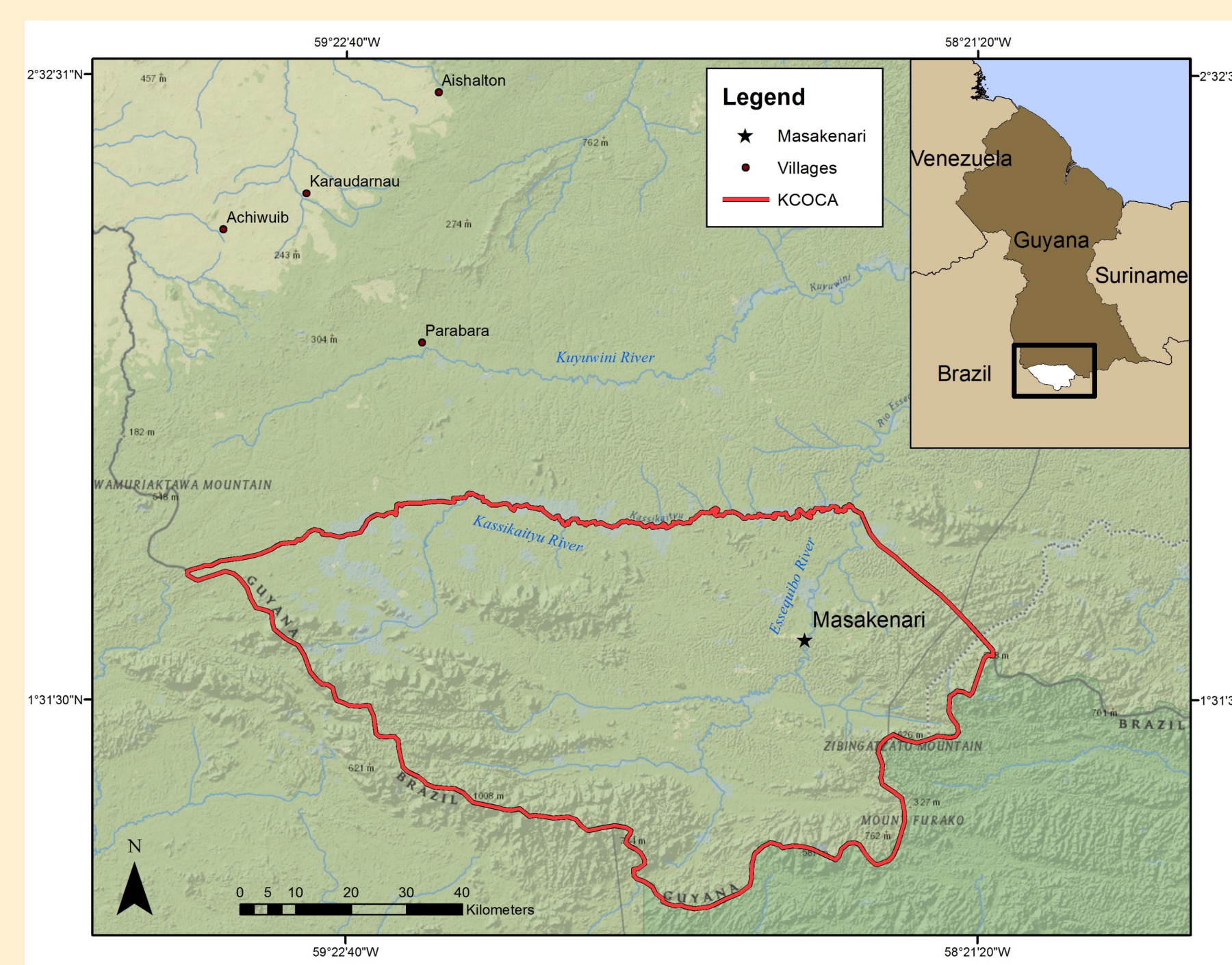
Prediction #1: Dogs will exhibit clinical signs of disease, including ectoparasites and poor body condition.

Prediction #2: Dogs will exhibit a high prevalence of *Leishmaniasis*, *Trypanosoma cruzi*, *Leptospirosis* and *Brucella canis*.

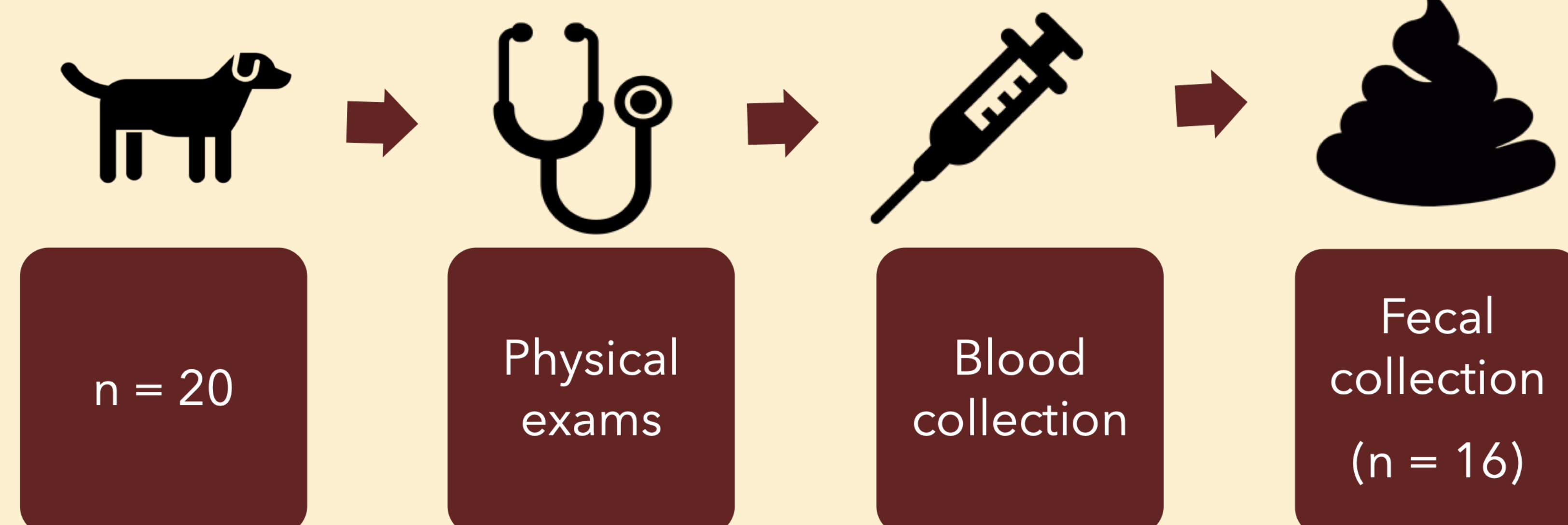
Prediction #3: Dogs will show evidence of anemia, infection/inflammation and hemoparasites.

STUDY SITE

- Konashen Community Owned Conservation Area (KCOCA) is a 625,000HA indigenous reserve in Guyana, South America.
- The KCOCA is owned and managed by 225 indigenous Waiwai concentrated in the village of Masakenari.
- Approximately 60 dogs roam the village and reserve.



METHODS AND DIAGNOSTICS



- Whole Blood
 - PCV/TP
 - WBC/CBC
 - 4Dx
- Serum
 - *Leishmania* (IFA)
 - *Leptospira* (MAT)
 - *B. canis* (TAT)
 - *T. cruzi* (IFA)
- Fecal
 - Microscopy (parasites)
 - Microbiome
 - Molecular
 - *Echinococcus*
 - *Salmonella*
 - *Cryptosporidium*
 - *E. histolytica*
 - *E. coli*

RESULTS

	Mean	Median	Range	Serology & Physical Exam (PE) Findings	n = 20 (%)
Age	3yr	2yr	5mo-9yr	<i>Leishmania</i> (weak +) (IFA)	1 (5%)
Sex	M: 16 F: 4	--	--	<i>Leptospira</i> (MAT)	0 (0%)
BCS (1-9)	3.5	3.5	2.5 - 4	<i>T. cruzi</i> (IFA)	0 (0%)
WBC (count)	17,265	15,648	10,835 - 29,315	<i>B. canis</i> (TAT)	0 (0%)
PCV (%)	39.5	39.5	30 - 51	<i>D. immitis</i> (4Dx)	2 (10%)
TP (g/dL)	6.4	6.5	5.3 - 10	<i>E. canis</i> (4Dx)	2 (10%)
				<i>A. phagocytophilum/platys</i> (4Dx)	0 (0%)
				<i>B. burgdorferi</i> (4Dx)	0 (0%)
				Jigger fleas (<i>Tunga penetrans</i>) (PE)	16 (80%)
				Vampire bat (<i>Desmodontinae</i>) bites (PE)	3 (15%)

DISCUSSION

- Waiwai dogs were healthier than expected based on previous research at this site.
- Support for Prediction #1. The majority of dogs were in poor body condition and had ectoparasites.
- Little support for Prediction #2 & #3. The majority of dogs were negative on serology, and average PCV, TP, and WBC counts were within normal limits.
- However, serology and physical exams are limited in their ability to capture pathogen presence and current research involves deep sequencing of canine blood transcriptomes to better characterize blood-borne pathogens.
- Future research will investigate the dog microbiome and resistome, as well as the vampire bat-dog-human interface.