

Proposal for rabies surveillance in bats within the Caribbean

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Pre-REDIPRA Seminar "Rabies: pending challenges – an unfinished process"

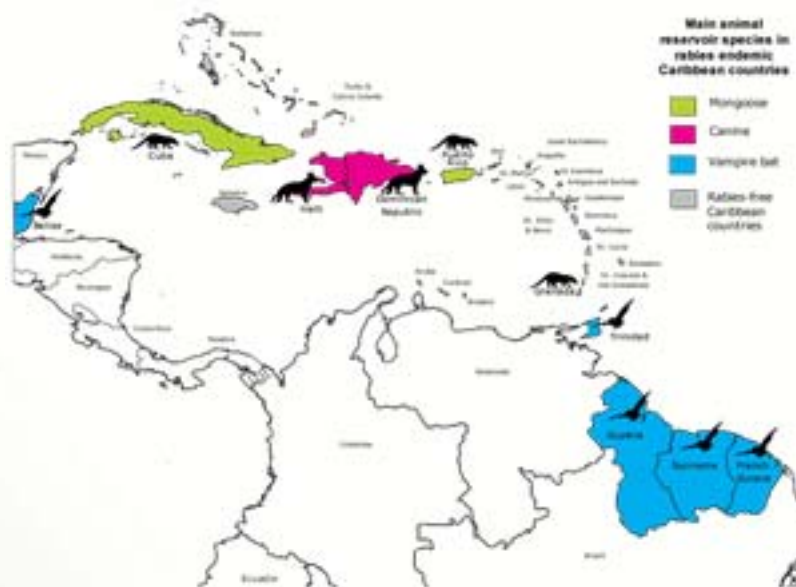
La Antigua, Guatemala, 28 November 2017



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Background

- Rabies virus is the only known lyssavirus circulating in the Americas



- In the Caribbean there are 10 countries and territories known to be endemic for rabies virus (3 main animal reservoirs)

Background

- The prevalence of bat-transmitted rabies is increasing within the Americas
- In Latin America human cases of bat-transmitted (vampire bats) rabies now exceeds cases of canine-transmitted rabies
- Most indigenous cases of human rabies in United States associated with bats (non-vampire)



Photo credit: Trinibats <http://www.trinibats.com>

Background

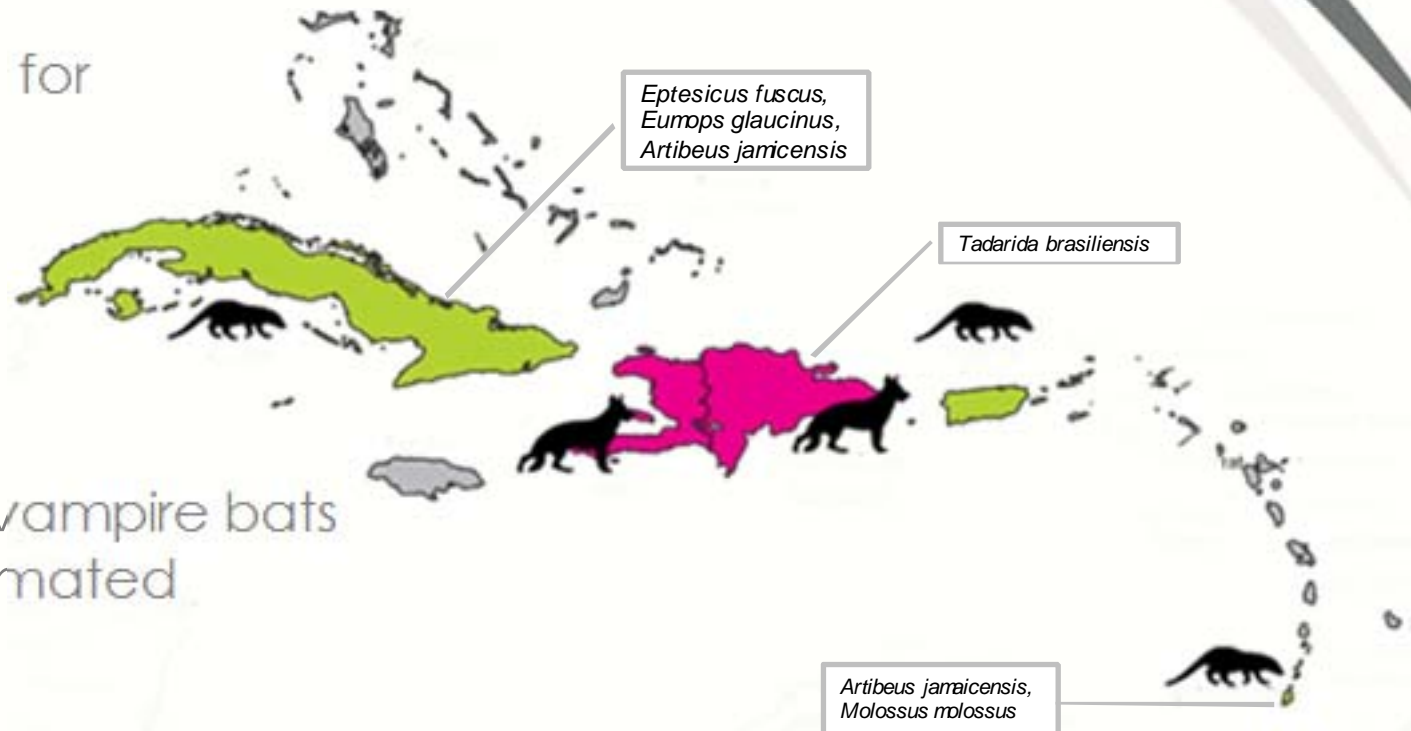
- In the Caribbean bat-transmitted rabies is endemic in Belize, French Guiana, Guyana, Suriname and Trinidad due to the distribution of the vampire bat



- Little to no surveillance is conducted in (non-vampire) bat populations of other countries and/or territories

Background

- Non-vampire bats positive for rabies in Cuba, DR and Grenada
- Risks posed by these non-vampire bats may have been underestimated



Background

- Wide distribution of some species of bats throughout the Caribbean

Tardarida brasiliensis

(Brazilian free tailed bat)



Artibeus jamaicensis

(Jamaican fruit eating bat)



- High dispersal due to natural migration and/or forced displacement

Background

- “Rabies-freedom” mostly based on historical absence not surveillance data
- Public health risk to persons exposed to bats in these countries is unknown
- Limited capacity for adequate public health response to potential rabies exposures
- Pose challenges to effective human PEP in these countries



Background

- US CDC travel advisories for Caribbean islands indicate that rabies is present in these bat populations

e.g. Jamaica: *“Rabies is present in bats in Jamaica. However, it is not a major risk to most travellers. CDC recommends rabies vaccine for only these groups.....”* CDC Taveler’s Health

- To date most of these countries have not done any bat surveillance to prove presence or absence of rabies virus
- Potential repercussions on the Caribbean tourism industry



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Caribbean Regional Workshop on Rabies Surveillance



- **Date and Venue:** Sept 20th – 21st 2017, Port of Spain, Trinidad
- **Participants:** including representatives of 10 Caribbean countries from government, academia and NGO sectors
- **Facilitators:**
CDC, PAHO/PANAFTOSA, CaribVET



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CaribVET (Caribbean Animal Health Network)

Collaborative network involving:

- Veterinary services, laboratories, research institutes, universities, regional/international organizations, NGOs, subject matter experts
- 34 Caribbean countries and territories

Objectives:

- To improve animal and veterinary public health in the Caribbean
- To improve knowledge on animal diseases and their distribution in the Caribbean
- Website: www.caribvet.net

CaribVET VPH WG: Rabies Subgroup



Dr. Alexandra Vokaty
Chair VPH WG



Dr. Linette Peters
Salmonella



Dr. Janine Seetahal
Rabies



Dr. Saed Rahaman
Leptospirosis



Caribbean Rabies Diagnostic Training Workshop (Grenada, 2014)



Development of Caribbean rabies public awareness materials (2015)



Caribbean webinar for physicians and other medical personnel (2017)



Pan American Health Organization



World Health Organization

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Workshop Objectives

- To provide information to participants on the WHO rabies risk classification system and the SIRVERA platform for the reporting of rabies cases
- To inform participants on the rabies situation in the Caribbean and to share information on rabies surveillance and control throughout the Caribbean
- To inform participants on current travel recommendations for the Caribbean
- To provide information on bat field techniques and rabies surveillance methods in bats

Workshop Objectives cont'd

- To develop surveillance guidelines for bat rabies in non-endemic countries in the Caribbean
- To present an eco-health risk map for bat transmitted rabies in the Caribbean region
- To evaluate current rabies diagnostic capacities within the Caribbean
- To develop a road-map towards the establishment of a regional rabies reference laboratory for the Caribbean

Caribbean Regional Workshop on Rabies Surveillance



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Field exercise in bat trapping and handling facilitated by the local bat conservation group Trinibats



Workshop Recommendations

General:

- Increase awareness of rabies post exposure prophylaxis recommendations (esp. among medical practitioners)
- Improve /establish rabies passive surveillance systems with efficient reporting, data collection and diagnostic testing
- Improve the availability of rabies biologics

Workshop Recommendations cont'd

Rabies non-endemic countries

- Develop a regional proposal for bat surveillance in historically 'rabies-free' countries to determine if rabies virus is circulating
- Identify participant countries and relevant institutions/personnel therein to conduct bat rabies surveillance
- Review existing regulations and policies pertinent to rabies (i.e. surveillance, vaccination, export/import of biological samples and reagents and biologics)

Workshop Recommendations cont'd

Rabies non-endemic countries

- Regional proposal for bat surveillance:
 - a) Justification for surveillance and choice of countries
 - b) National and regional support to implement
 - c) International support to conduct diagnostic testing
 - d) Country specific plans for conducting sampling
 - e) Potential sources of funding for diagnostic testing

Project proposal

- **Title:** Investigating rabies virus in non-vampire bats in the Caribbean



Photo credit: Jerome Foster

Project Goal

- **Goal:** to determine the rabies status among bat populations in Caribbean countries



Photo credit: Trinibats <http://www.trinibats.com/>



Photo credit: Trinibats <http://www.trinibats.com/>

Project Objectives

- To develop capacity for rabies surveillance in Caribbean countries (including diagnostic testing)
- To provide evidence to document the rabies status of Caribbean countries- to inform travel advisories and public health response
- To determine which countries have RABV in their bat populations and which bat species are RABV positive.

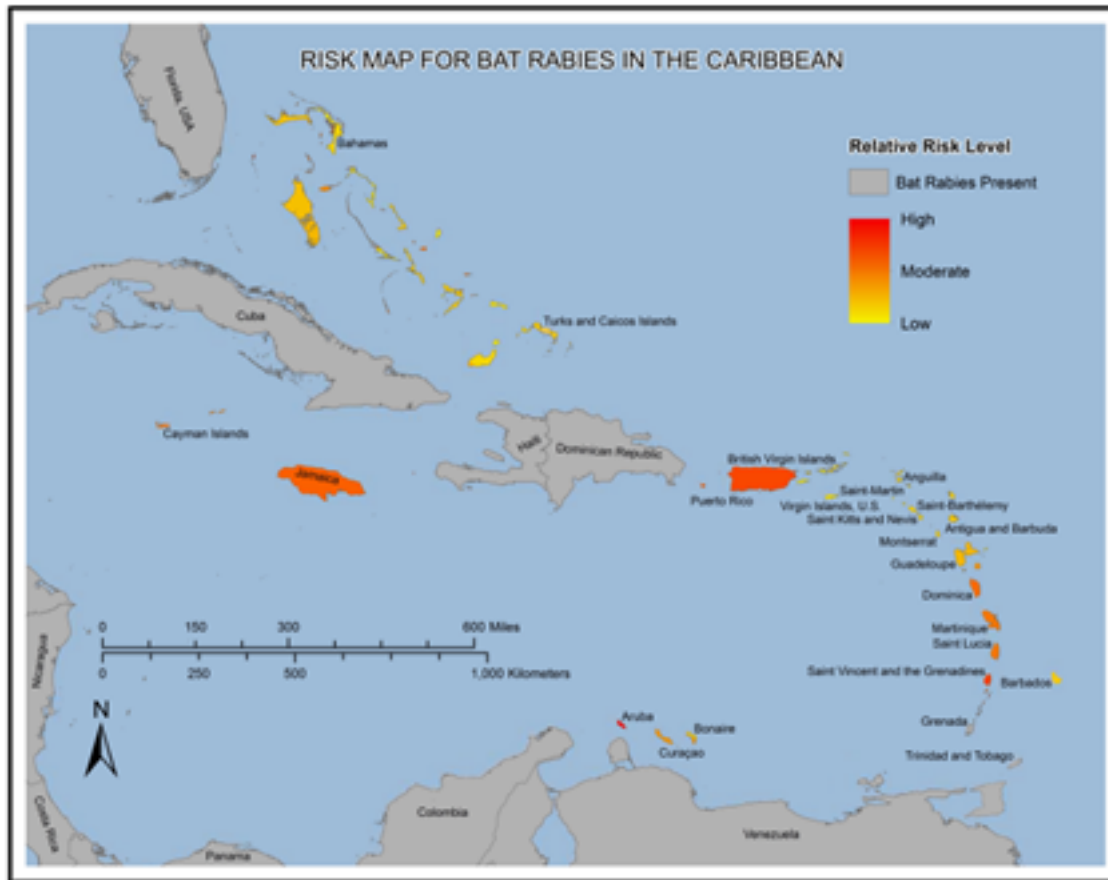
Project Objectives cont'd

- To attempt to isolate RABV from ill or dead bats and characterise the variants of the virus to determine their origin
- To develop and implement appropriate public health response capacities within Caribbean countries in event of rabies exposures

Eco-health risk map for bat rabies

- Risk factors were identified:
 - Proximity to a country with bat rabies
 - Number of bat species associated with rabies
 - Number of bat species present
 - Presence of terrestrial rabies
 - Land area of island
- Factors were weighted against each other using the AHP process and risk categories calculated
- Country specific risk values derived and mapped

Eco-health risk map for bat rabies



Produced by Dr. Clint Morgan (draft October 2017)



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Project Strategy

1. Validation of low cost methods for RABV surveillance in bats
2. Selection and recruitment of countries to participate in the study:
 - Select based on the CDC Caribbean eco-health risk map for bat rabies
 - Officially invite countries to participate
 - Request the submission of letters of support (local veterinary/wildlife authorities)

Project Strategy

3. Training workshops in bat identification, trapping, handling and sampling to be conducted in each participant country
4. Rabies awareness seminars for local physicians in each participant country on rabies pre-and post-exposure prophylaxis
5. Training workshop on rabies diagnostics (bat sample testing) for laboratory personnel from participant countries at UWI, School of Veterinary Medicine.

Project Strategy

6. Development and implementation of individual participant country surveillance plans based on resources available and bat species present on each island to include:
 - a. Resources available within country
 - b. Local bat ecology
 - c. Local and international legislation
 - d. Passive and Active surveillance protocols
 - e. Size of island and accessibility of bat roosts

Project Strategy

7. Rabies public awareness seminars for high-risk groups and the general public in each participant country based on the results of surveillance programs
8. Regional workshop to apprise Caribbean countries and international bodies on results of the project and advocate for policy and legislation development and or modification based on the results of the project

Expected results

- Improved capacity for rabies surveillance in bat populations within Caribbean islands
- Evidence of the absence or presence of RABV in bat populations on historically “rabies-free” Caribbean islands to better advise pre-and post-exposure recommendations for persons working with or otherwise exposed to bats

Expected results

- Increased awareness amongst medical practitioners of the rabies situation in their country and what to do in the event of human rabies exposures in accordance with recommendations provided by the World Health Organization
- Baseline data on the prevalence of rabies and RABV variants in bat populations within the Caribbean

Project partners



PAHO/WHO

Contact: Alexandra Vokaty, Sub-regional Advisor on VPH



University of the West Indies

Contact: Christopher Oura, Professor of Veterinary Virology



CaribVET

Contact: Jennifer Pradel, CaribVET Coordinator



CDC

Contact: Ryan Wallace, Rabies Epidemiology Unit Lead



Thank you!