Vector Hazard Report:
West Africa

Part 2: Sand Flies, Ticks and Host Densities

Information gathered from products of The Walter Reed Biosystematics Unit (WRBU)

Catalog of Subfamily Phlebotominae
VectorMap

WRAIR
Walter Reed Army Institute of Research
Soldier Health • World Health

WRBU
WALTER REED BIOSYSTEMATICS UNIT
Know the vector, know the threat

Table of Contents

1: Sand Fly-borne Diseases

Cutaneous Leishmaniasis

Visceral Leishmaniasis

Habitat Suitability Models

Notes on Medically Important Sand Flies

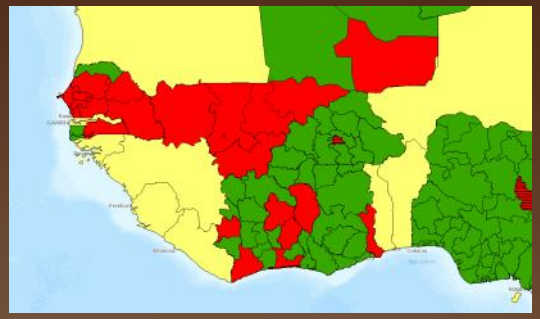
2: Tick Vectors

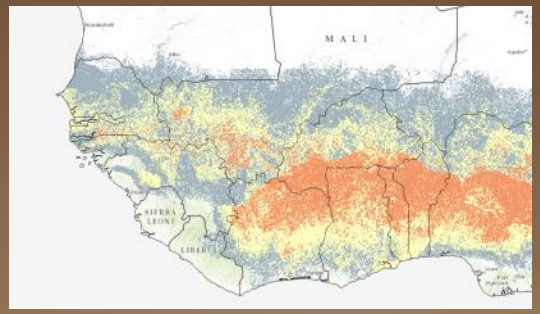
Habitat Suitability Models

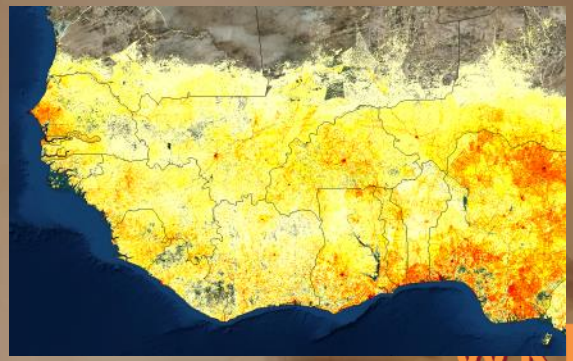
3: Host Densities

Human population density

Domestic animal population density







WRAIR
Walter Reed Army Institute of Research
Soldier Health • World Health

WRBU
WALTER REED BIOSYSTEMATICS UNIT
Know the vector, know the threat

Sand Fly-borne Diseases

Contents:

1.Sand Fly-borne Pathogens:

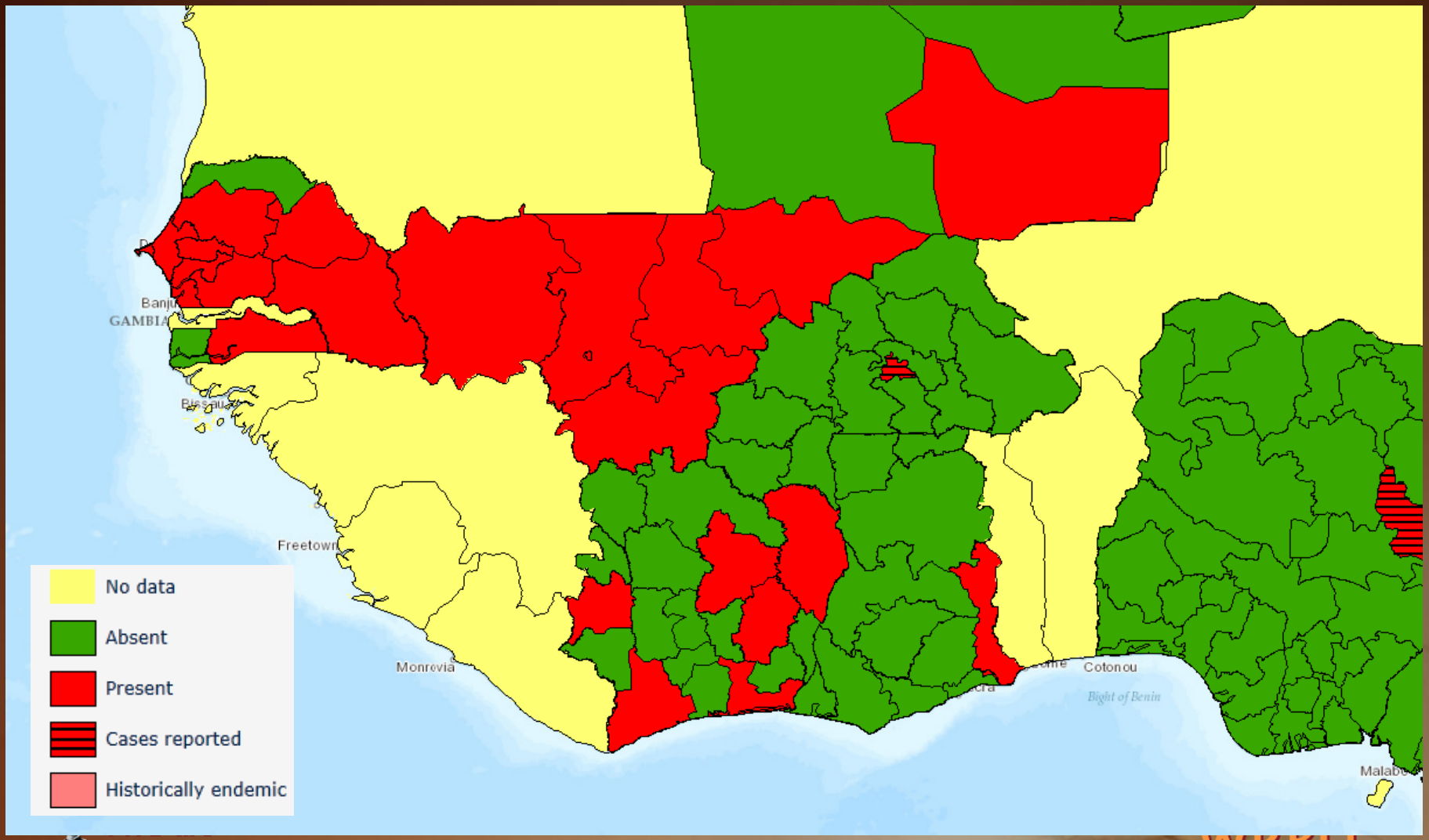
- Cutaneous Leishmaniasis
- Visceral Leishmaniasis

2.Vector Habitat Suitability Models:

Phlebotomus duboscqi
Phlebotomus orientalis
Sergentomyia adleri
Sergentomyia affinis
Sergentomyia africana
Sergentomyia antennata
Sergentomyia bedfordi
Sergentomyia clydei
Sergentomyia ingrami
Sergentomyia schwetzi

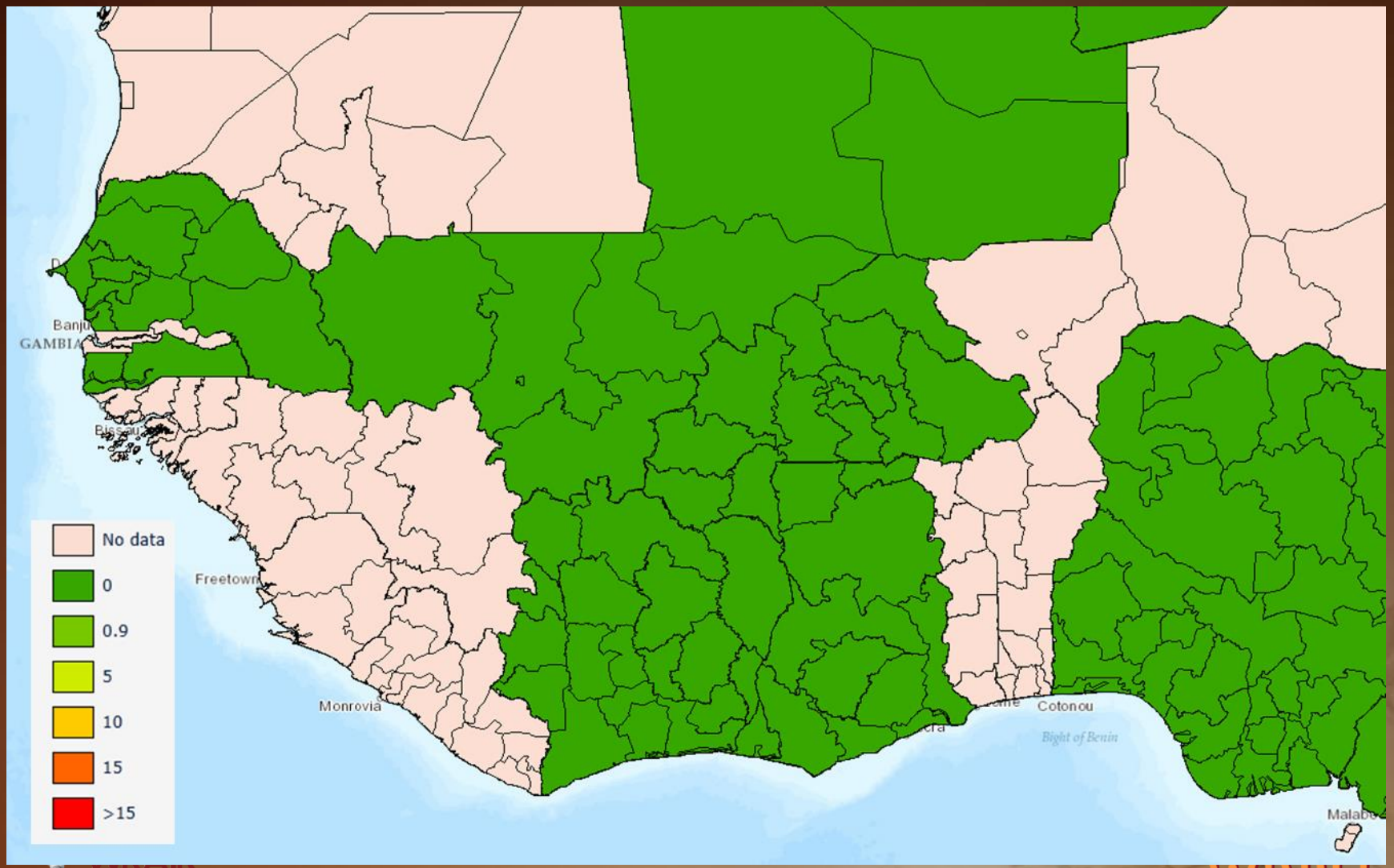
3. Notes on Medically Important Sand Flies

Estimates of Cutaneous Leishmaniasis Incidence, 2012



Back to Table of Contents

Estimates of Visceral Leishmaniasis Incidence, 2012



Back to Table of Contents

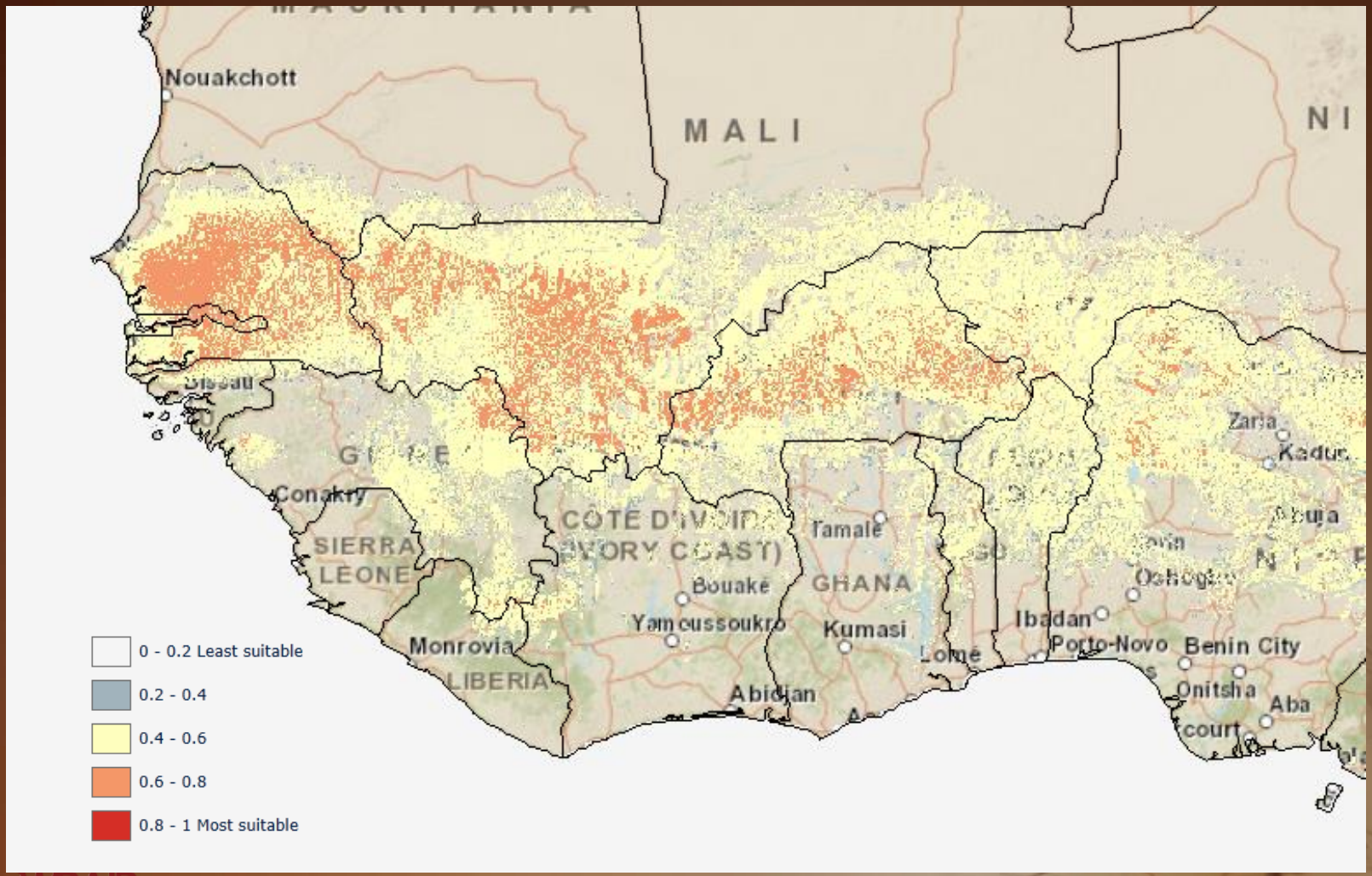
Visceral Leishmaniasis Endemic Areas, WHO 2010

Back to Table of Contents

Habitat suitability models: Sand Fly Vectors

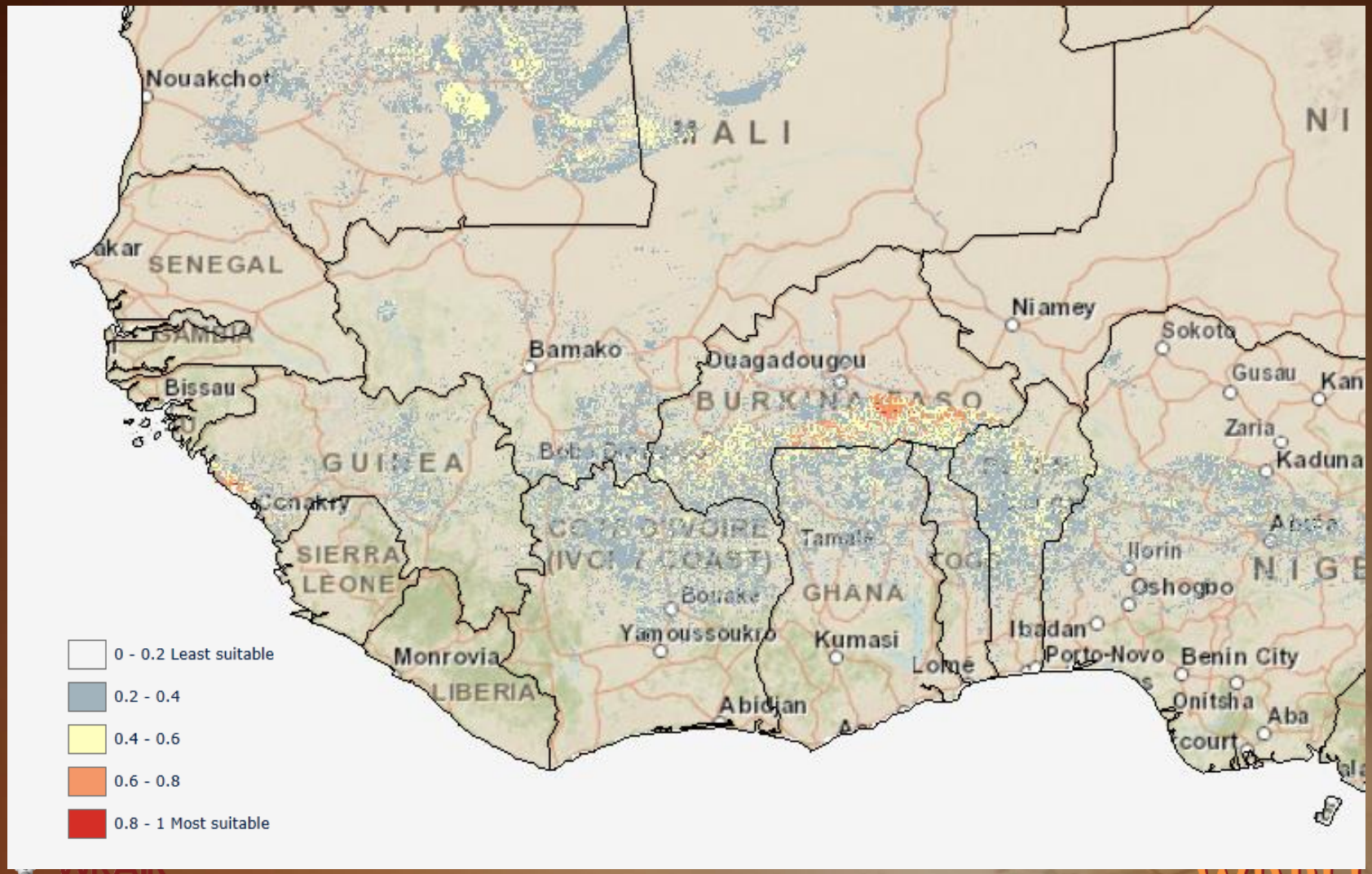
Back to Table of Contents

Habitat suitability model: *Phlebotomus duboscqi*



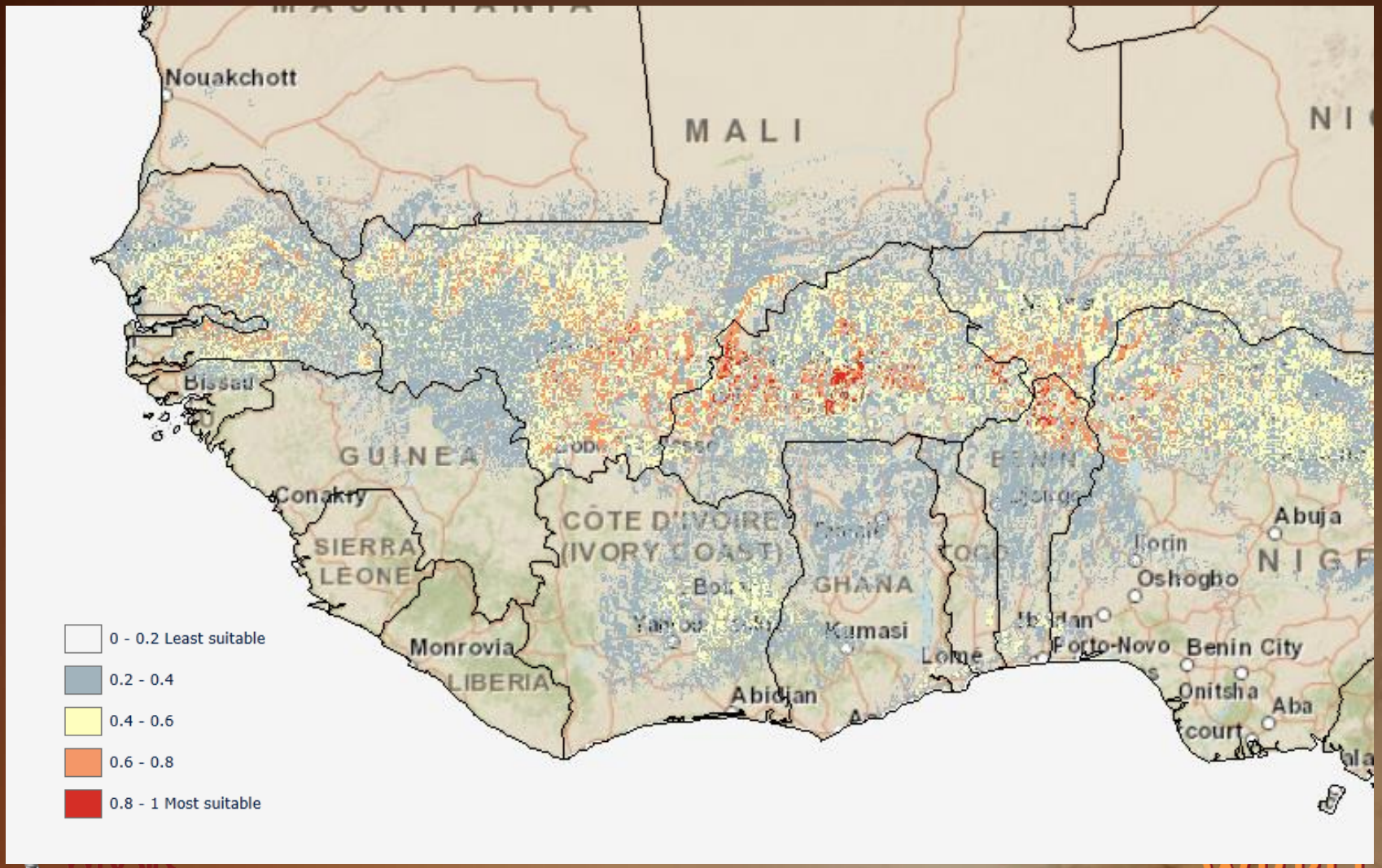
Back to Table of Contents

Habitat suitability model: *Phlebotomus orientalis*



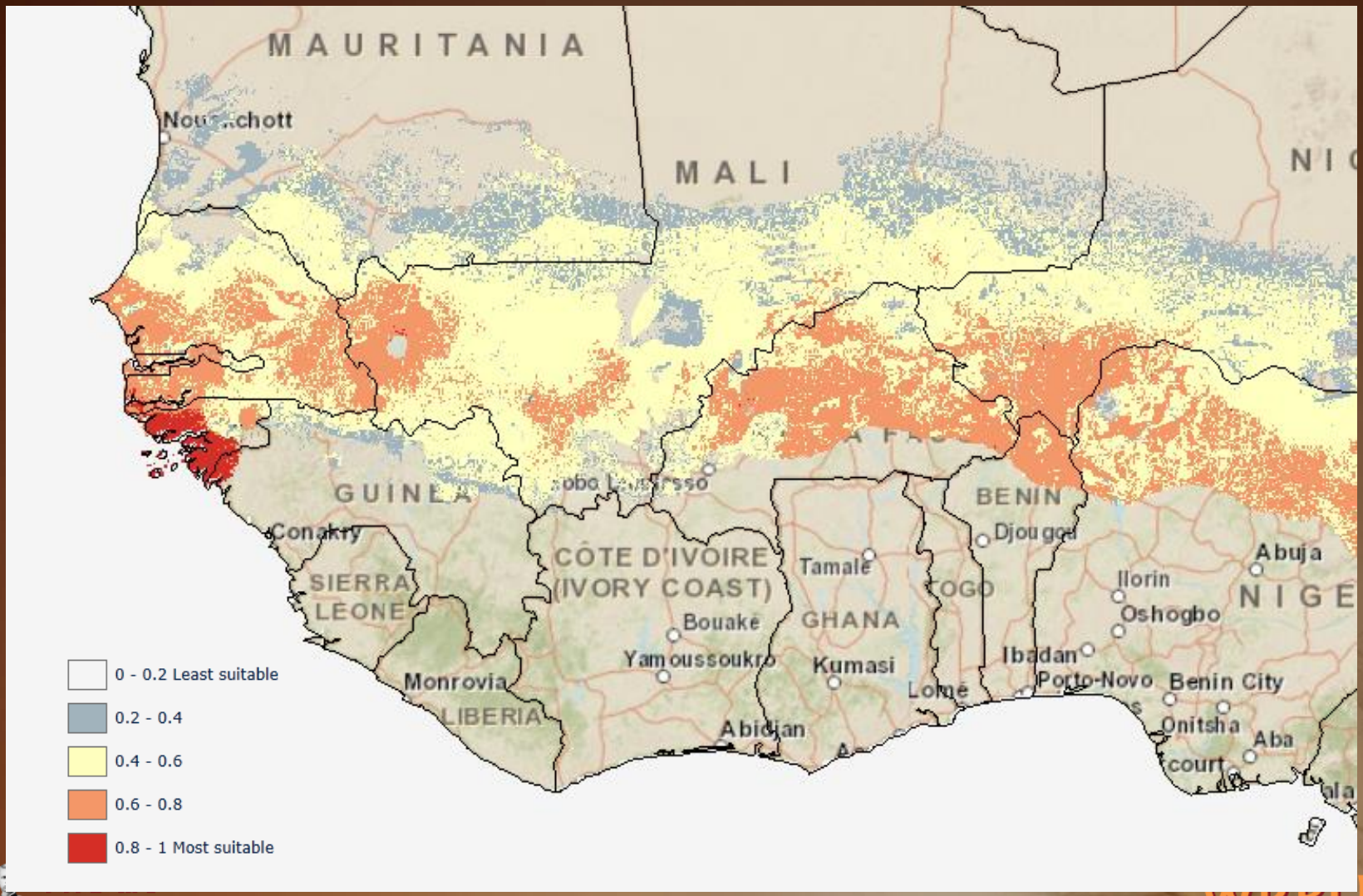
Back to Table of Contents

Habitat suitability model: *Sergentomyia adleri*



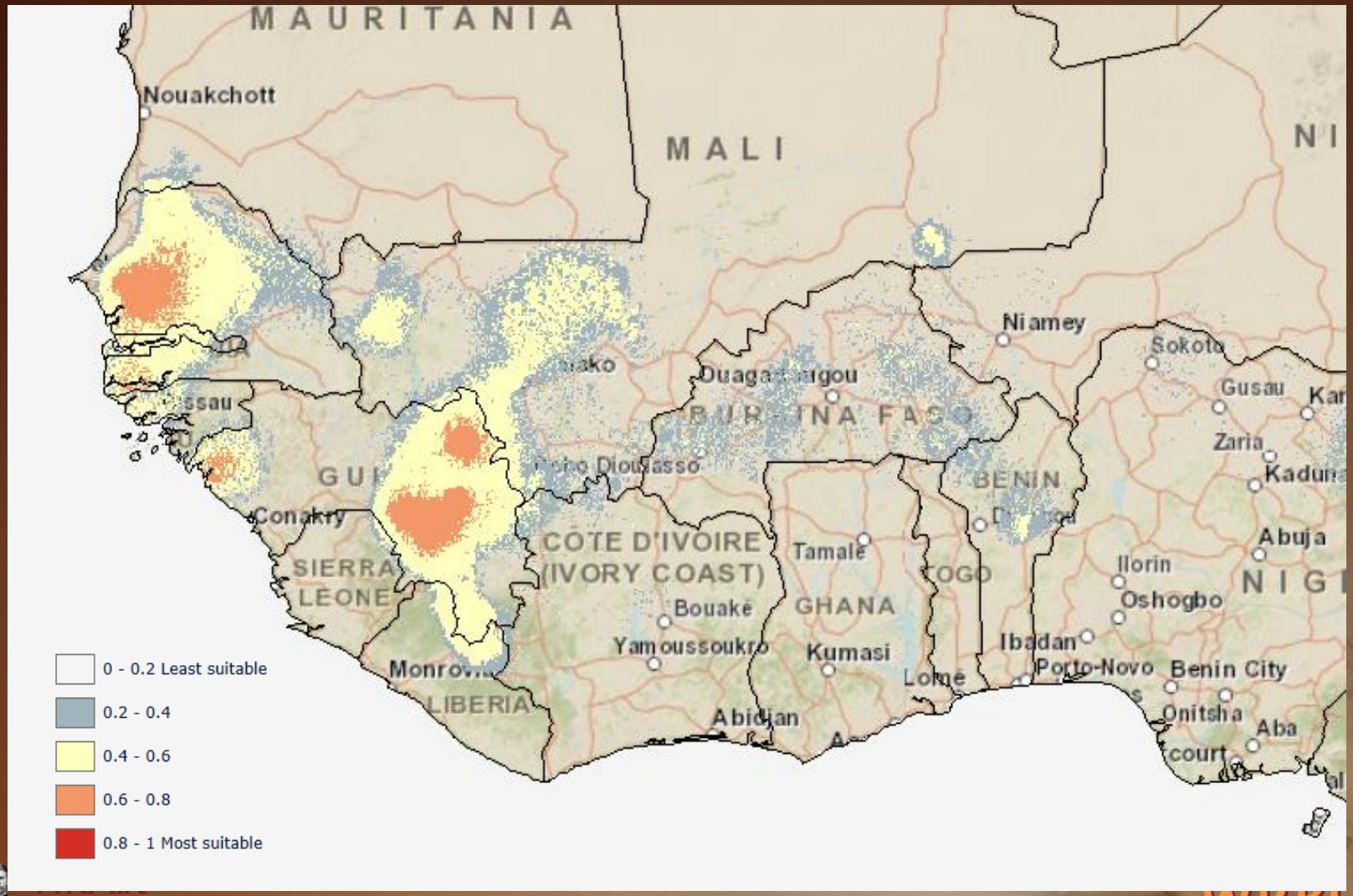
Back to Table of Contents

Habitat suitability model: *Sergentomyia affinis*



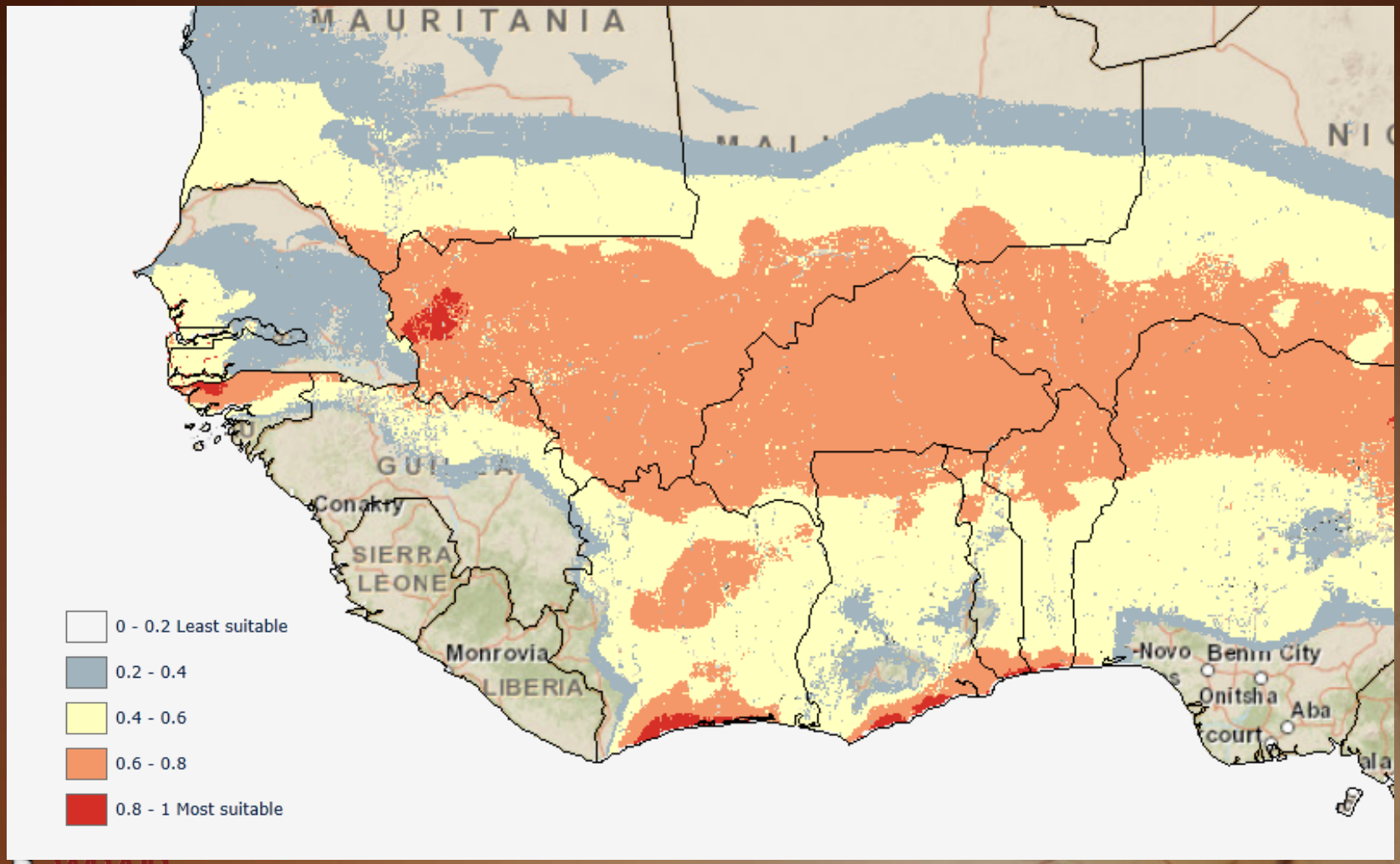
Back to Table of Contents

Habitat suitability model: *Sergentomyia africana*



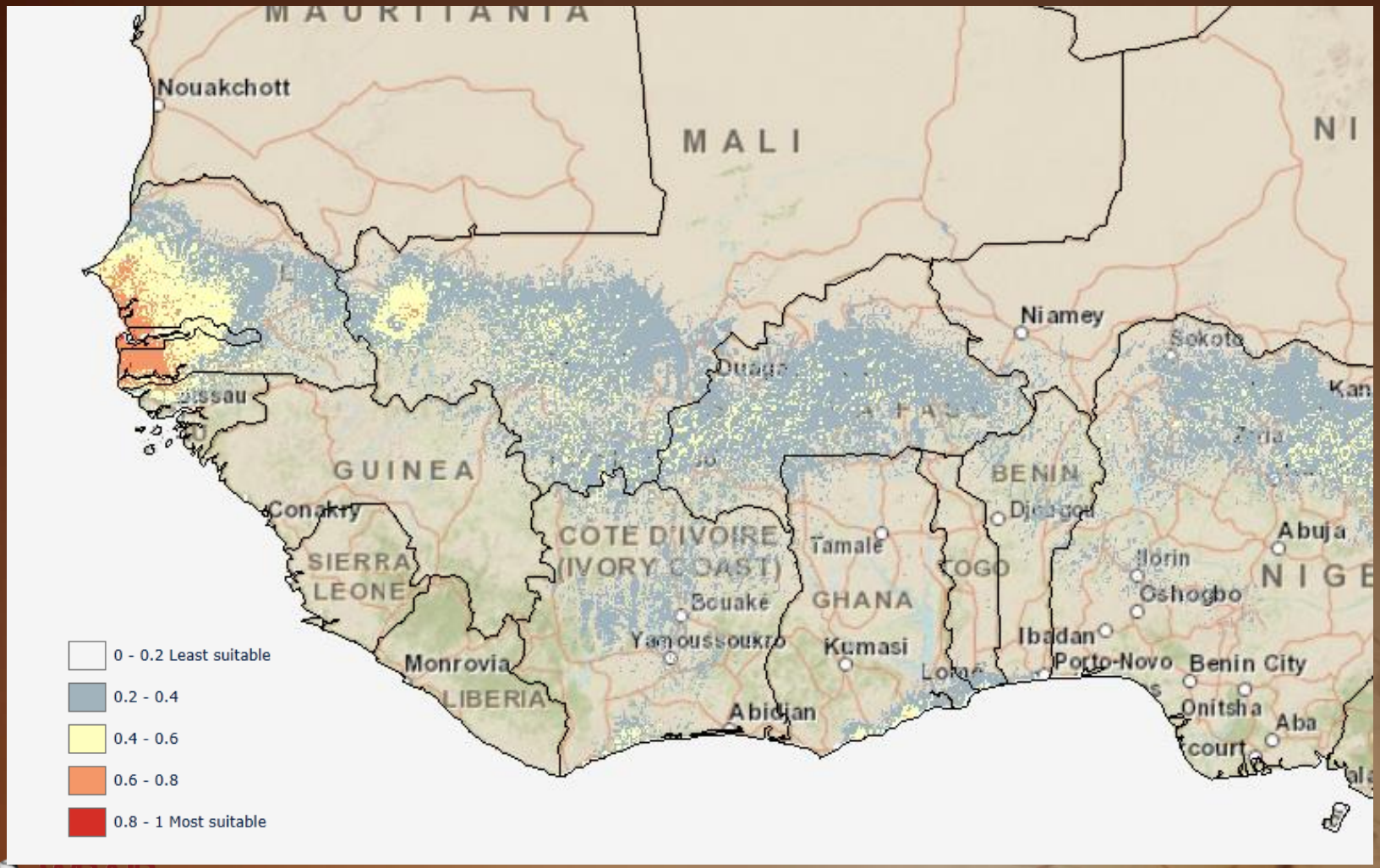
Back to Table of Contents

Habitat suitability model: *Sergentomyia antennata*



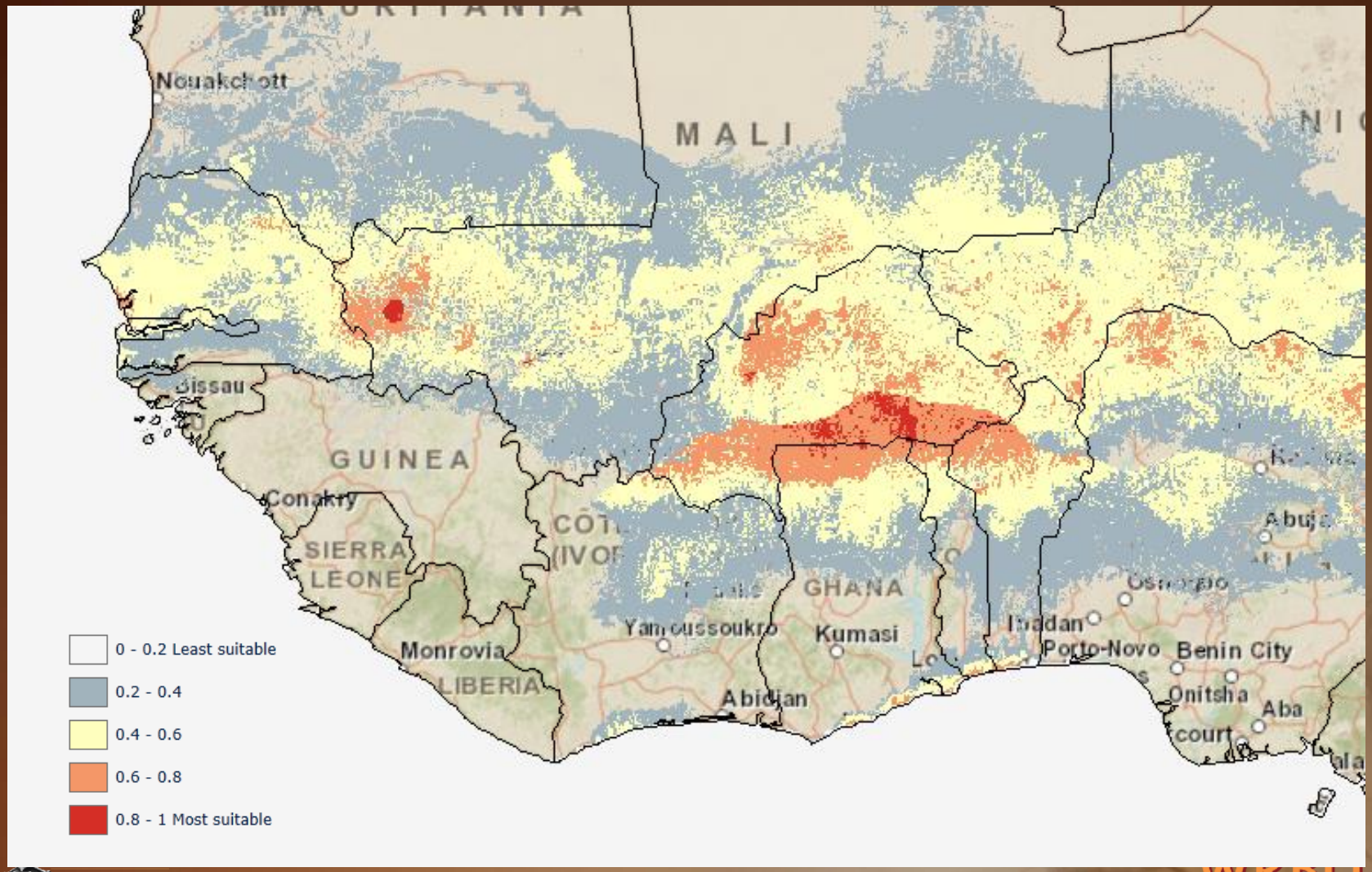
Back to Table of Contents

Habitat suitability model: *Sergentomyia bedfordi*



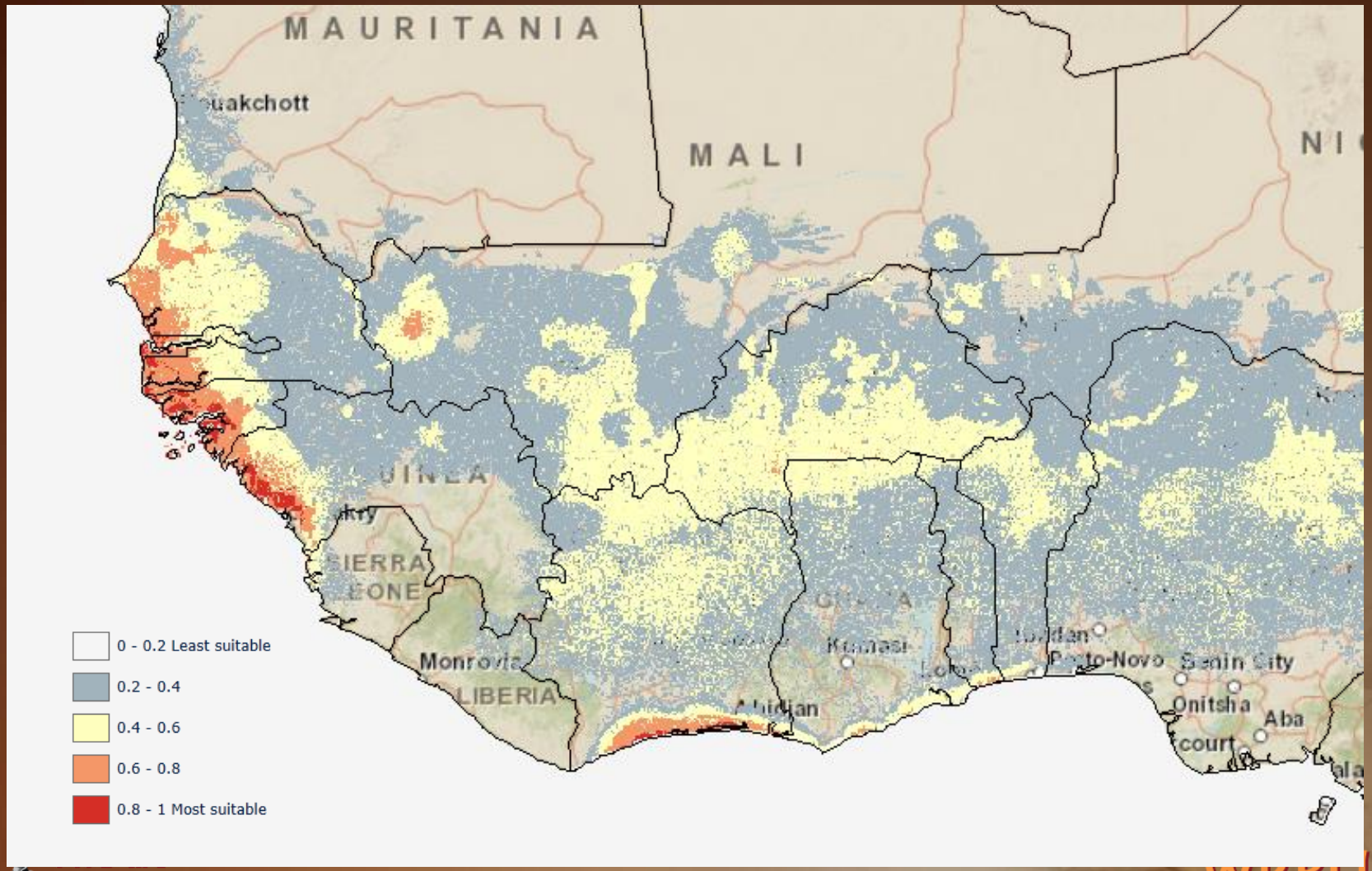
Back to Table of Contents

Habitat suitability model: *Sergentomyia clydei*



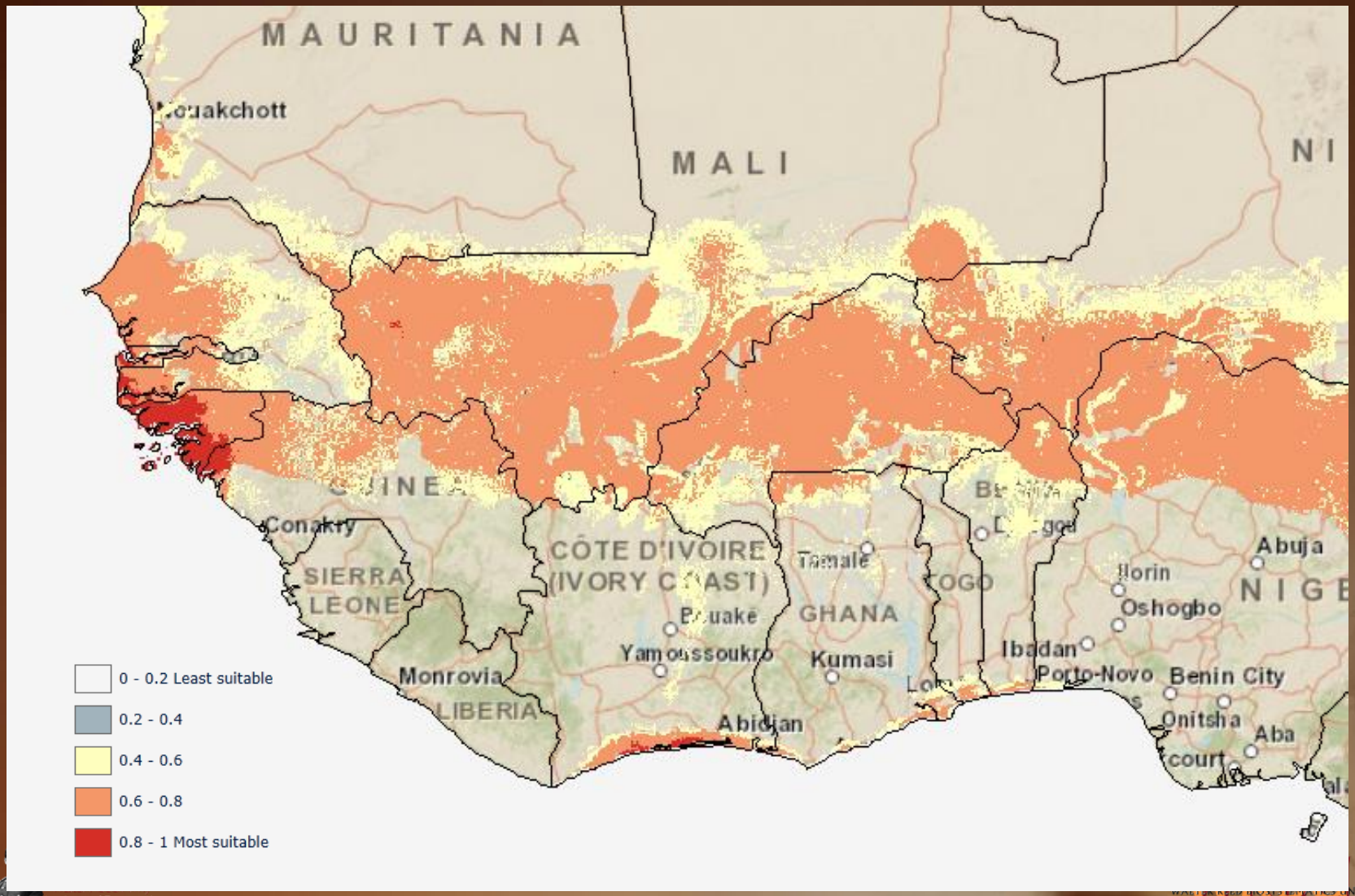
Back to Table of Contents

Habitat suitability model: *Sergentomyia ingrami*



Back to Table of Contents

Habitat suitability model: *Sergentomyia schwetzi*



Back to Table of Contents

Medical Importance

Phlebotomus orientalis

The vector of *L. donovani* (or *L. archibaldi*) and main man-biter in the Acacia-Balonites forests of Sudan (Hoogstraal & Heyneman, 1969; Killick-Kendrick, 1990).

Phlebotomus duboscqi

Proven vector of *L. major* in Senegal and Kenya and suspected vector throughout the Sahel region of Africa (Dedet et al., 1979; Killick-Kendrick, 1990).

Sergentomyia antennata

Frequently found infected with untyped promastigotes in Kenya, where it is abundant in termite hills and sometimes feeds on mammals (Kaddu, 1986; Mutinga, 1986; Mutinga et al., 1986a,b).

Sergentomyia clydei

Recorded feeding on mammals (includingerbils and man) in Chad, Nigeria, Sudan and Kenya, where frequently found infected with untyped promastigotes and believed to be the principal vector of Sauroleishrnania adleri (Abonnenc, 1972; Kaddu, 1986; Minter & Wijers, 1963; Mutinga, 1986; Southgate & Manson-Bahr, 1967). Suspected vector of S. hoogstraali in Sudan and found infected with Trypanosoma sp. in Senegal (Desjeux & Waroquy, 1981; Williams & Coelho, 1978).

Sergentomyia ingrami

Untyped promastigote infections found in Kenya (Kaddu, 1986), some of which produced lesions characteristic of *L. major* when inoculated into mice (Mutinga et al., 1986a).

Sergentomyia adleri

Recorded biting man in Sudan and near termite hills in Kenya, where found infected with untyped promastigotes (Abonnenc, 1972; Mutinga, 1986; Mutinga et al., 1986a). Recorded as vector of Trypanosoma sp. in Senegal (Desjeux & Waroquy,1981).

Medical Importance

Sergentomyia affinis

Recorded feeding on man, as well as on reptiles, in Guinea and Kenya, where found infected with untyped promastigotes (Abonnenc, 1972; Kaddu, 1986; Mutinga, 1986).

Sergentomyia africana

Geographical character variation noted by Rioux et al. (1975). Untyped promastigote infections found in Kenya (Kaddu, 1986).

Sergentomyia bedfordi

A polytypic species recorded from a wide range of habitats, including termite hills and houses, and (in Kenya) frequently recorded biting man and infected with untyped promastigotes (Abonnenc, 1972; Kaddu, 1986; Minter, 1964; Mutinga, 1986). Recorded as vector of Sauroleishmania adleri in Kenya and of Tryoeanosooea boueti in Ethiopia (Heisch et al., 1956; Williams & Coelho, 1978).

Sergentomyia antennata

Frequently found infected with untyped promastigotes in Kenya, where it is abundant in termite hills and sometimes feeds on mammals (Kaddu, 1986; Mutinga, 1986; Mutinga et al., 1986a,b).

Sergentomyia schwetzi

Recorded biting man in West Africa (Abonnenc, 1972) and Kenya, where frequently found infected with untyped promastigotes and common in termite hills as well as houses (Kaddu, 1986; Minter & Wijers, 1963; Mutinga, 1986). Recorded as vector of Trypanosoma sp. in Senegal (Desjeux & Waroquy, 1981).

Tick Vectors

Habitat Suitability Models:

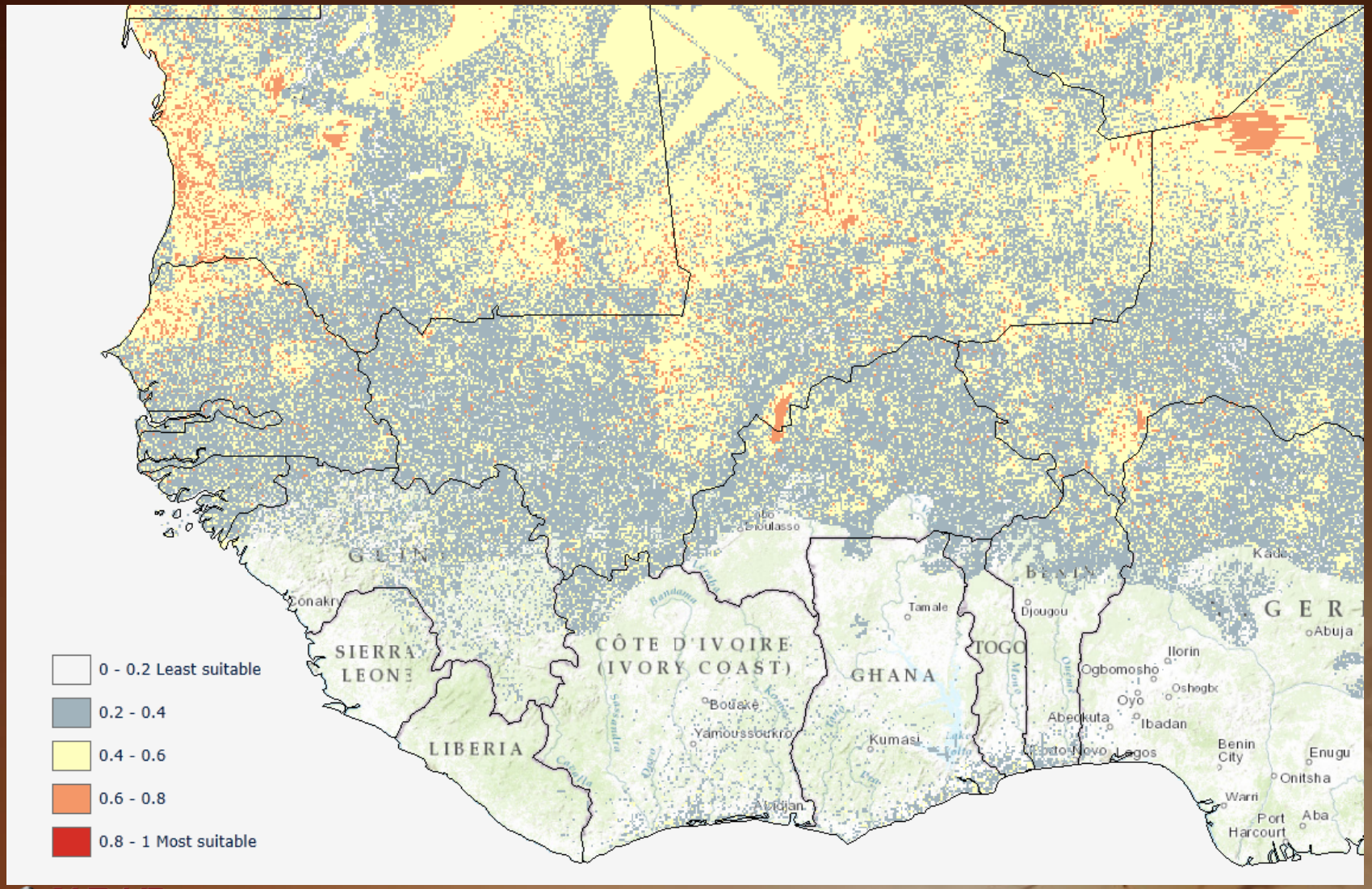
Amblyomma arboreus
Amblyomma boueti
Amblyomma compressum
Amblyomma transversale
Dermacentor circumguttatus
Hyalomma dromedarii
Hyalomma hoodi
Hyalomma moreli
Hyalomma paraleachi
Ixodes aulacodi
Ixodes moreli
Ixodes nchisiensis

Back to Table of Contents

Habitat suitability models: Tick Vectors

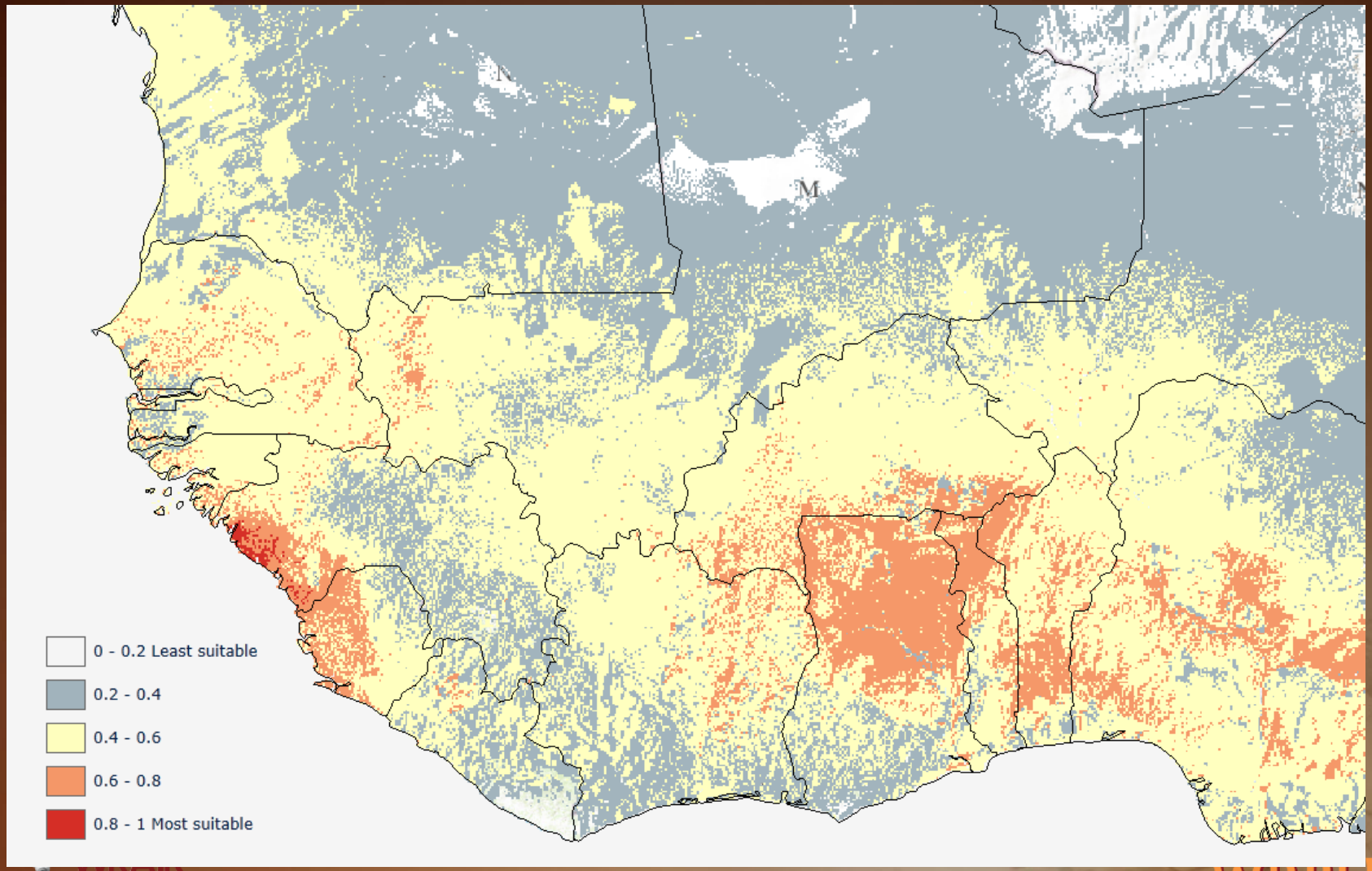
Back to Table of Contents

Habitat suitability model: *Amblyomma arboreus*



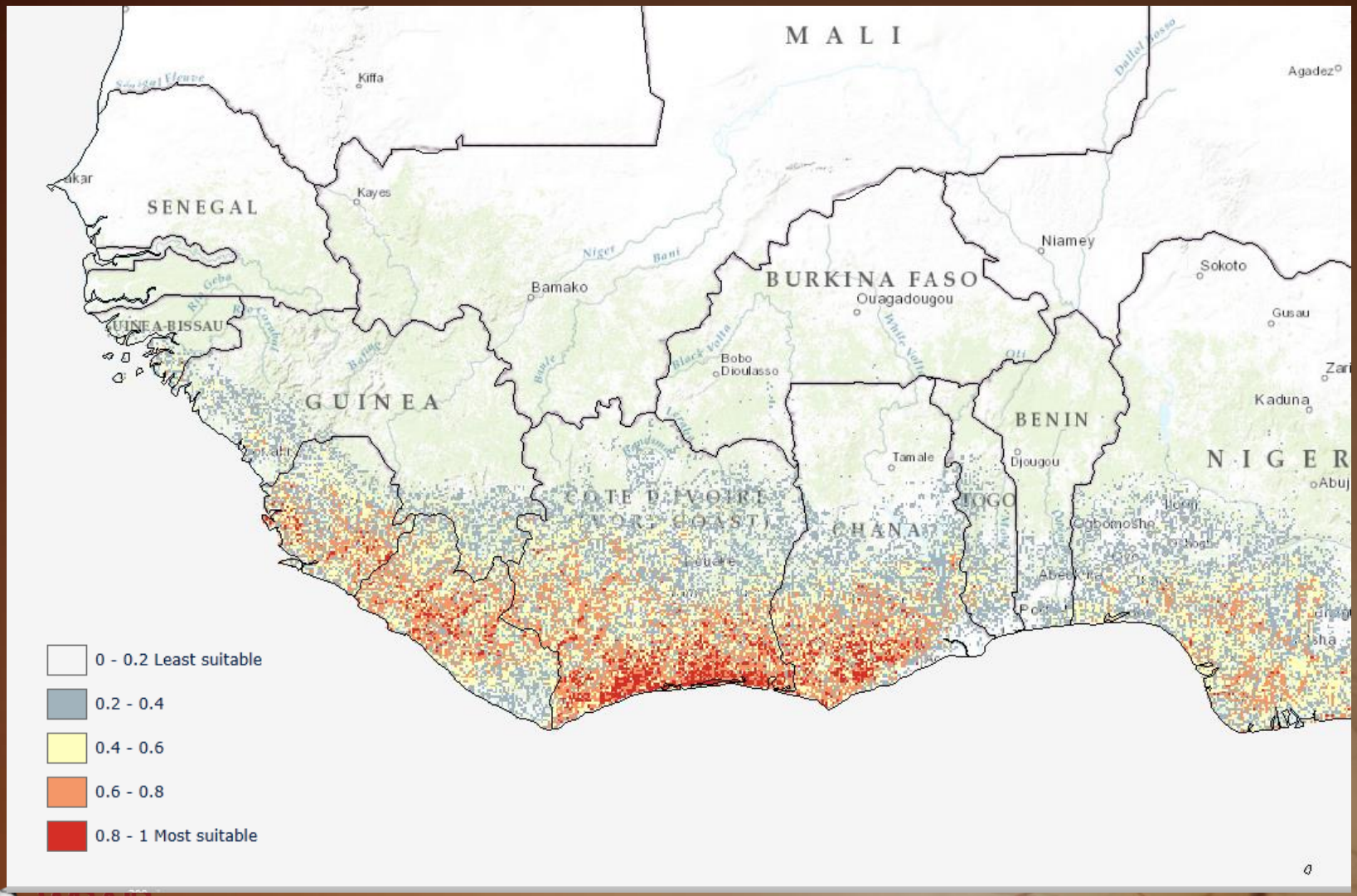
Back to Table of Contents

Habitat suitability model: *Amblyomma boueti*



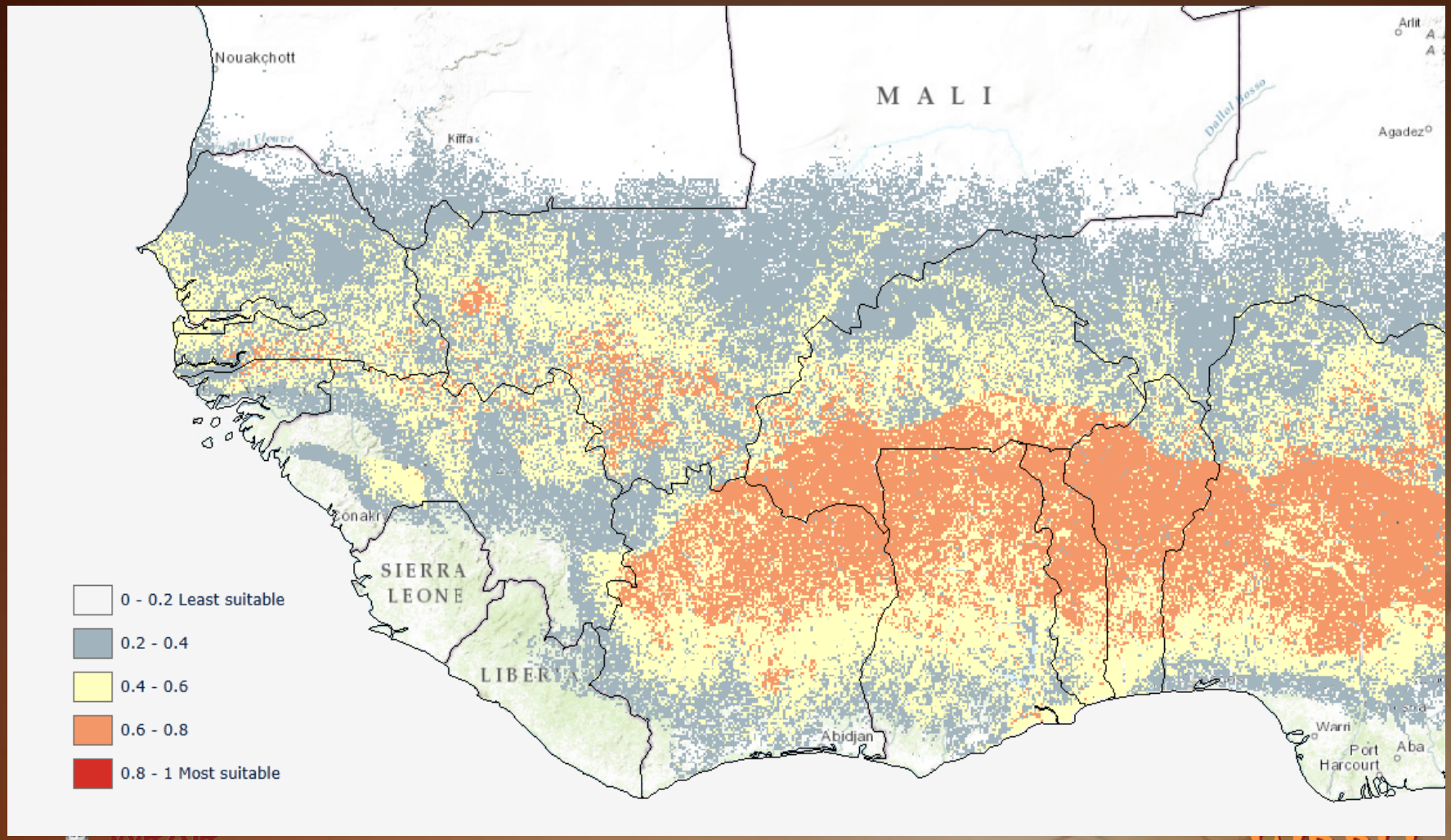
Back to Table of Contents

Habitat suitability model: *Amblyomma compressum*

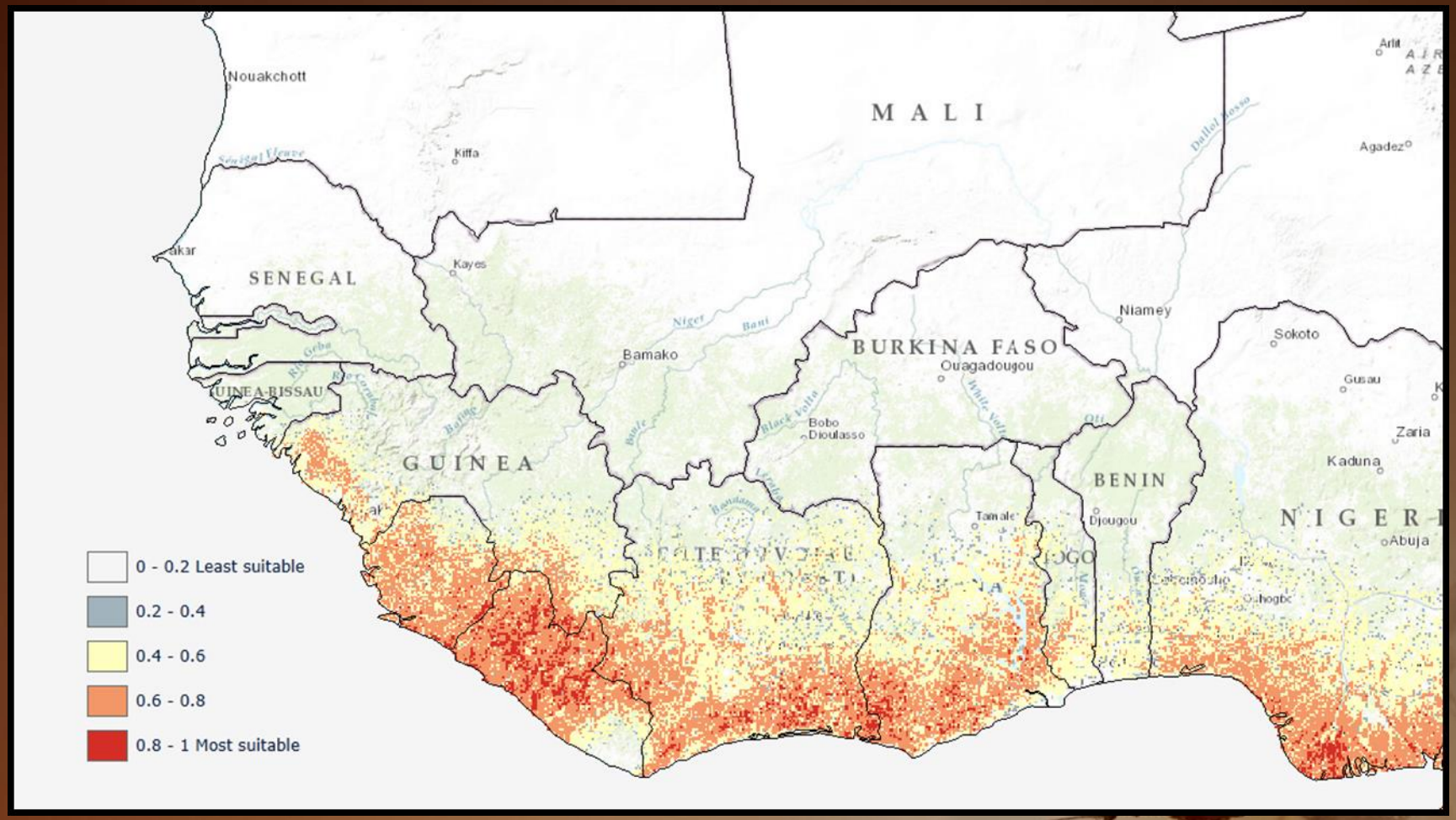


Back to Table of Contents

Habitat suitability model: *Amblyomma transversale*

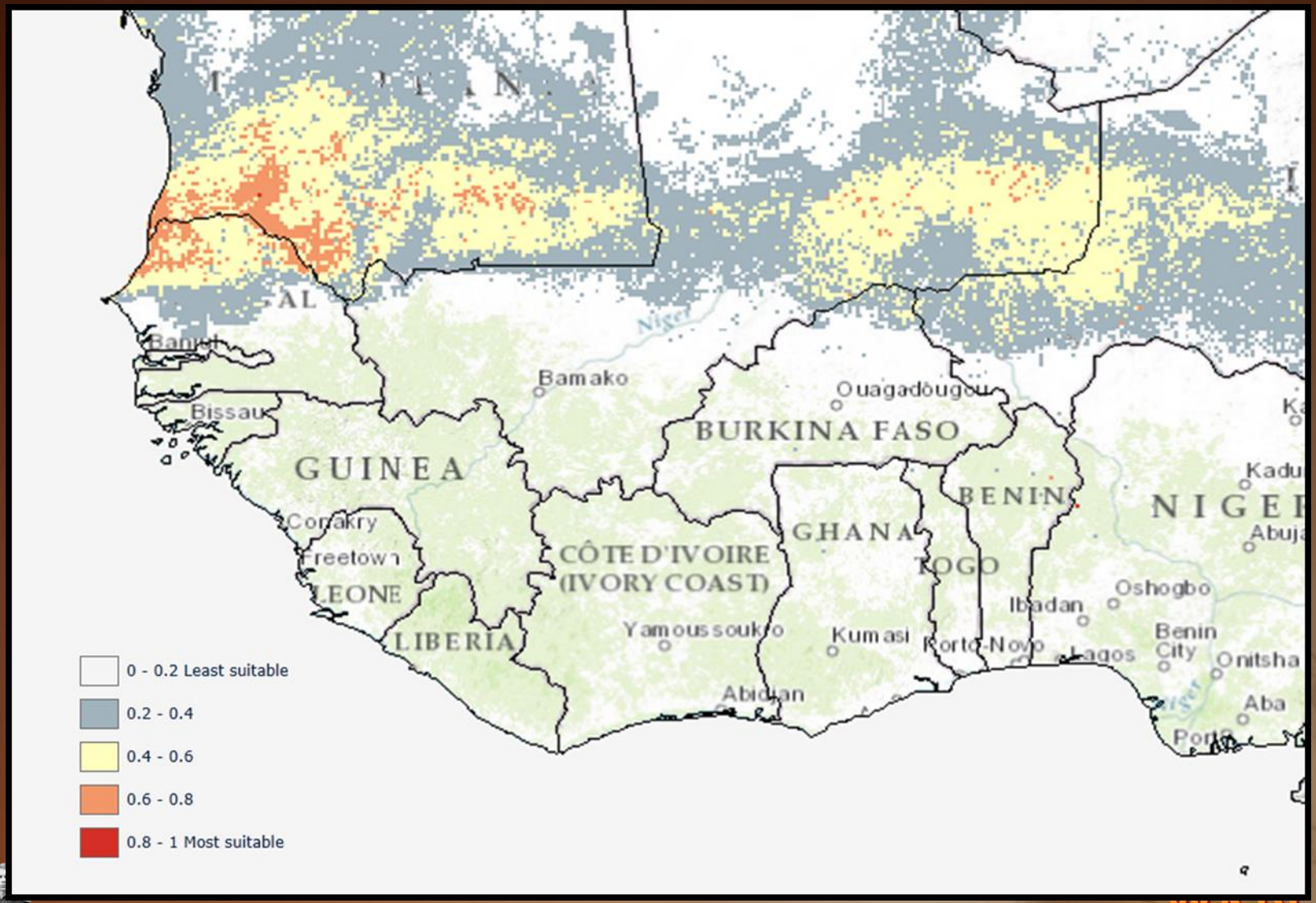


Habitat suitability model: *Dermacentor circumguttatus*

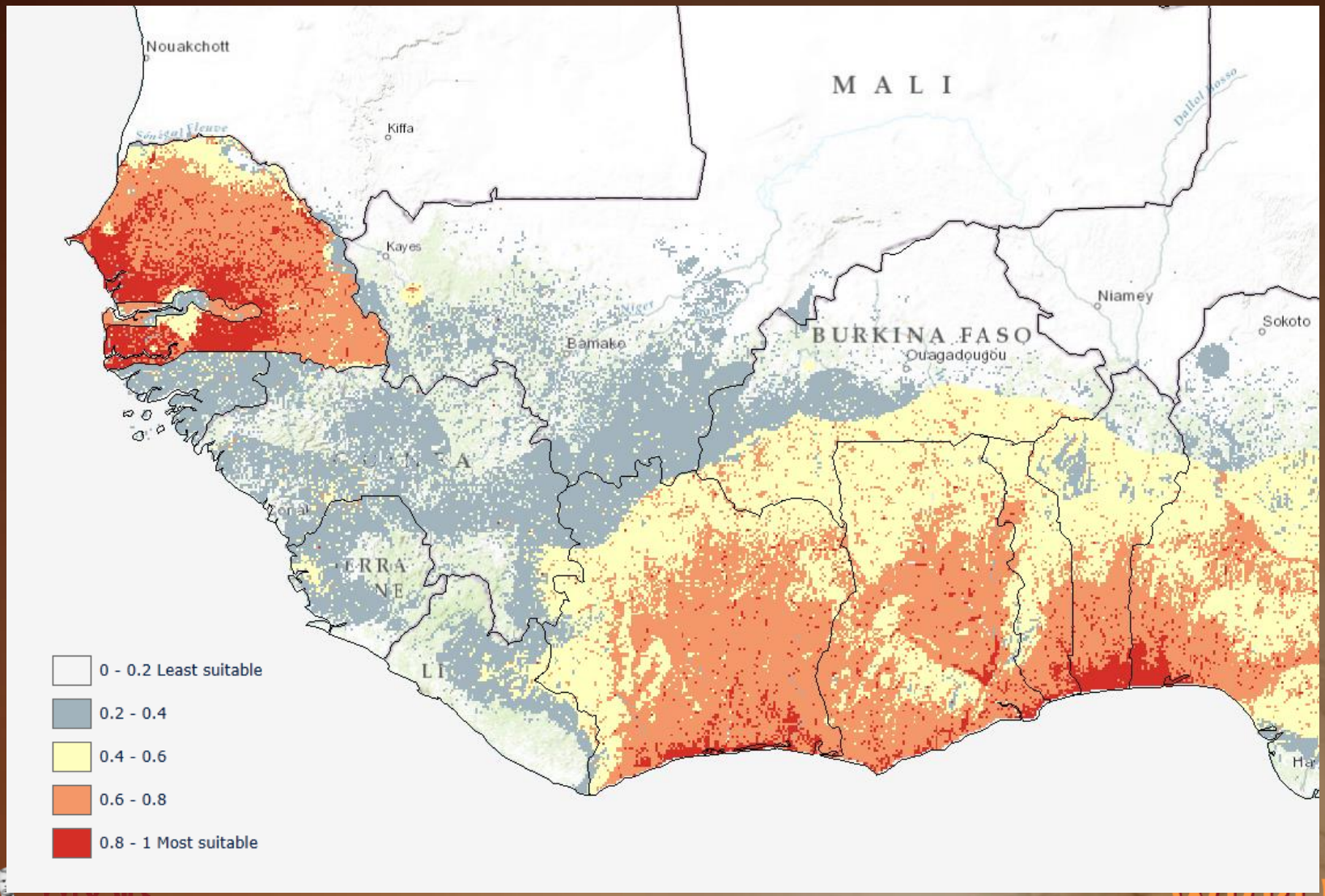


Back to Table of Contents

Habitat suitability model: *Hyalomma dromedarii*

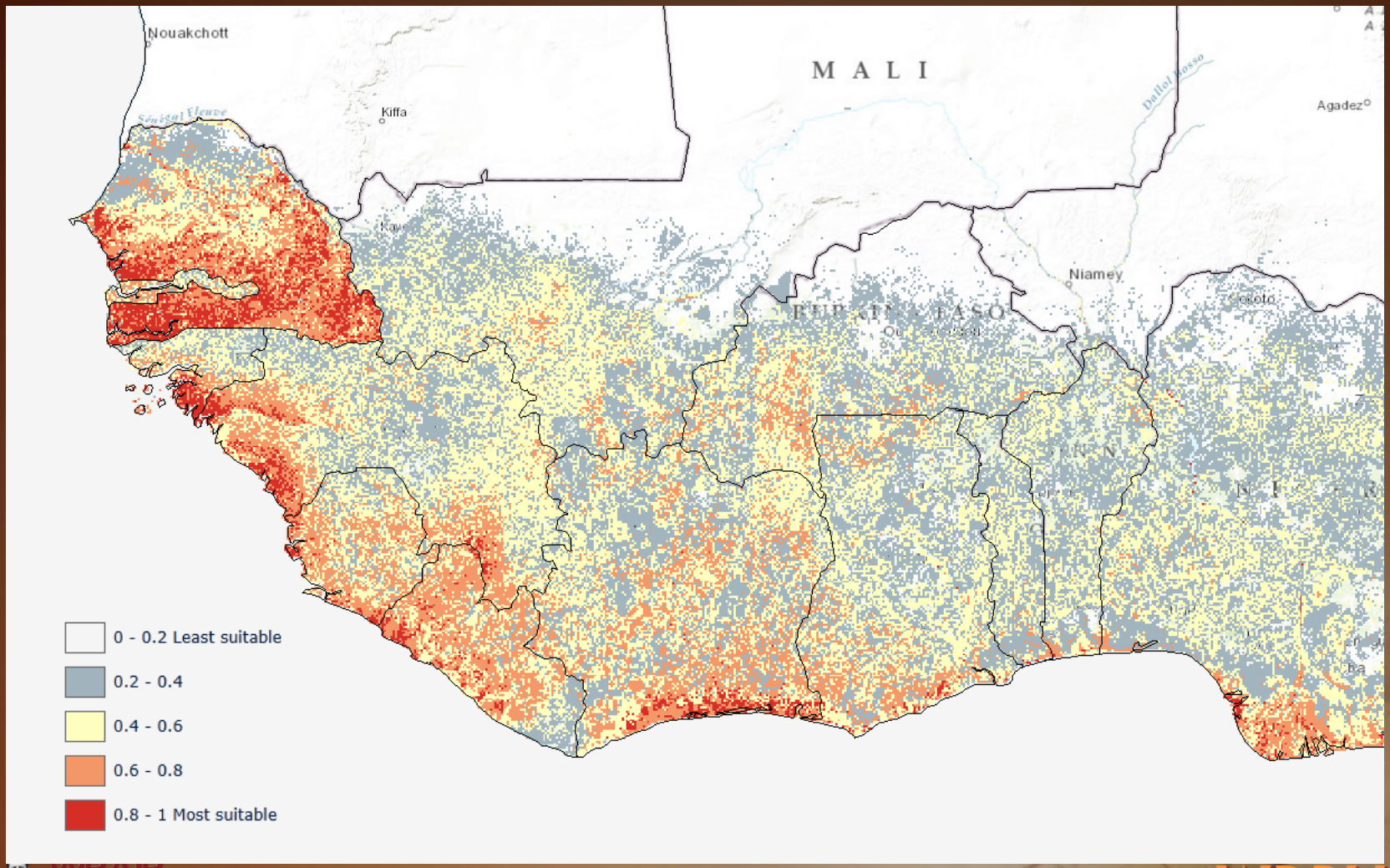


Habitat suitability model: *Hyalomma hoodi*

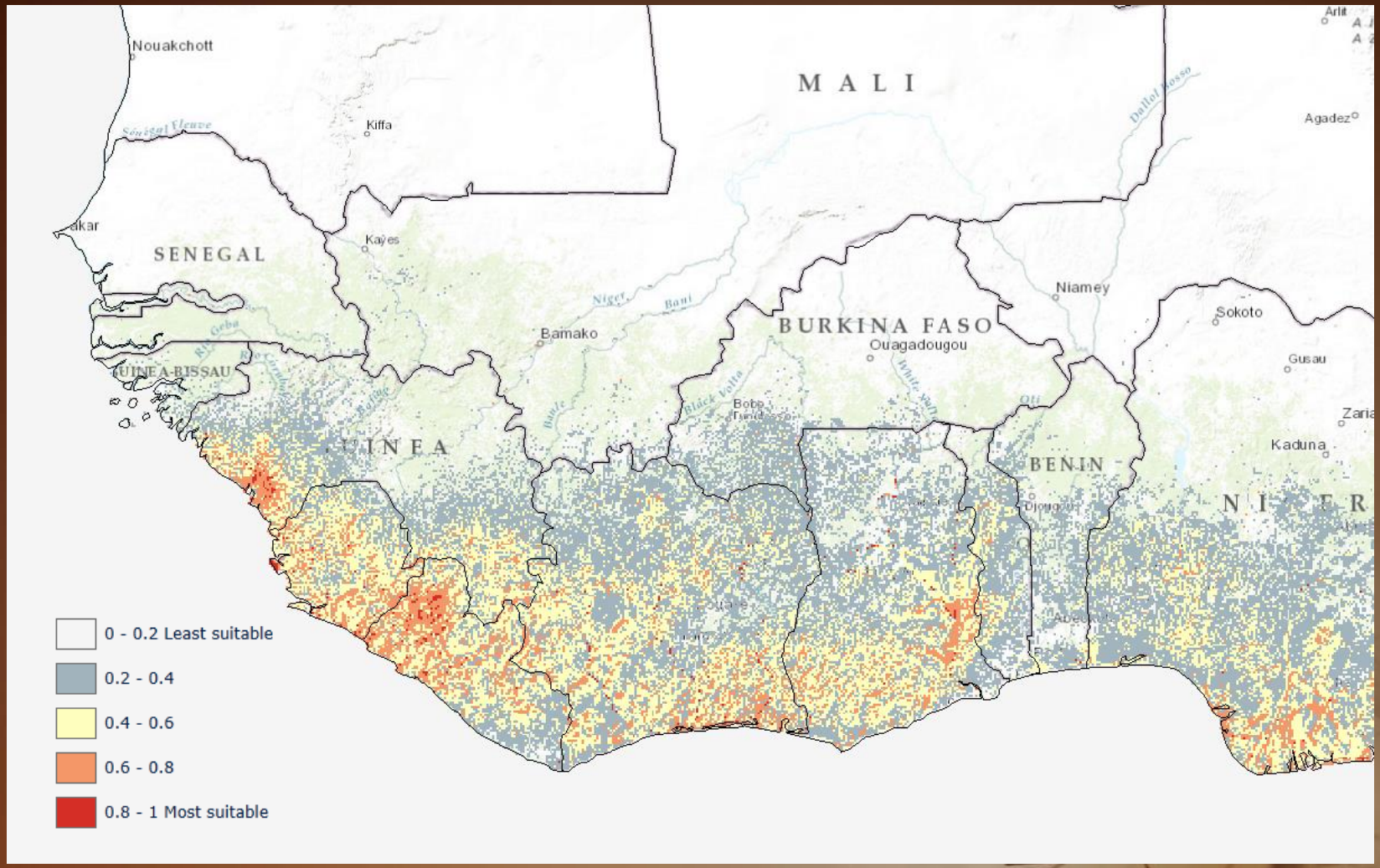


Back to Table of Contents

Habitat suitability model: *Hyalomma moreli*

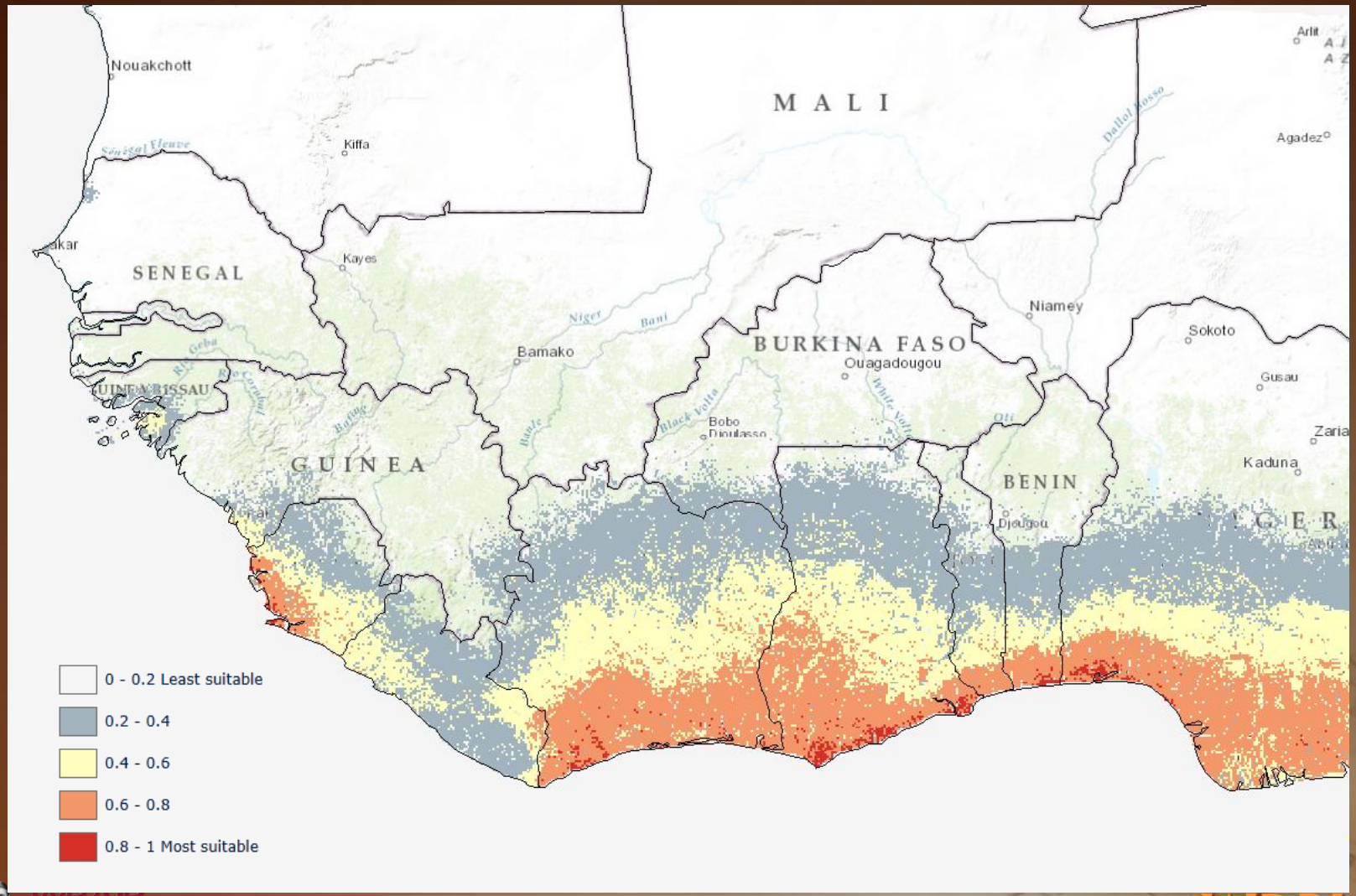


Habitat suitability model: *Hyalomma paraleachi*



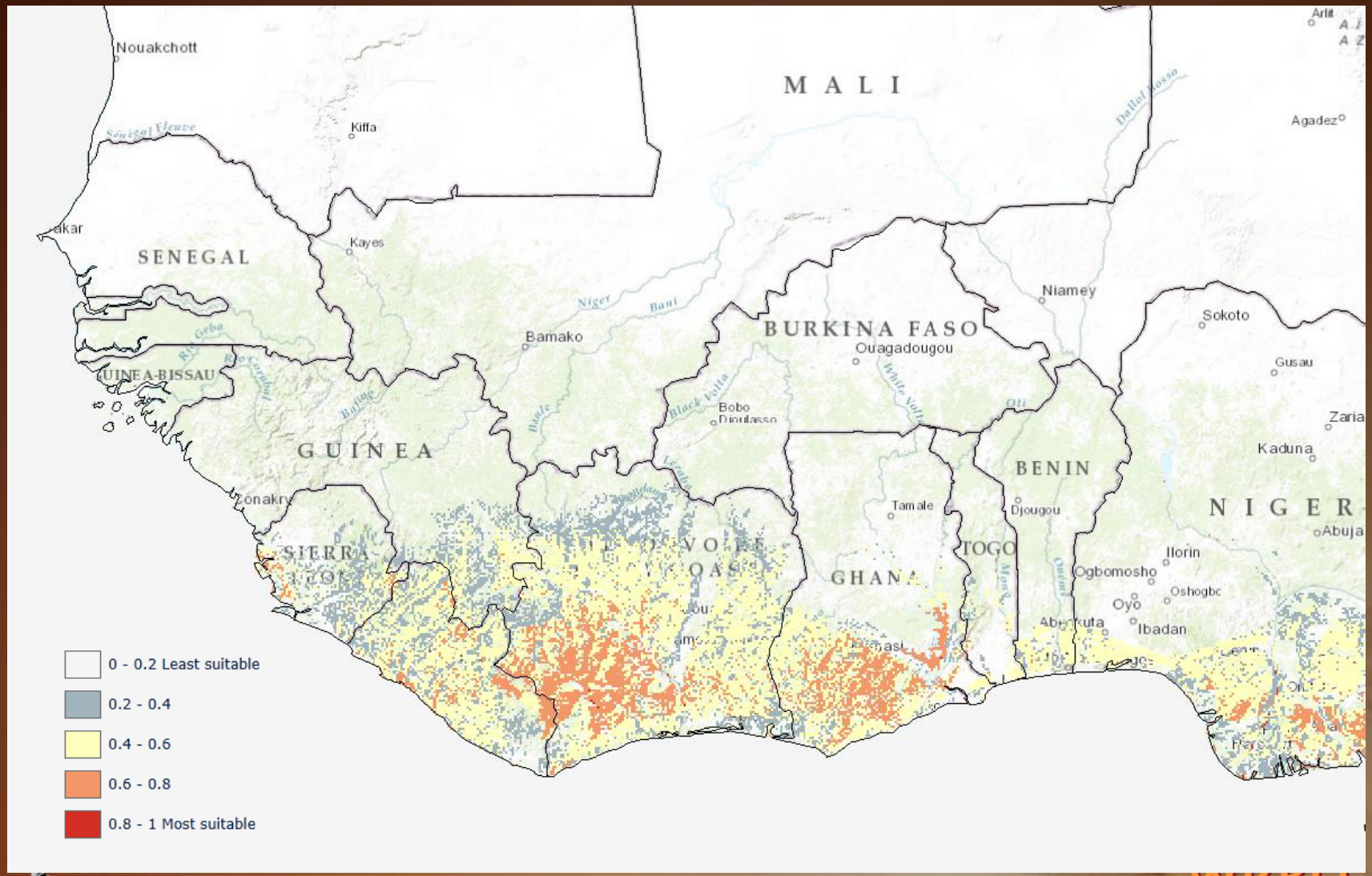
Back to Table of Contents

Habitat suitability model: *Ixodes aulacodi*



Back to Table of Contents

Habitat suitability model: *Ixodes moreli*



Back to Table of Contents

Habitat suitability model: *Ixodes nchisiensis*

Host Densities

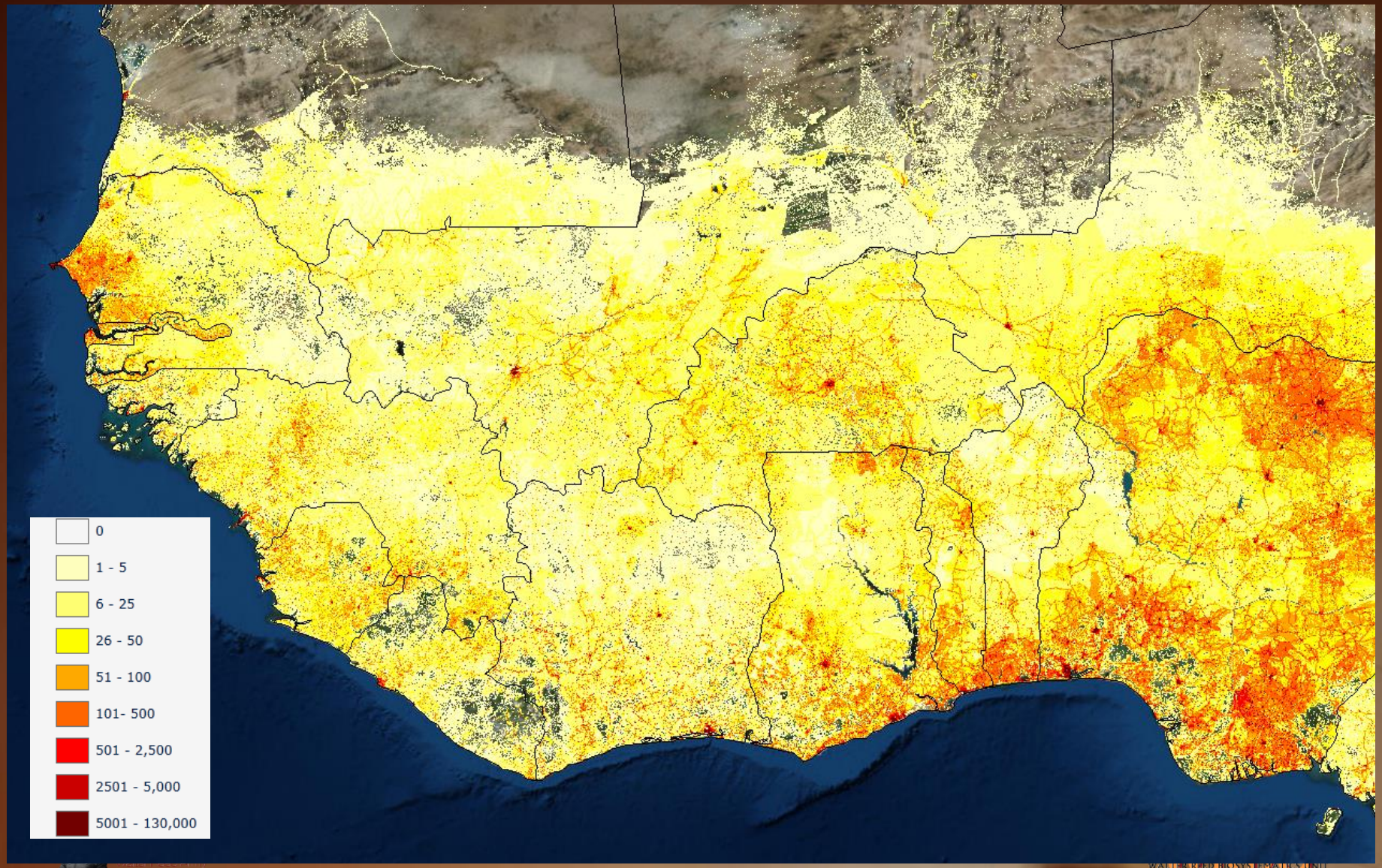
Contents:

1. Human population density
2. Domestic animal population density

Back to Table of Contents

Human Density

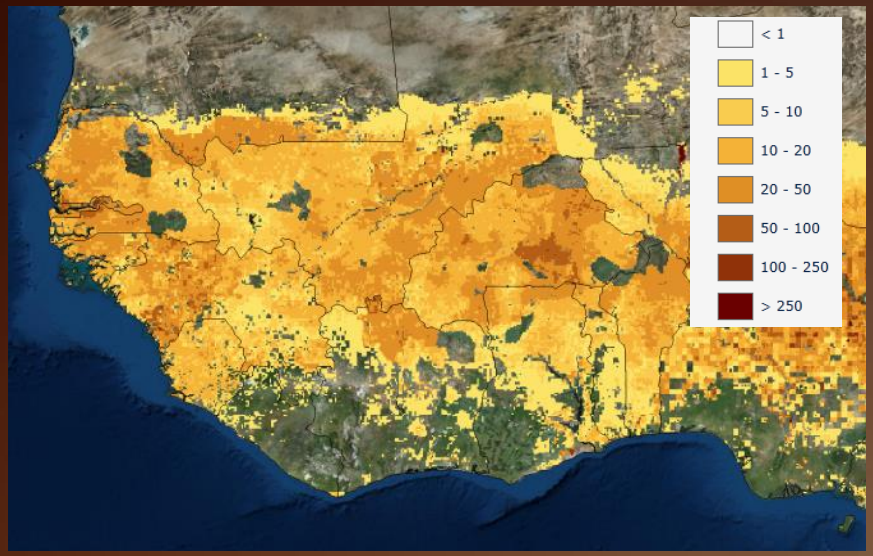
People per sq. mile, LandScan 2011



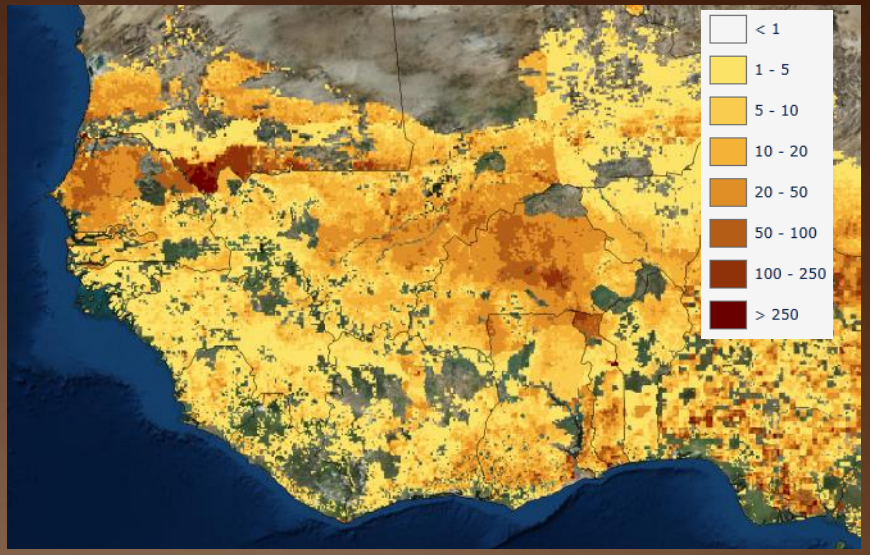
Back to Table of Contents

Host Densities, Food and Agriculture Organization of the United Nations, 2005

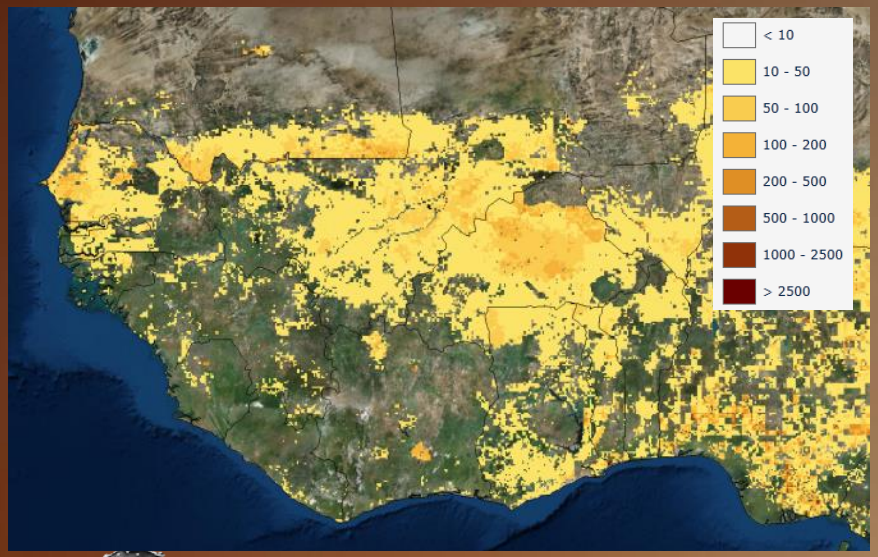
Cows per sq. km



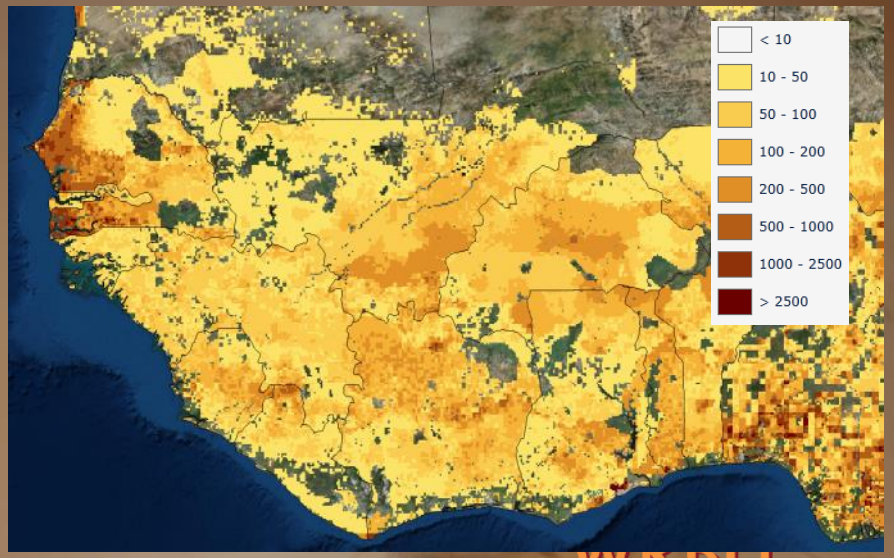
Sheep per sq. km



Goats per sq. km



Poultry per sq. km



Back to Table of Contents

References

Sand Flies

Environmental distance model for Sergentomyia adleri, Dornak, L. 2012.
Maxent model for Sergentomyia affinis, Dornak, L. May, 2012.
Maxent model for Sergentomyia africana, Dornak, L. May, 2012.
Maxent model for Sergentomyia antennata, Dornak, L. January, 2012.
Maxent model for Phlebotomus alexandri, Dornak, L. April, 2012.
Maxent model for Sergentomyia bedfordi , Dornak, L. April, 2012.
Maxent model for Phlebotomus bergeroti, Dornak, L. April, 2012.
Maxent model for Sergentomyia clydei , Dornak, L. April, 2012.
Maxent model for Phlebotomus duboscqi, Dornak, L. May, 2012.
Maxent model for Sergentomyia ingrami , Dornak, L. April, 2012.
Maxent model for Phlebotomus orientalis, Dornak, L. April, 2012.
Maxent model for Sergentomyia schwetzi , Dornak, L. December, 2011.
Alvar, J. et al. 2012. Leishmaniasis Worldwide and Global Estimates of its Incidence. PLoS ONE 7(5): e35671.

Ticks

Maxent model for Amblyomma arboreus, Dornak, L. August, 2012.
Maxent model for Amblyomma boueti, Dornak, L. July, 2012.
Maxent model for Amblyomma compressum, Dornak, L. November, 2011.
Maxent model for Amblyomma transversale, Dornak, L. July, 2012.
Maxent model for Dermacentor circumguttatus, Dornak, L. November, 2011.
Maxent model for Hyalomma dromedarii, Dornak, L. August, 2012.
Maxent model for Hyalomma hoodi, Dornak, L. November, 2011.
Maxent model for Hyalomma moreli, Dornak, L. November, 2011.
Maxent model for Hyalomma paraleachi, Dornak, L. November, 2011.
Maxent model for Ixodes aulacodi, Dornak, L. July, 2012.
Maxent model for Ixodes moreli, Dornak, L. July, 2012.
Maxent model for Ixodes nchisiensis, Dornak, L. August, 2012

Back to Table of Contents

WRBU

WALTER REED BIOSYSTEMATICS UNIT

Know the vector, know the threat

The Walter Reed Biosystematics Unit is part of the Walter Reed Army Institute of Research and is based at the Smithsonian Institution Museum Support Center. To access taxonomic keys, the Systematic Catalog of Culicidae or to learn more about WRBU visit www.wrbu.org.

Vector Photos Courtesy of Judith Stoffer, Walter Reed Biosystematics Unit, Graham Snodgrass U.S. Army Public Health Command and the Armed Forces Pest Management Board

VECTORMAP

VectorMap is only as good as the data you provide. If you have collection records, models or pathogen testing results please contact the VectorMap team to learn how to contribute data at mosquitomap@si.edu.

The published material reflects the views of the authors and should not be construed to represent those of the Department of the Army or the Department of Defense.

WRAIR

Walter Reed Army Institute of Research

Soldier Health • World Health

Back to Table of Contents

WRBU

WALTER REED BIOSYSTEMATICS UNIT

Know the vector, know the threat