Rabies Epidemiological Bulletin

On behalf of the Global Alliance for Rabies Control

PARACON meeting

Pretoria, South Africa

13-15 September 2017

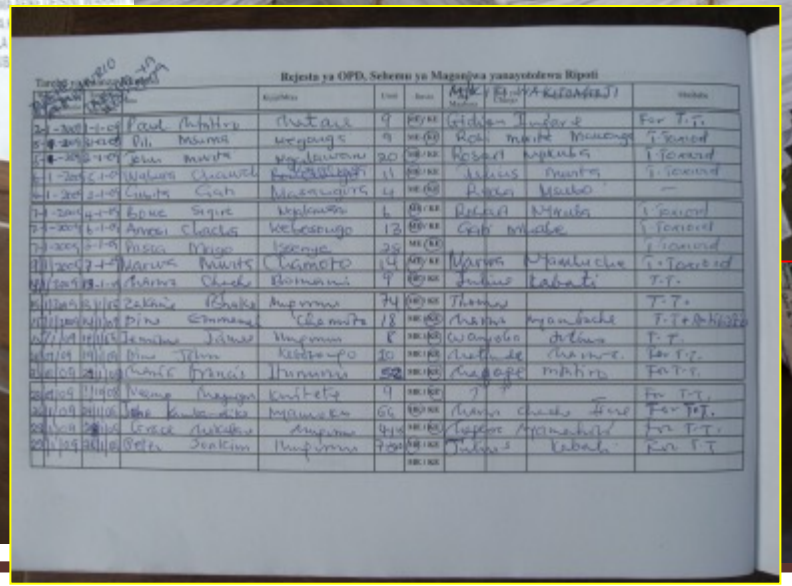
Global Alliance for Rabies Control

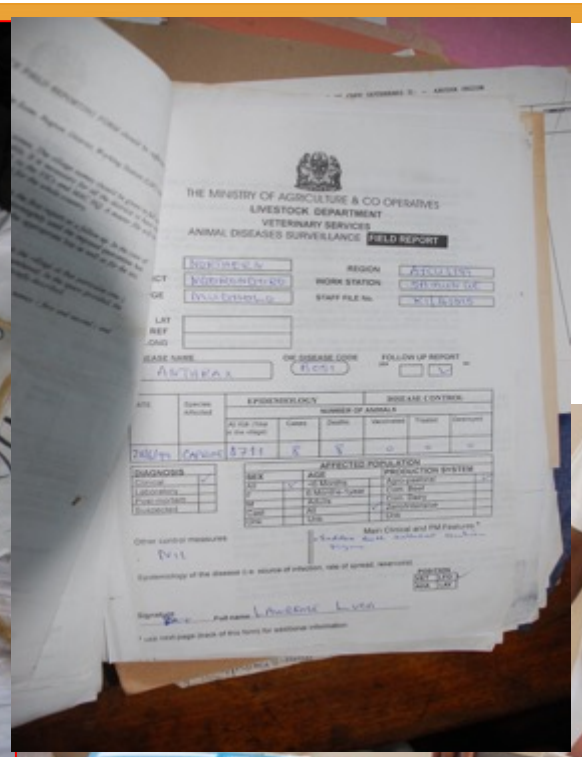
www.rabiesalliance.org

We know data collection is difficult

Global Alliance for Rabies Control

There is a problem with current data





Control

Discrepancies in Data Reporting for Rabies, Africa

Louis H. Nel

Human rabies is an ancient disease but in modern times has primarily been associated with dog rabies–endemic countries of Asia and Africa. From an African perspective, the inevitable and tragic consequences of rabies require serious reflection of the factors that continue to drive its neglect. Established as a major disease only after multiple introductions during the colonial era, rabies continues to spread into new reservoirs and territories in Africa. However, analysis of reported data identified major discrepancies that are indicators of poor surveillance, reporting, and and responsible data reporting. Analyses of examples from Africa indicate that the above aspects are seriously compromised.

Factors Leading to Complacency and Neglect of Rabies

Rabies virus, a classical zoonotic pathogen, has an extensive host range and can probably infect all terrestrial mammals. Although vampire bat rabies has a major effect

International Reporting Inconsistencies

		Nat database	OIE WAHID	Meeting	Oral comms
Kenya		**1000–2000**	**2**	**3**	
Lesotho			**3**	**11**	2
Liberia – Libéria					
Madagascar	**8**		**Unknown – Inconnu**	**7**	2
Malawi			50		
Mali			**2**	**3**	
Mauritania – Mauritanie			Unknown – Inconnu		
Mozambique			40	**72**	72
Namibia – Namibie		18	**10**	**1**	62
Niger			Unknown – Inconnu	2	

Fahrion et al. 2016 Human rabies transmitted by dogs: current status of global data, 2015. WHO WER

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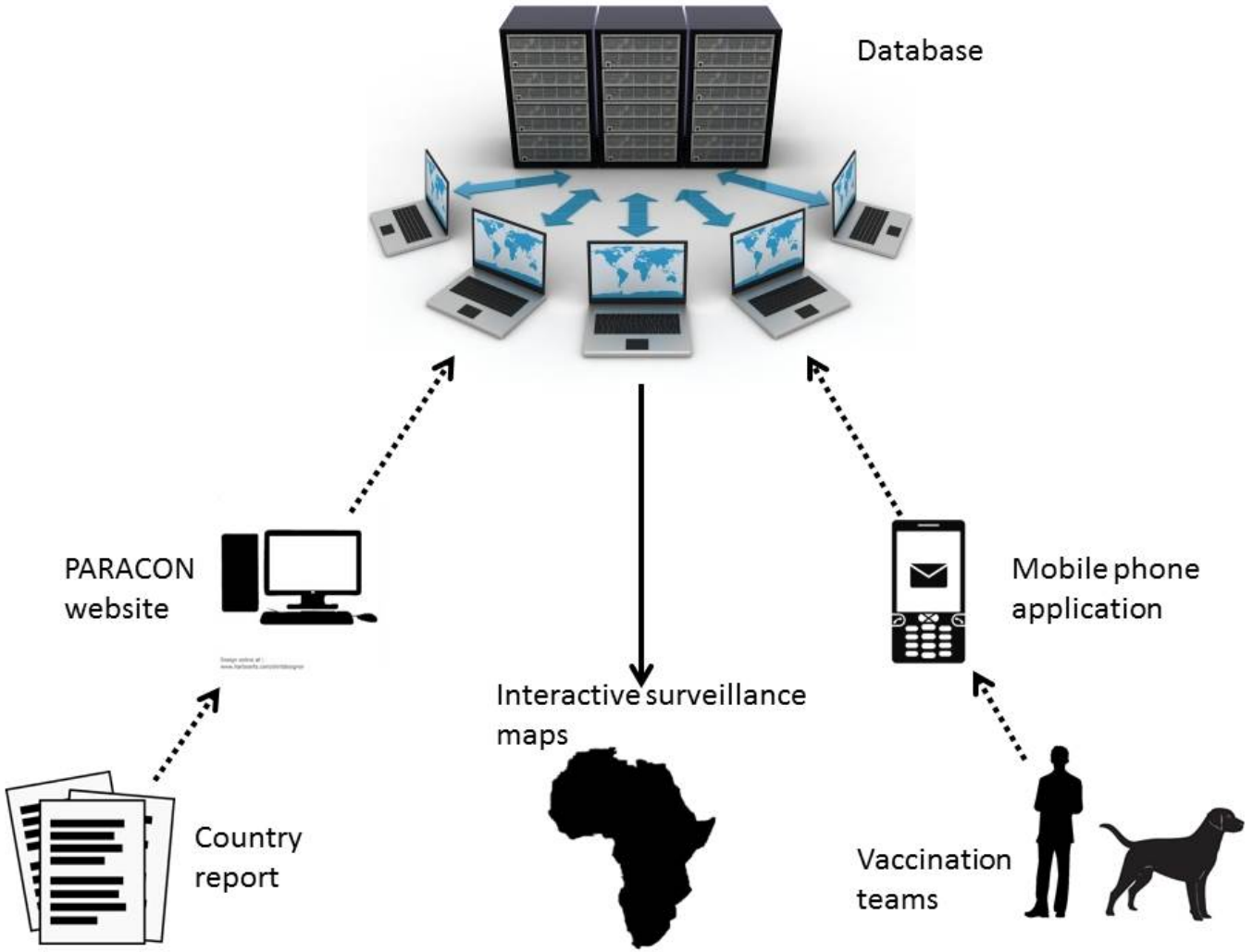
PARACON 2015 concept



Rabies Epidemiological Bulletin

- Based on the DHIS2 platform
  - Open source software
  - Used in more than 60 countries in MoH
- Rabies Epidemiological Bulletin active for 13 months
  - Launched at PARACON 2016
- Available in English, French and other languages

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PAN-AFRICAN RABIES CONTROL NETWORK

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International reporting

PARACON data collection

Awareness and public info

Stakeholders

MoA

National reporting

MoH

sub-National data collection

Vaccinators

CHWs

Facilities

International reporting

PARACON data collection

Awareness and public info

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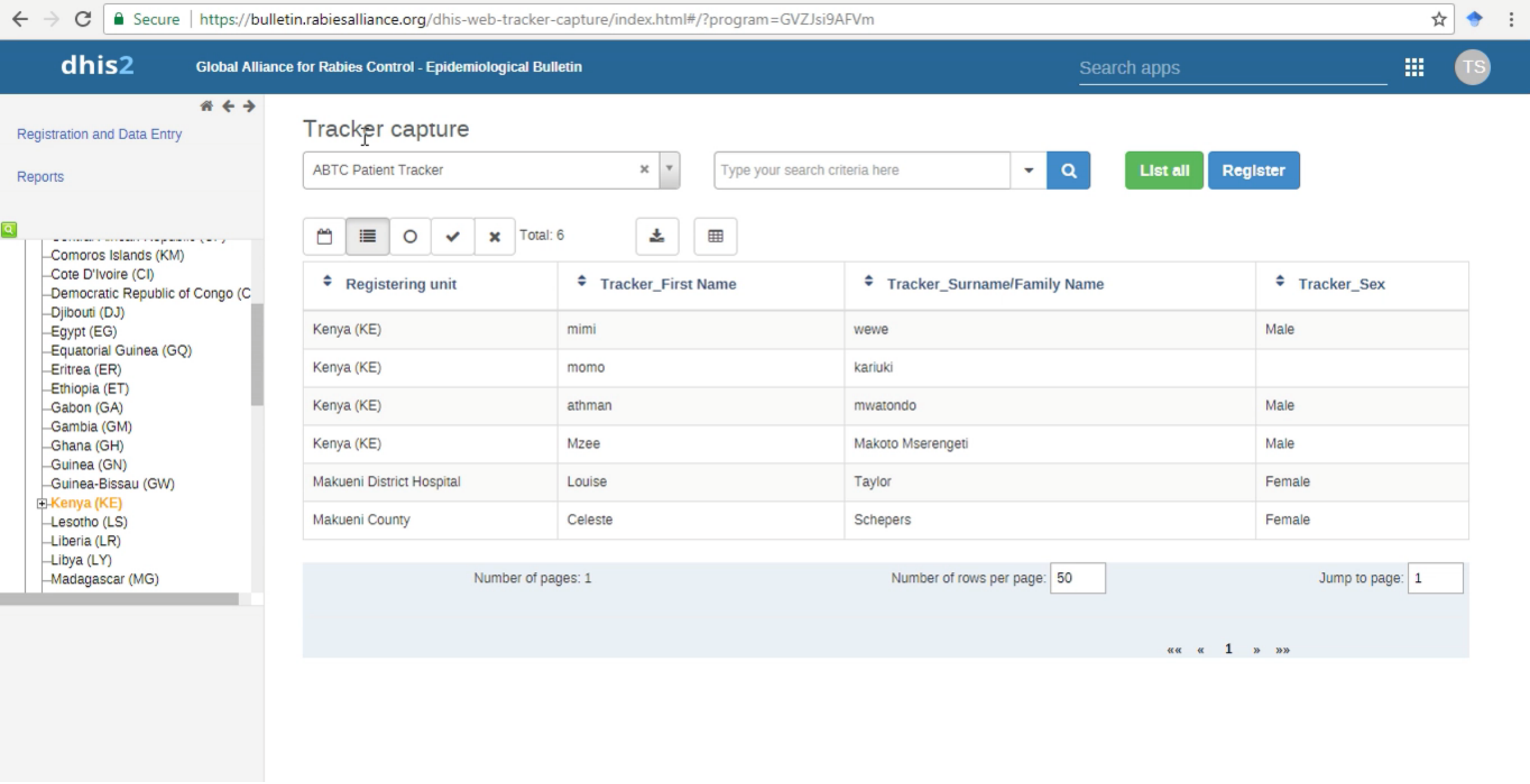
Facility level reporting – Patient tracker



Rabies Data Collector (RDC) and its integration into the Rabies Epidemiological Bulletin

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Rabies Data Collector

- Robust, lightweight handheld device
- Works solely on GPS
  - No running costs
  - Works anywhere in the world
- Collects essential data
  - GPS
  - Time and date
  - 3 questions
  - Campaign information

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Rabies Data Collector integration

- Direct integration into DHIS2
  - Simple upload of data

- Once in DHIS2 data is automatically:
  - aggregated into national figures
  - drawn into maps and other visuals (e.g. graphs, tables)
  - generated estimating vaccination coverage
  - generated into a report format for download

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Secure | https://bulletin.rabiesalliance.org/dhis-web-dashboard-integration/index.action

dhis2 Global Alliance for Rabies Control - Epidemiological Bulletin

Search apps TS

Write feedback • Zanzibar

Profile Messages Interpretations

Search for users, charts, maps, reports and resources Search

Add Manage Share < >

Uganda Zanzibar Zimbabwe

Remove | Resize | Explore | Share interpretation 0

RDC data_Zan_MDV_01-08-2017_

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Total number of rabies samples diagnosed per animal species

Zanzibar Archipelago

30

Alliance for Rabies Control

International reporting

PARACON data collection

Awareness and public info

Global Alliance for Rabies Control

PARACON

PAN-AFRICAN RABIES CONTROL NETWORK

Stakeholders

National reporting

MoA

MoH

sub-National data collection

Vaccinators

CHWs

Facilities

Secure | https://rabiesalliance.org

Manage | Shortcuts | Block Visibility Groups | terence.scott | VIEW | EDIT | DELETE | REVISIONS | CLONE

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Global Alliance for Rabies Control

Working to eliminate deaths from canine rabies by 2030

About GARC | Policy and Advocacy | Capacity Building | Networks | World Rabies Day | Resources | Media

How can we help you today?

Let us take you to the right page

Choose an option | TAKE ME THERE!

2017 World Rabies Day Awards

Nominate your community champions for a 2017 World Rabies Day Award

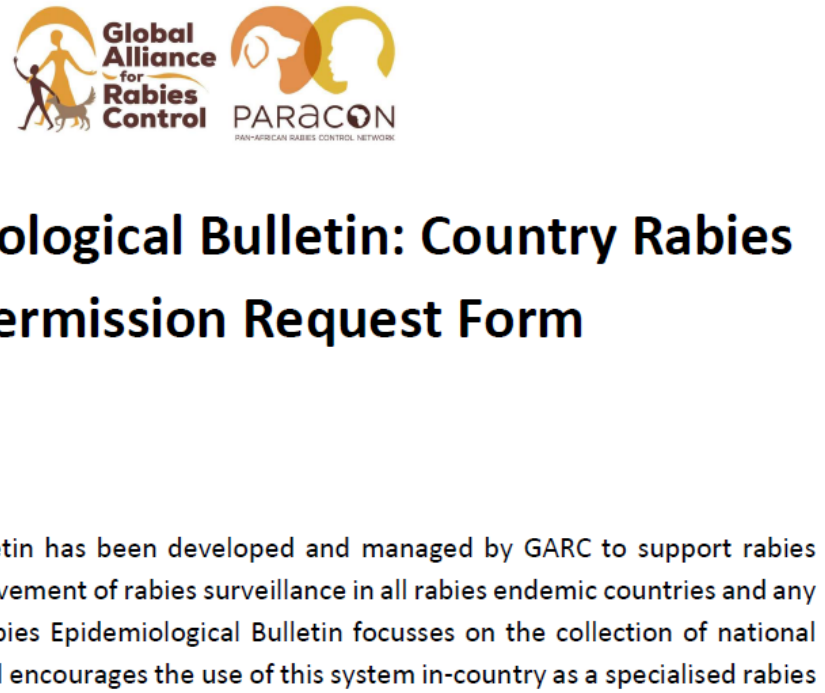
https://rabiesalliance.org

Feedback

Control

Data Sharing

- Transparency to work together
  - Address that rabies is transboundary
- Automated reporting to international organisations
  - WHO
  - Working to include others OIE and others
- Encourage you to sign your permission form



Rabies Epidemiological Bulletin: Country Rabies Data Permission Request Form

Background

The Rabies Epidemiological Bulletin has been developed and managed by GARC to support rabies control efforts through the improvement of rabies surveillance in all rabies endemic countries and any other interested parties. The Rabies Epidemiological Bulletin focusses on the collection of national rabies data, but also supports and encourages the use of this system in-country as a specialised rabies

Standardised indicators

TABLE 1 | Description of and rationale for using initial basic indicators in the Pan-African Rabies Control Network bulletin.

Indicator	Disaggregation	Description	Rationale	Reporting period
Number of bite cases in humans	Age: <5 years, 5–14 years; ≥15 years; unknown age Sex: male, female; unknown Wound category: I, II, or III	Number of bite cases reported at a health-care facility, disaggregated by age, sex, and wound category	To determine at-risk populations (children, adults) and the numbers of people who have been potentially exposed to a rabid animal; this indicator influences decisions regarding human vaccine procurement and targeted education. This indicator also excludes snake bites	Annual
Doses of human vaccines purchased	None	Number of human vaccines purchased for the country	To determine the number of vaccines available in the country and whether this complies with PEP requirements	Annual
Cost per vaccine (US$)	Private sector Public sector	Cost per vaccine administered in a government institution (including all associated costs such as doctor's fees, consumables, etc.)	To determine the costs associated with procurement and administration of vaccine for budgetary purposes and to advocate the allocation of funds toward rabies control efforts	Annual

Scott et al 2017. Frontiers in Veterinary Science. Vol. 4 Issue 18. pp4-9.

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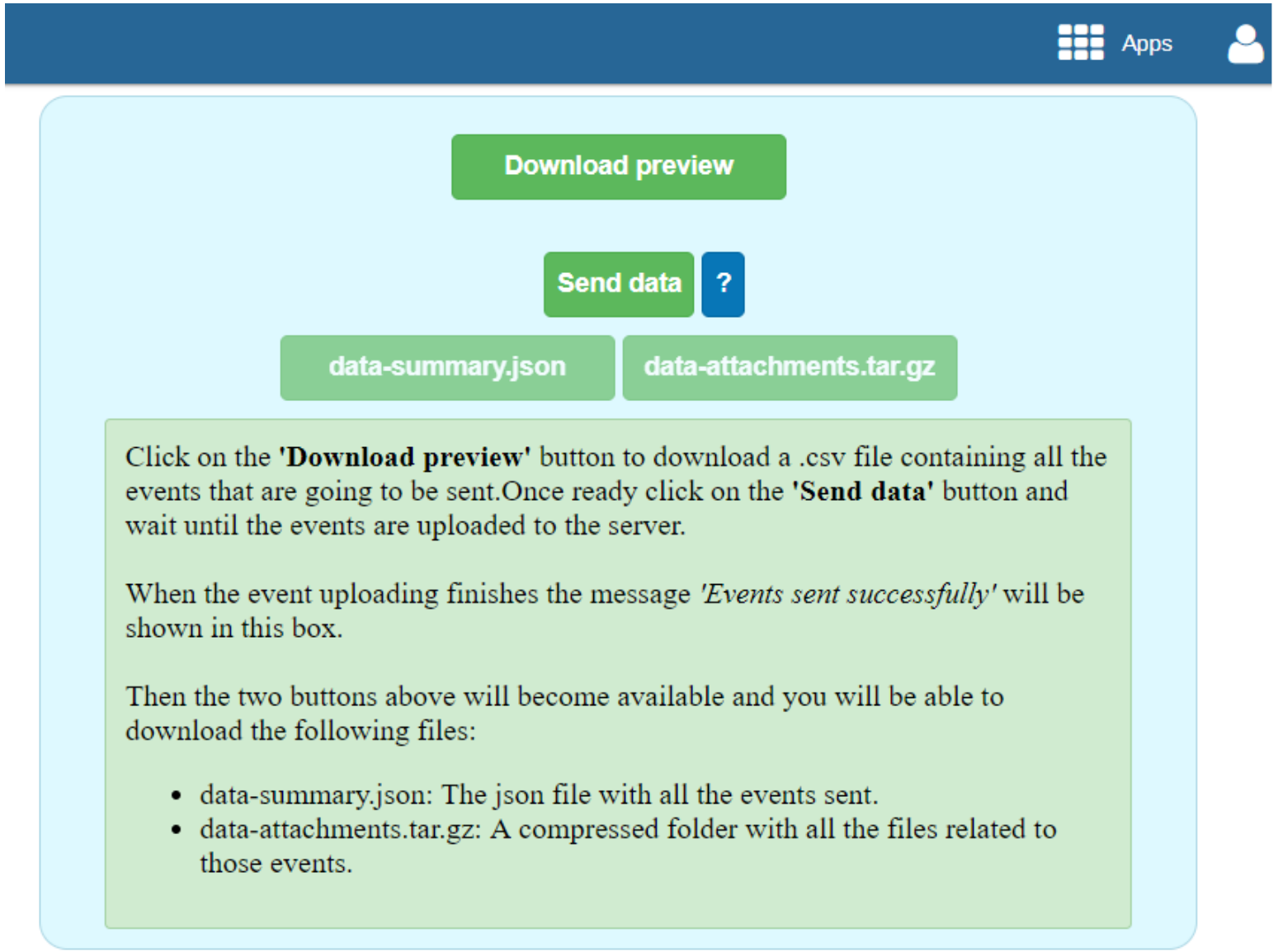
Automated sharing of data



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International reporting

PARACON data collection

Awareness and public info

Global Alliance for Rabies Control

PARACON

PAN-AFRICAN RABIES CONTROL NETWORK

Stakeholders

MoA

National reporting

MoH

sub-National data collection

Vaccinators

CHWs

Facilities

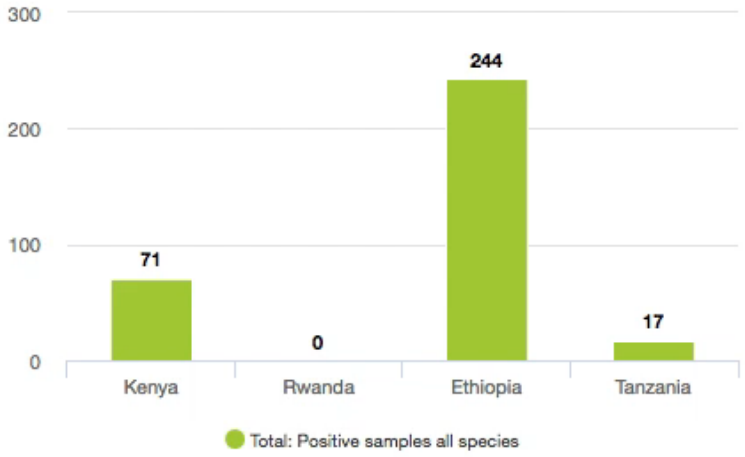
Add | Manage | Share | < | >

1.PARACON | 2.East Africa Strategic Group | 3.Example Country | Benin | Burkina Faso | Cameroun | Congo (Brazzaville) | Cote d'Ivoire | Equatorial Guinea | Ethiopia

Remove | Resize | Explore | Share interpretation 0

Total number of animal rabies-positive cases for 2015 within the East Africa Strategic Group

2015



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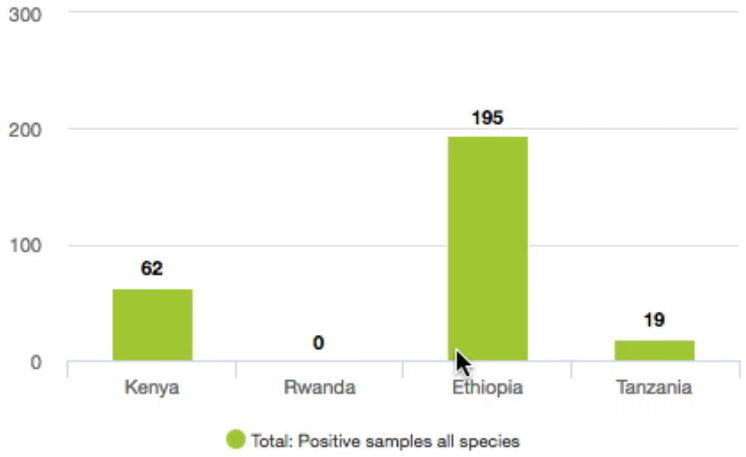
Total number of animal rabies-positive cases for 2016 within the East Africa Strategic Group

2016



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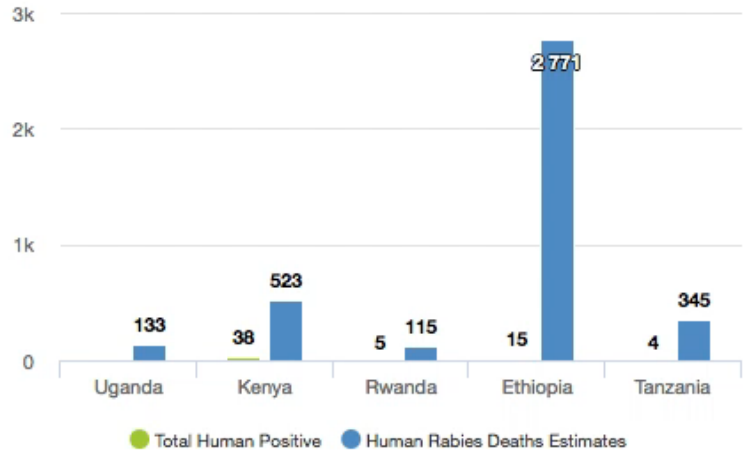
Total number of human rabies-positive cases for 2015 within the East Africa Strategic Group

2015



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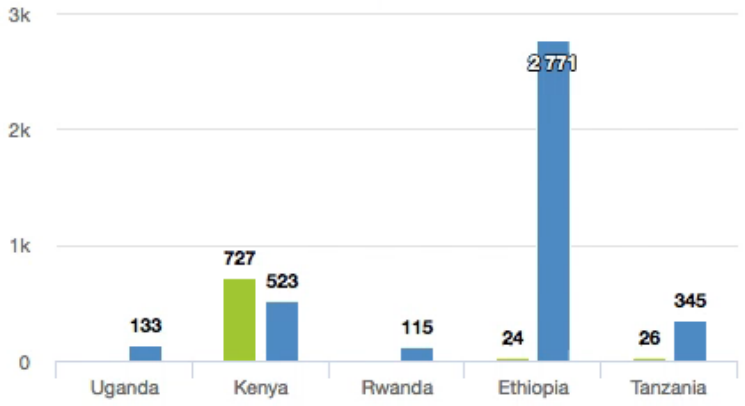
2016



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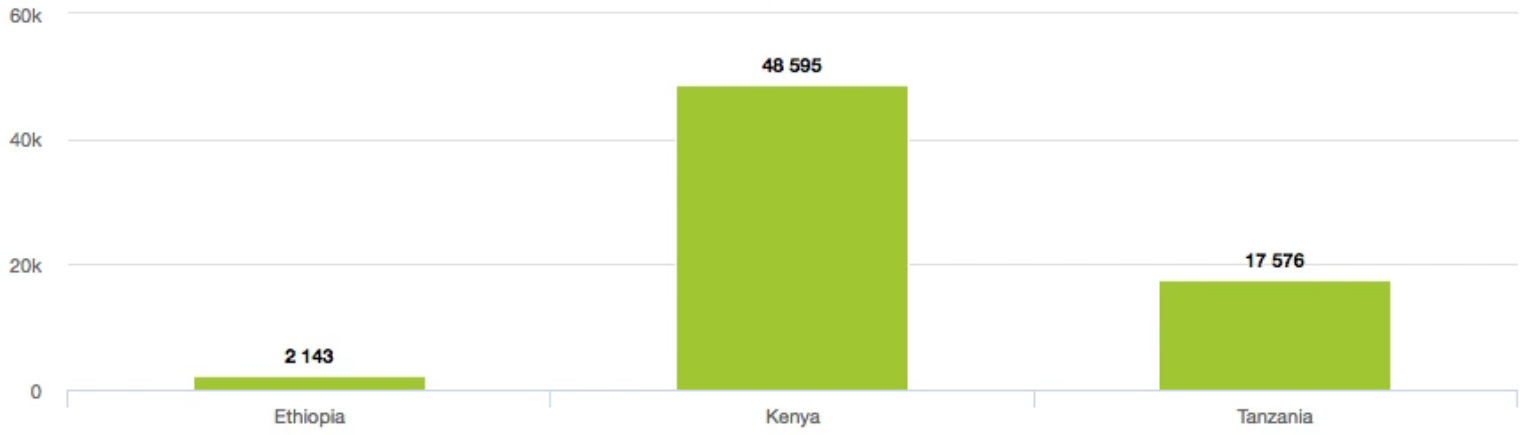
Total number of people in the east Africa community that require rabies vaccination

2016



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PARACON data collection

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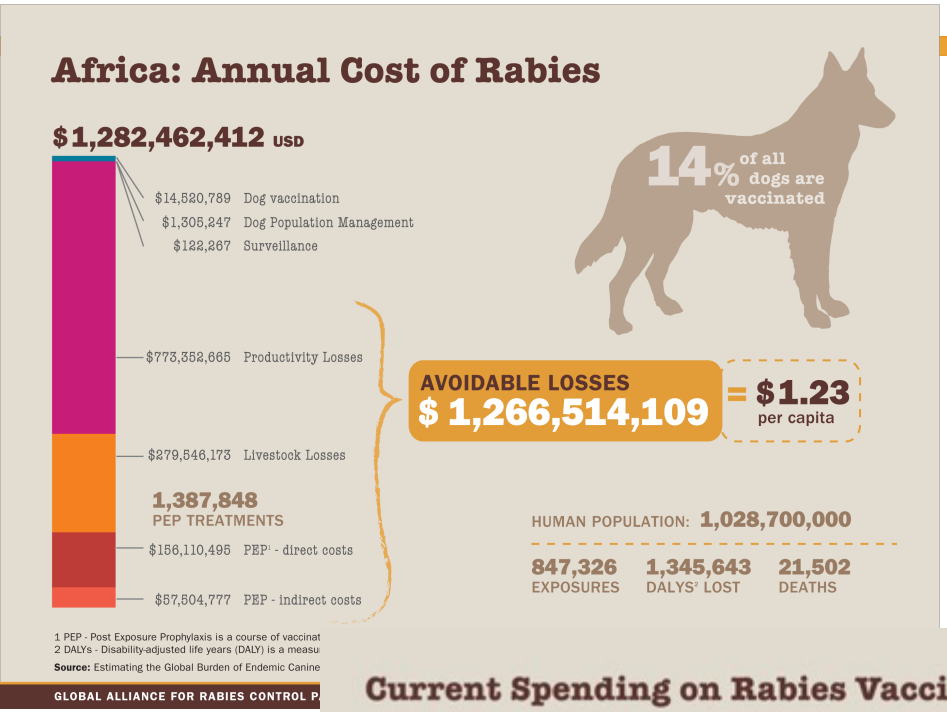
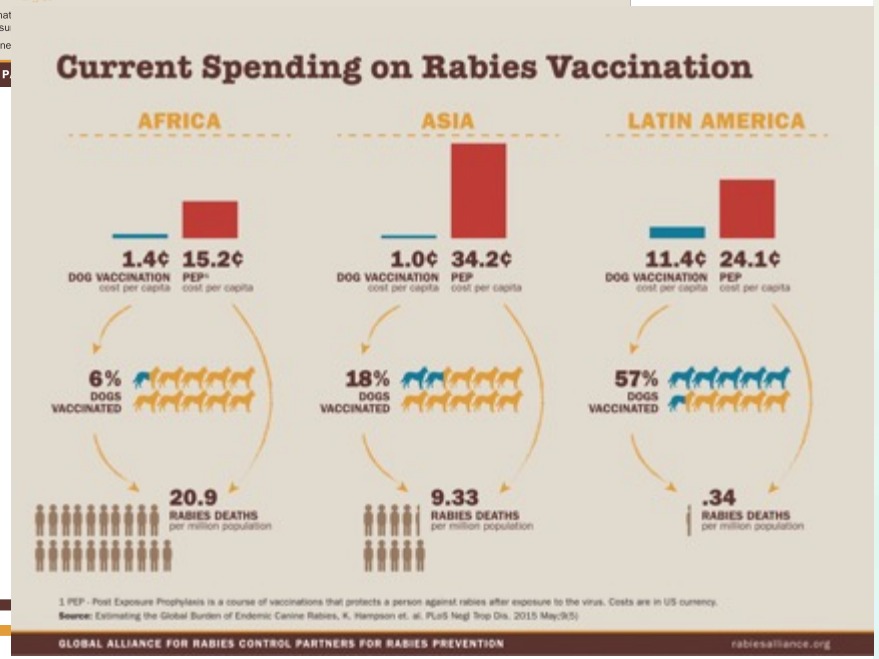
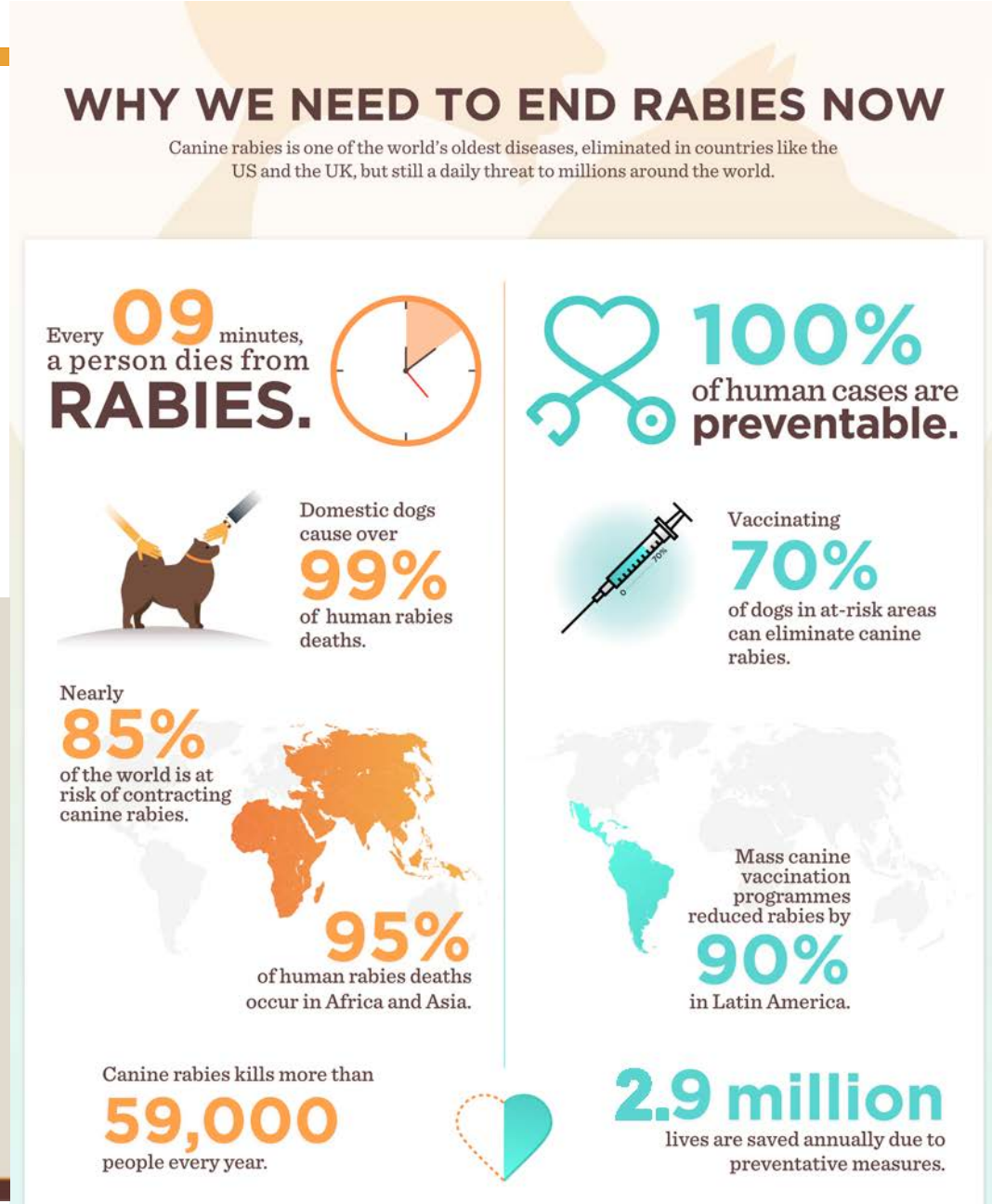
Making a statement with data







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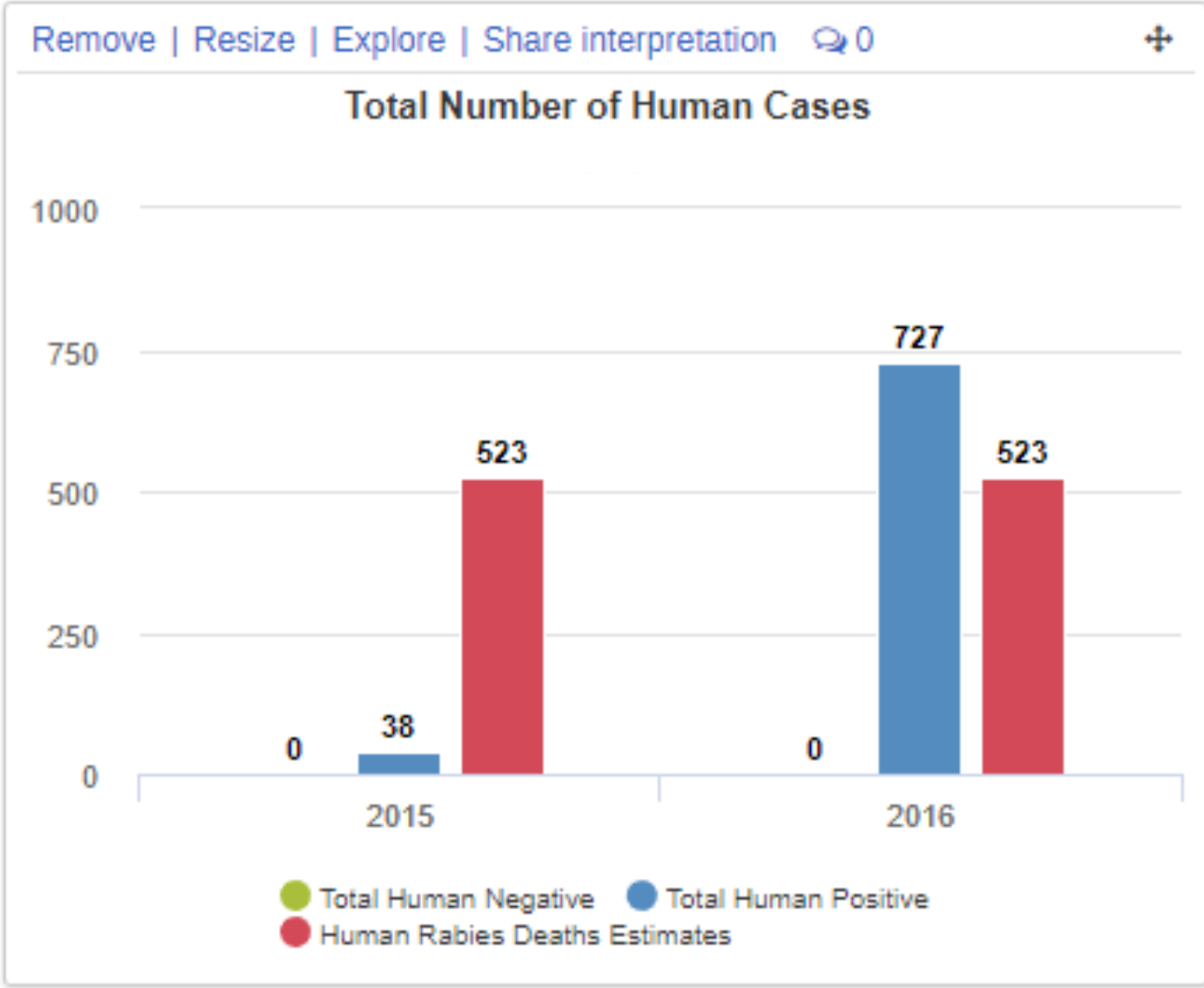
Data supporting the estimates



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We aim to make data entry child's play!

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Rabies Data Collector

Andre Coetzer

2nd sub-Regional PARACON Meeting

South Africa, 2017

Global Alliance for Rabies Control

www.rabiesalliance.org

Overview

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Background

- Data collection is often difficult, especially during vaccination campaigns
  - There is little time for vaccinators to gather data while vaccinating
- Often a dedicated data capturer is required
  - Costly
- Thus, a need for a simple, yet comprehensive data collection method became evident

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- Automatically collects:
  - Time
  - Date
  - GPS coordinates

- Captures inputted data via 3 questions each with 2 options
  - Example output: Adult, Male, Dog, GPS, Time, Date

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Hardware Advantages

- Durable
- Lightweight
- Easy-to-use
- Easily waterproofed (works through a ziplock bag)
- Can be used with a nitrile/latex glove
- Simple micro-USB charge – can be charged off of a standard smartphone charger, from wall socket or laptop

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Connectivity Advantages

- Works solely on GPS
  - Not reliant on mobile networks
  - No data/internet access required
- Data stored on device until download onto computer
- Can be used in the most remote areas

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Software Advantages

- High memory capacity (stores 500 records)
- Can be run on any Windows compatible machine
- Software programme file small enough to be emailed (<2mb in size)
  - No need for complicated programme installation
- Data outputs in Excel file
  - Compatible with most reporting bulletins and programmes (GIS, Google maps, etc.)
  - Easy to create quick graphs and outputs

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RDC: Data collection and usage

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RDC usage

Static point vaccination

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Vaccine distribution and usage

- The first vaccine was used at 09:09
- The last vaccine was used at 09:39
- In 30 minutes – vaccinated 27 dogs
- Expect to see clustered locations – fixed point campaign

Total	Male	Female	Adult	Juvenile
27	10	17	22	5

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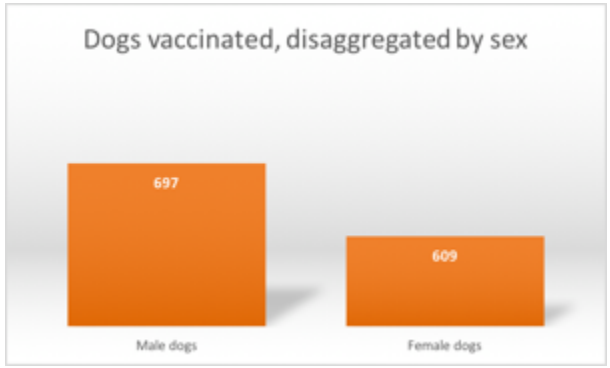
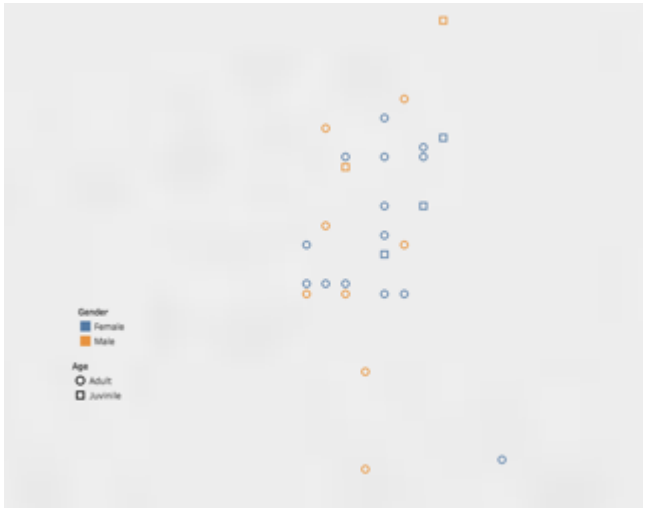
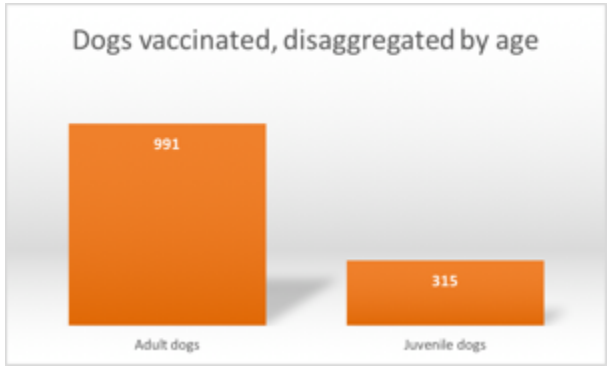
RDC data usage

- Output is a CSV file – opens in Excel

- Can be used immediately and is the property of the owner of the device







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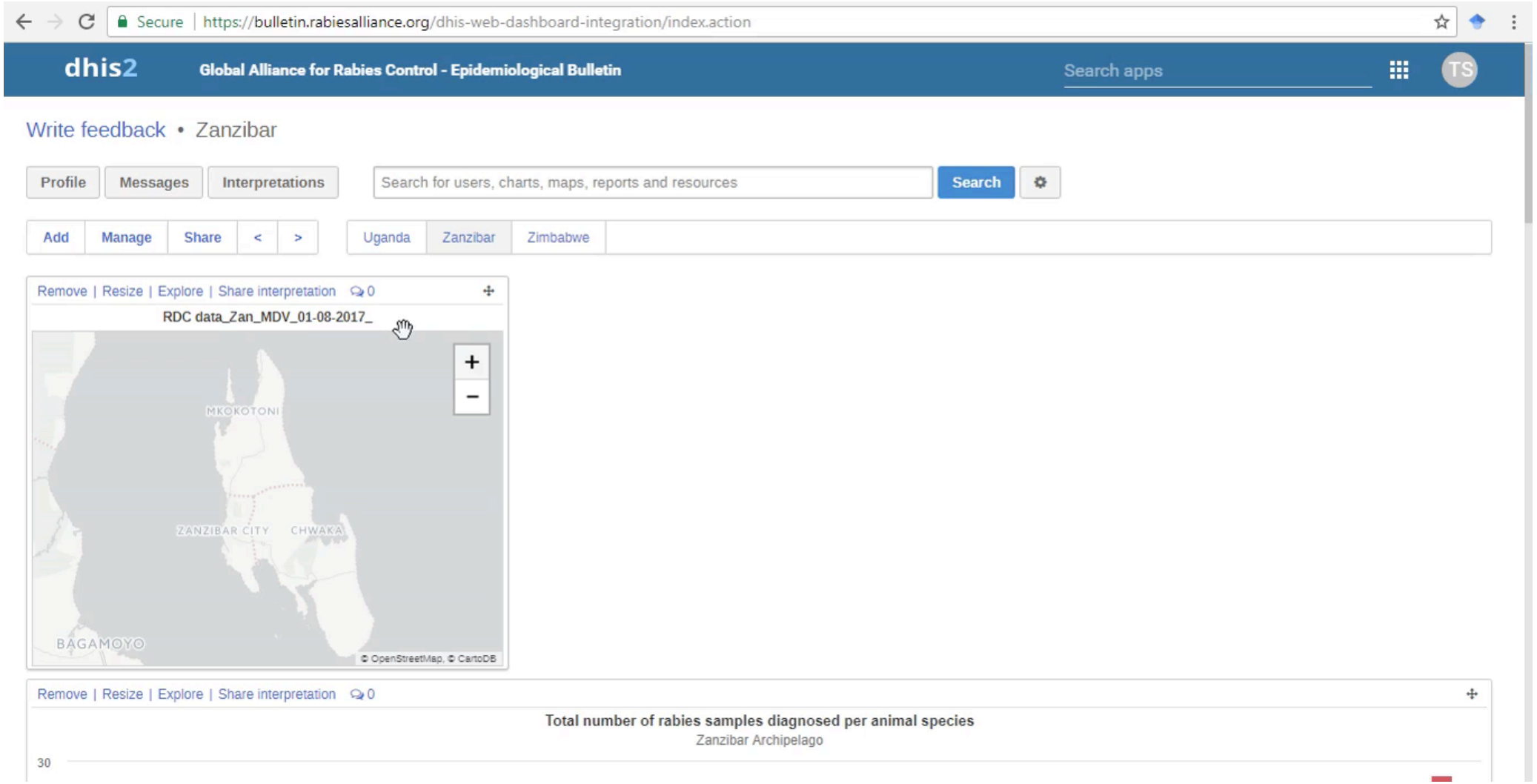
Uploading data onto the Epidemiological Bulletin



Versatility

Versatility

- Decal design is interchangeable
- Software programme enables functional interchangeability
- Can be used in any situation
  - Limited to 3 questions with 2 options per question

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Possible uses

- Rabies vaccination campaigns
- Post-vaccination surveys
- Sterilisation campaigns
- Basic KAP surveys
- Dog population estimates
- Healthcare facilities – wound category information
- Other diseases/other uses non-rabies related

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THANK YOU

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www.rabiesalliance.org

Towards the first dog-mediated rabies elimination in an African region

Department of Livestock Development-Zanzibar

Dr Khadija Noor Omar

PARACON Meeting, Pretoria South Africa 13-15 September 2017

Background

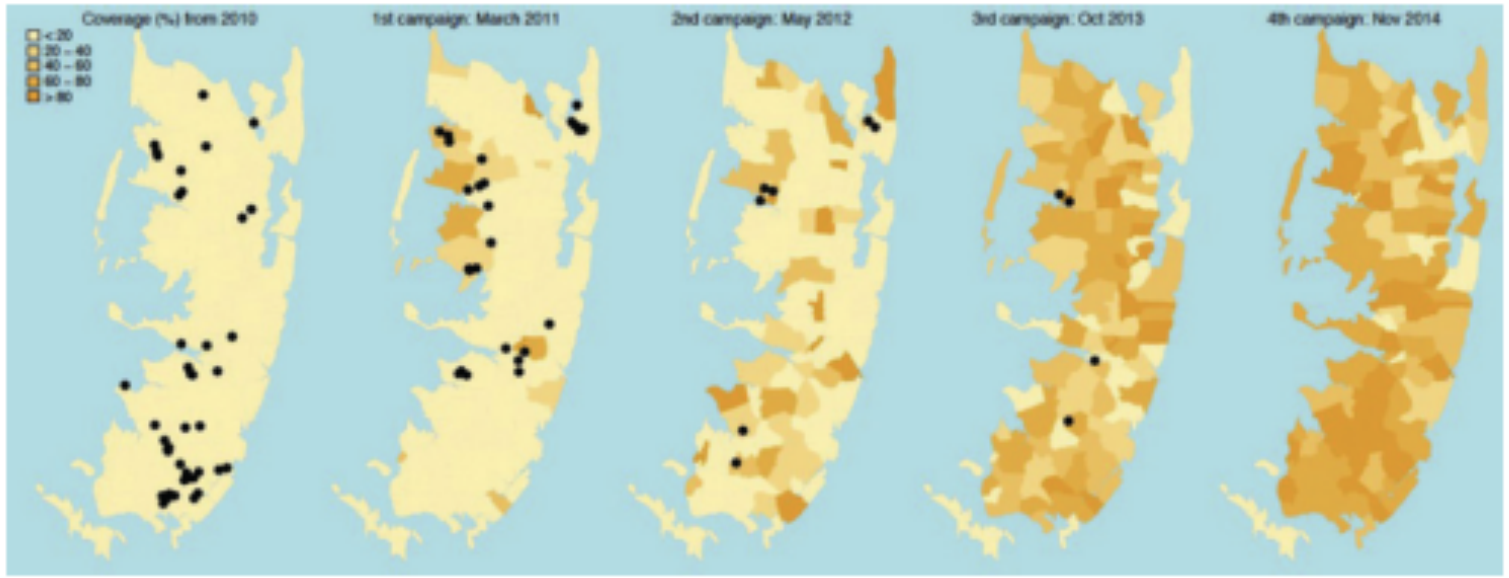
- The Zanzibar archipelago is situated off the eastern coast of Africa
  - Semi-autonomous region of the United Republic of Tanzania
  - Consists of two main islands, Unguja and Pemba.
  - The largest and most populated island is Unguja / Zanzibar island

Background

- Rabies has been endemic within the Zanzibar archipelago since the 1990's
- No diagnostic capacity had been established prior to 2016 and diagnostic confirmation was done on the mainland
- Various disease intervention campaigns have been implemented over the years

Pemba island

- Pemba island was one of the chosen sites for the BMGF project (2010 – 2015)



Estimated vaccination coverage of the dog population (shading) in villages on Pemba, and suspected animal rabies cases (dots) since 2010 following each vaccination campaign from 2011 to date. Darker shading corresponds to higher vaccination coverage

Lushasi et al., 2017. Progress towards rabies elimination from Pemba Island, Southern Tanzania

Zanzibar (Unguja) island

- Zanzibar island took part in the “Rabies Control and Dog Management Project” (2009 – 2015) in partnership with World Animal Protection
  - Project consisted of multi-year mass dog vaccination campaigns (Vaccination coverage - Min: ±15% - ±100%)
  - A steady decline in the number of clinical canine rabies cases was observed until 2015 when no cases were detected
  - **Zanzibar island was ready to undertake a canine-mediate rabies-free self declaration**

Zanzibar island

- In support of the rabies-free self declaration, the next step was to establish a working surveillance system on both islands

- Support provided by Global Alliance for Rabies Control and World Animal Protection

Rabies surveillance using the DRIT assay

DRIT surveillance

- The DRIT assay has been implemented in both Unguja and Pemba
- All of the DRIT results are confirmed using a real-time PCR assay

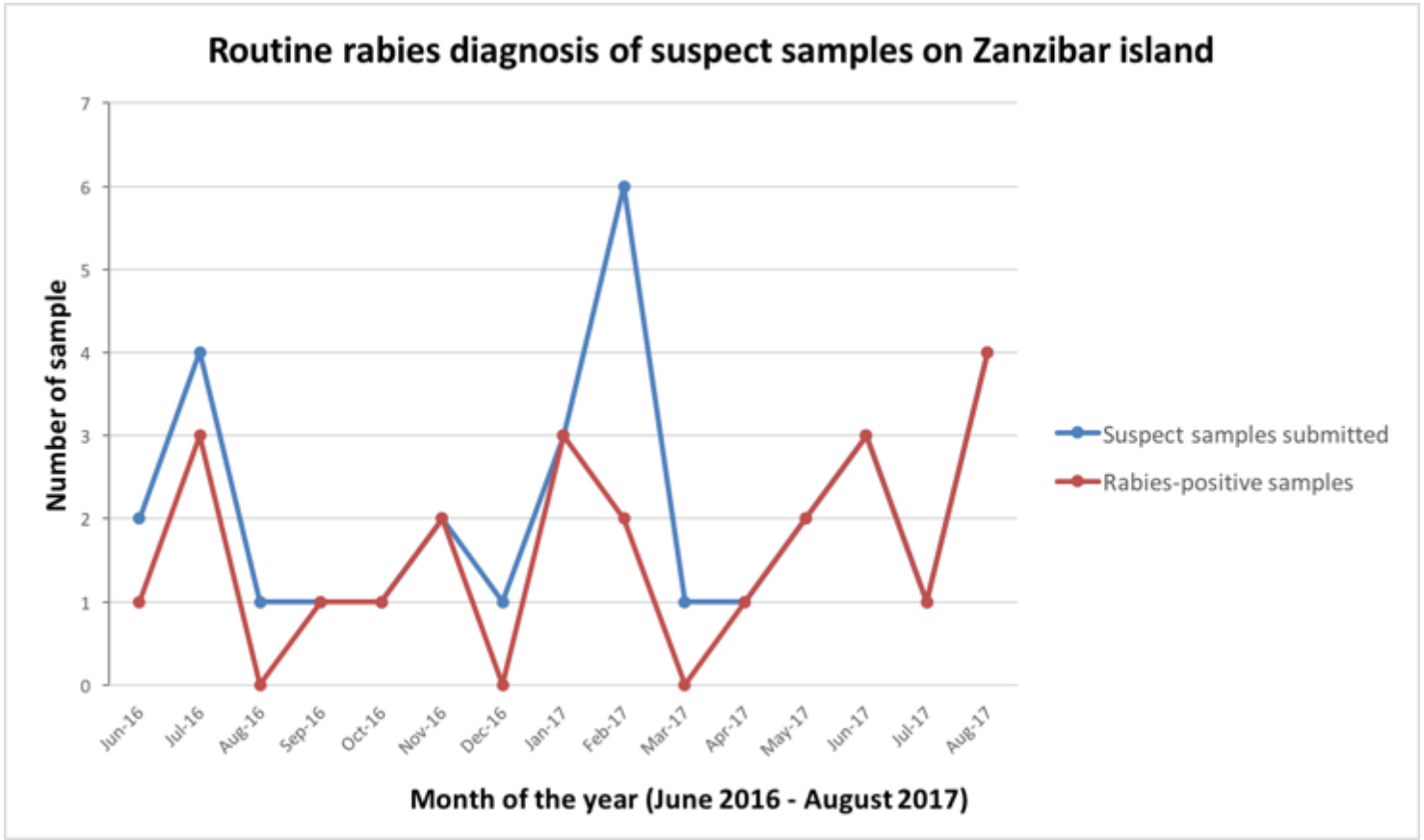
- Rabies cases have been detected in both Unguja and Pemba with a large number of samples being rabies-positive

DRIT surveillance: Zanzibar island

- The DRIT assay has been used for routine rabies surveillance on Zanzibar island since July 2016

33 samples submitted

76% positivity

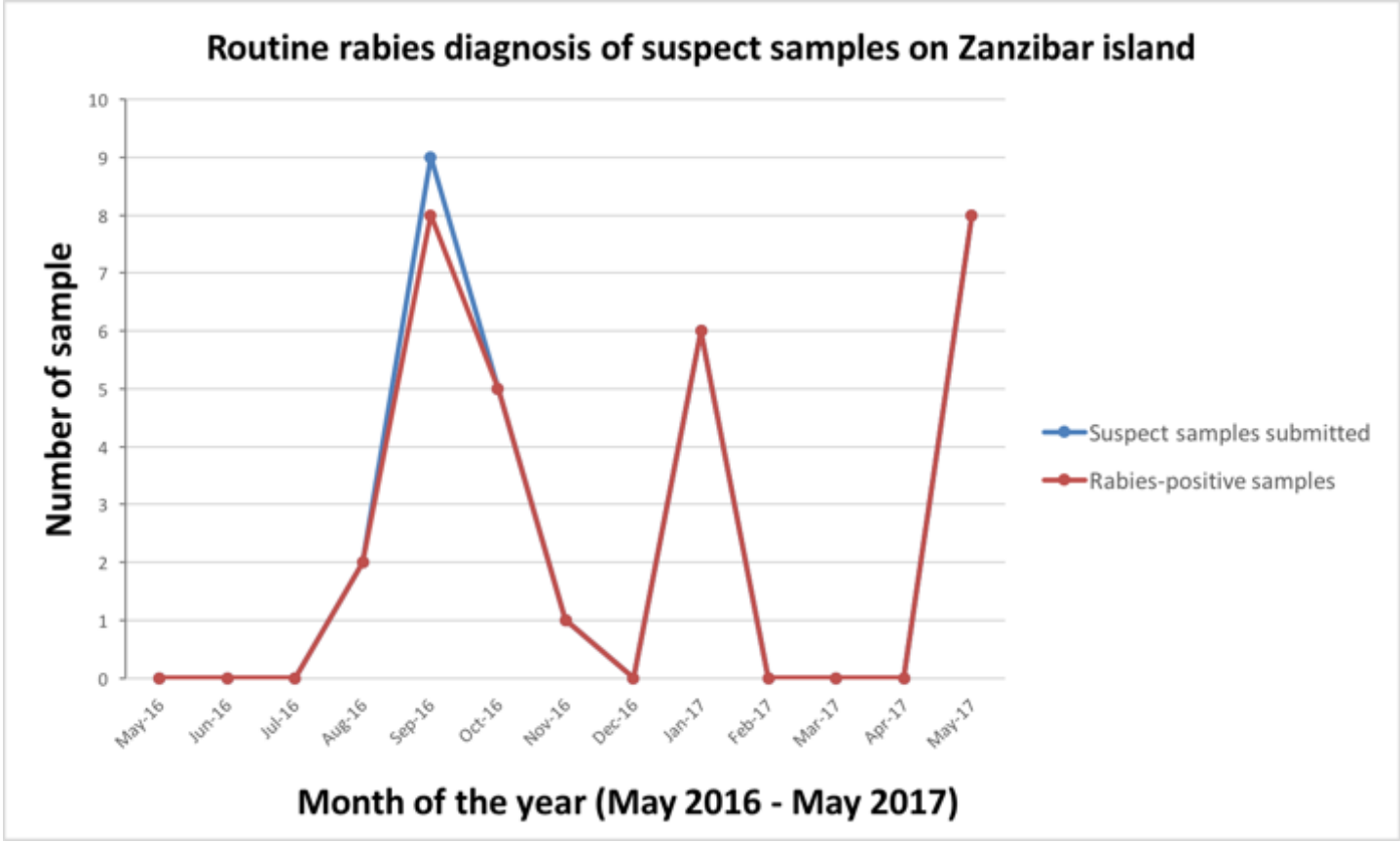


DRIT surveillance: Pemba island

- The DRIT assay has been used for routine rabies surveillance on Zanzibar island since January 2017

31 samples submitted

97% positivity



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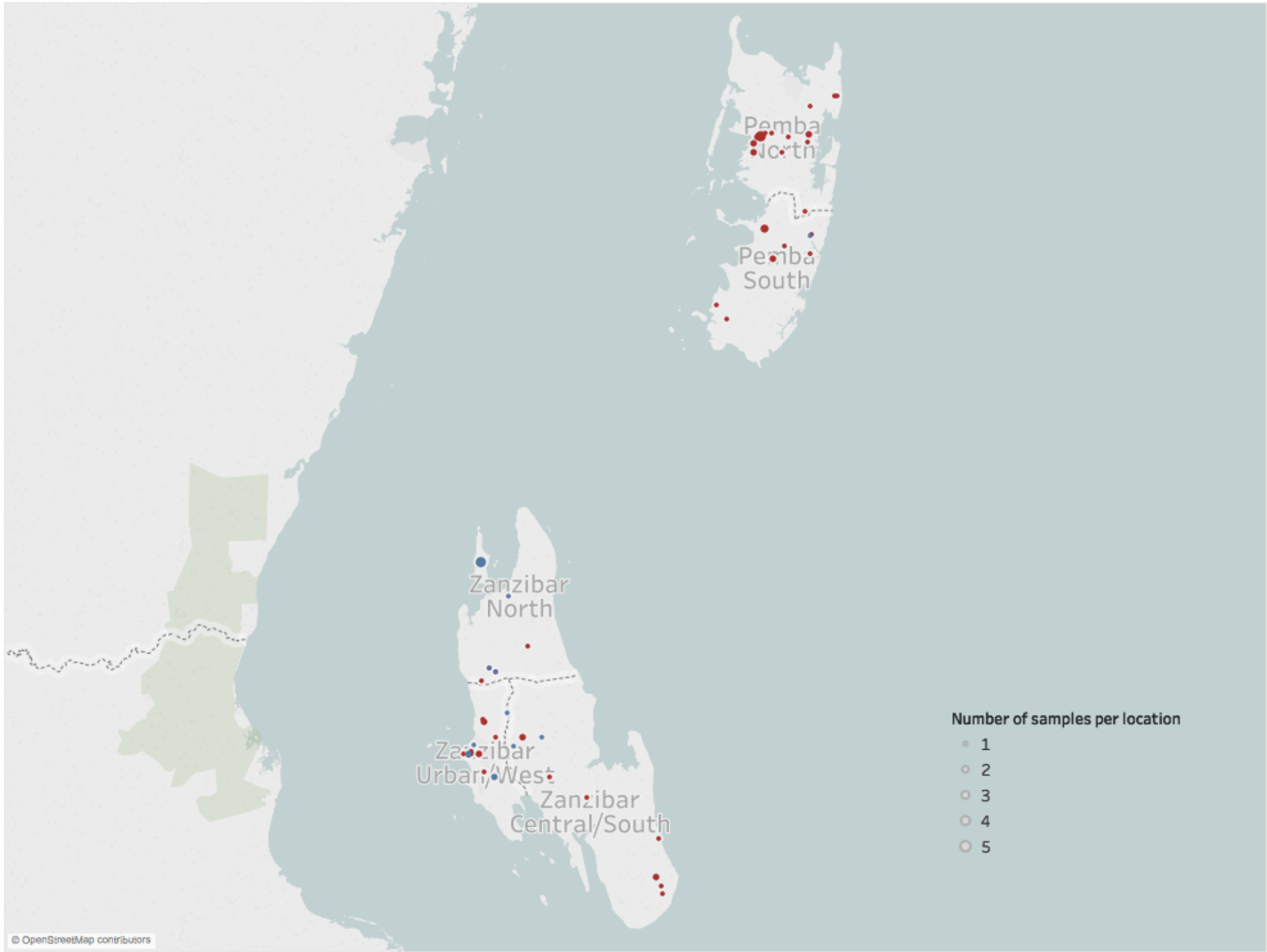
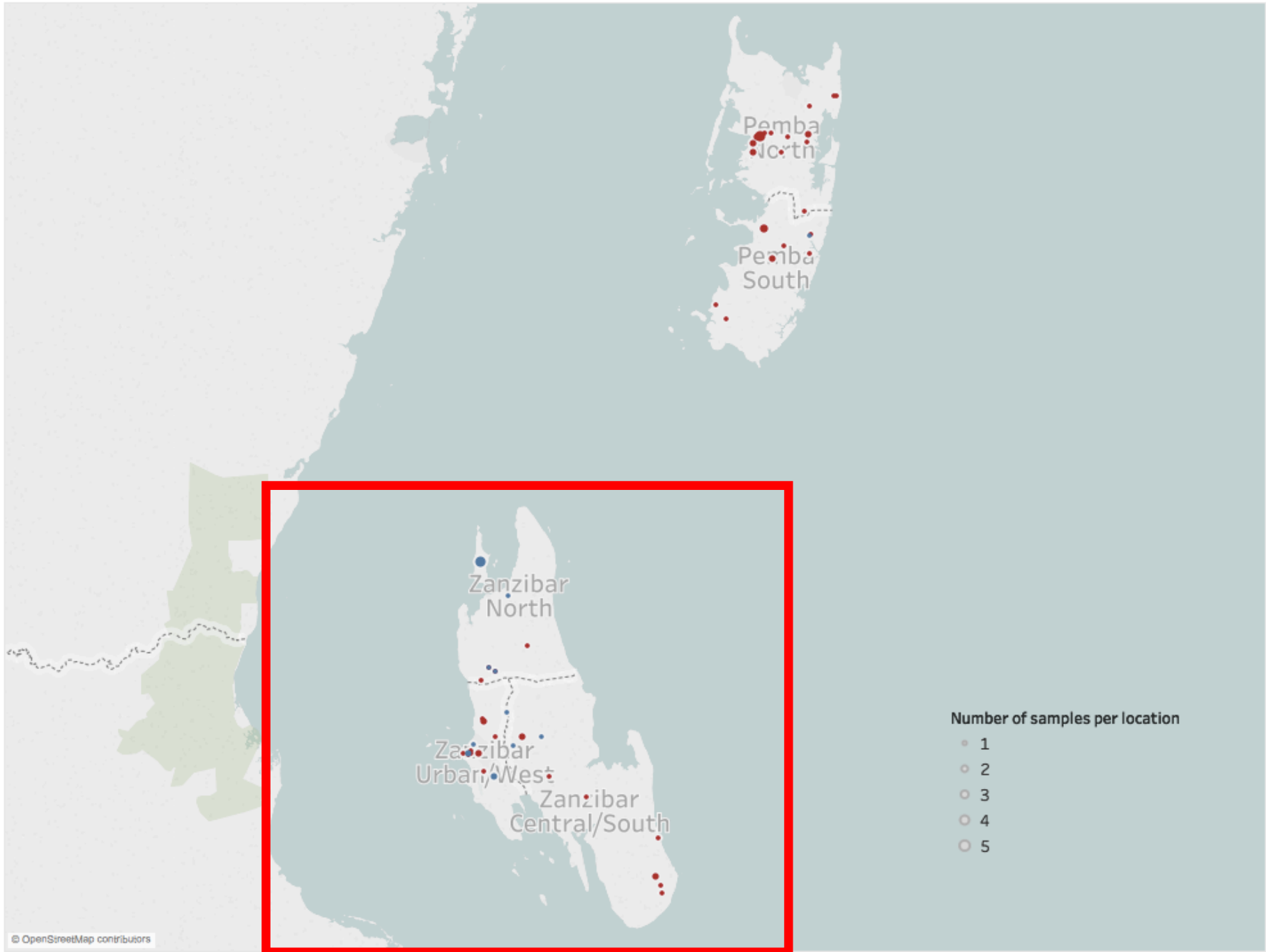
Spatio-temporal mapping of rabies-positive and -negative cases in the Zanzibar archipelago

WORLD ANIMAL PROTECTION



Spatio-temporal mapping of rabies-positive and -negative cases in the Zanzibar archipelago



Strategic mass dog vaccination in Zanzibar island

Strategic mass dog vaccination using the Rabies Data Collector

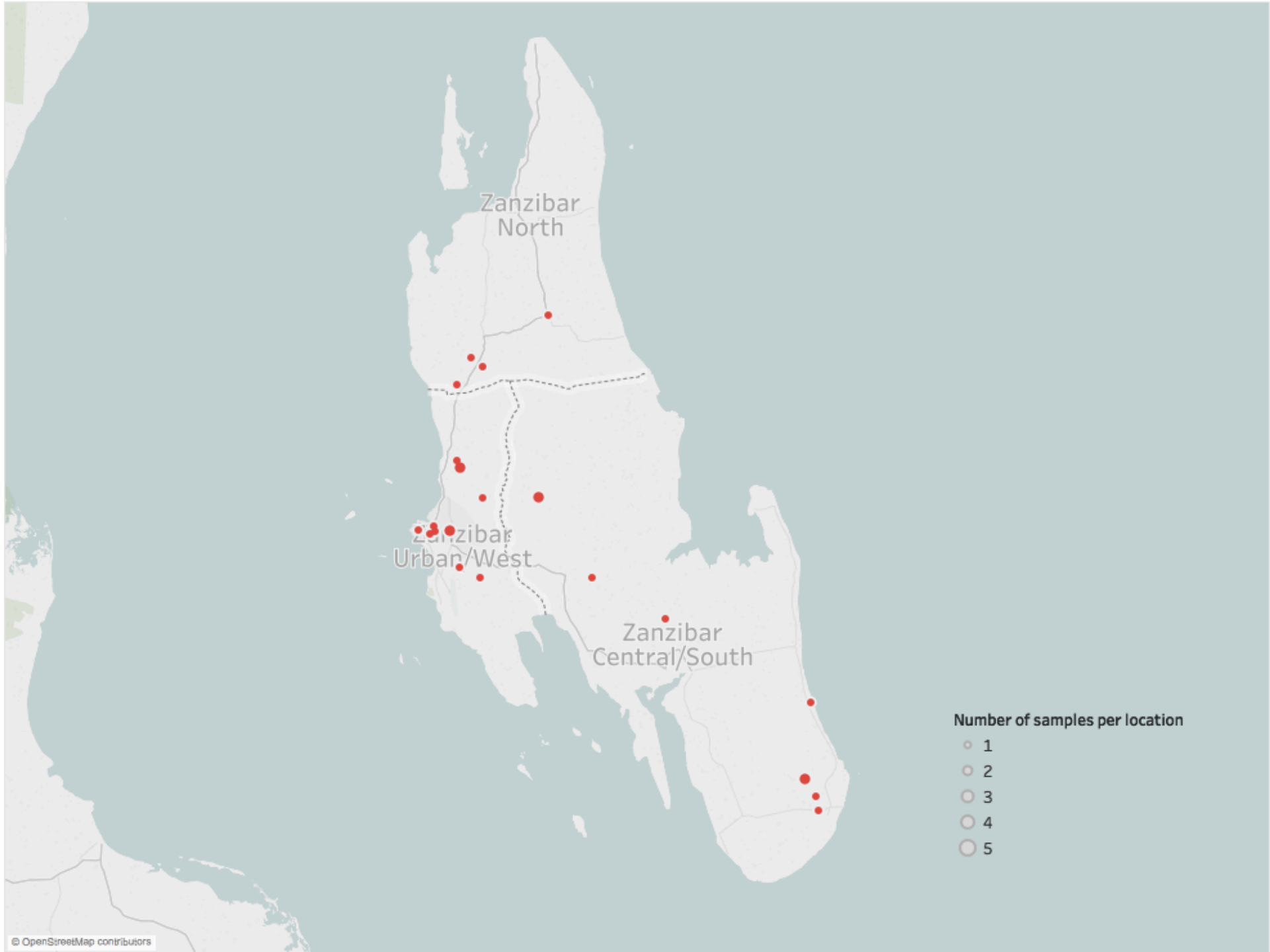
- Zanzibar island was chosen as the location for strategic intervention
  - Relatively small dog population (±10 000 dogs)
  - Strong network of animal health technicians
  - History of mass dog vaccinations being implemented

Strategic mass dog vaccination using the Rabies Data Collector

- Static points were selected for the rural areas of the island
- A combination of static and roaming campaigns are used for the urban areas of the island

Strategic mass dog vaccination using the Rabies Data Collector

- The Rabies Data Collector
  - Directs the mass dog vaccination campaign
  - Monitors vaccine usage
  - Ensures good coverage in all locations


Zanzibar North
Zanzibar Urban/West
Zanzibar Central/South
Number of samples per location
1
2
3
4
5
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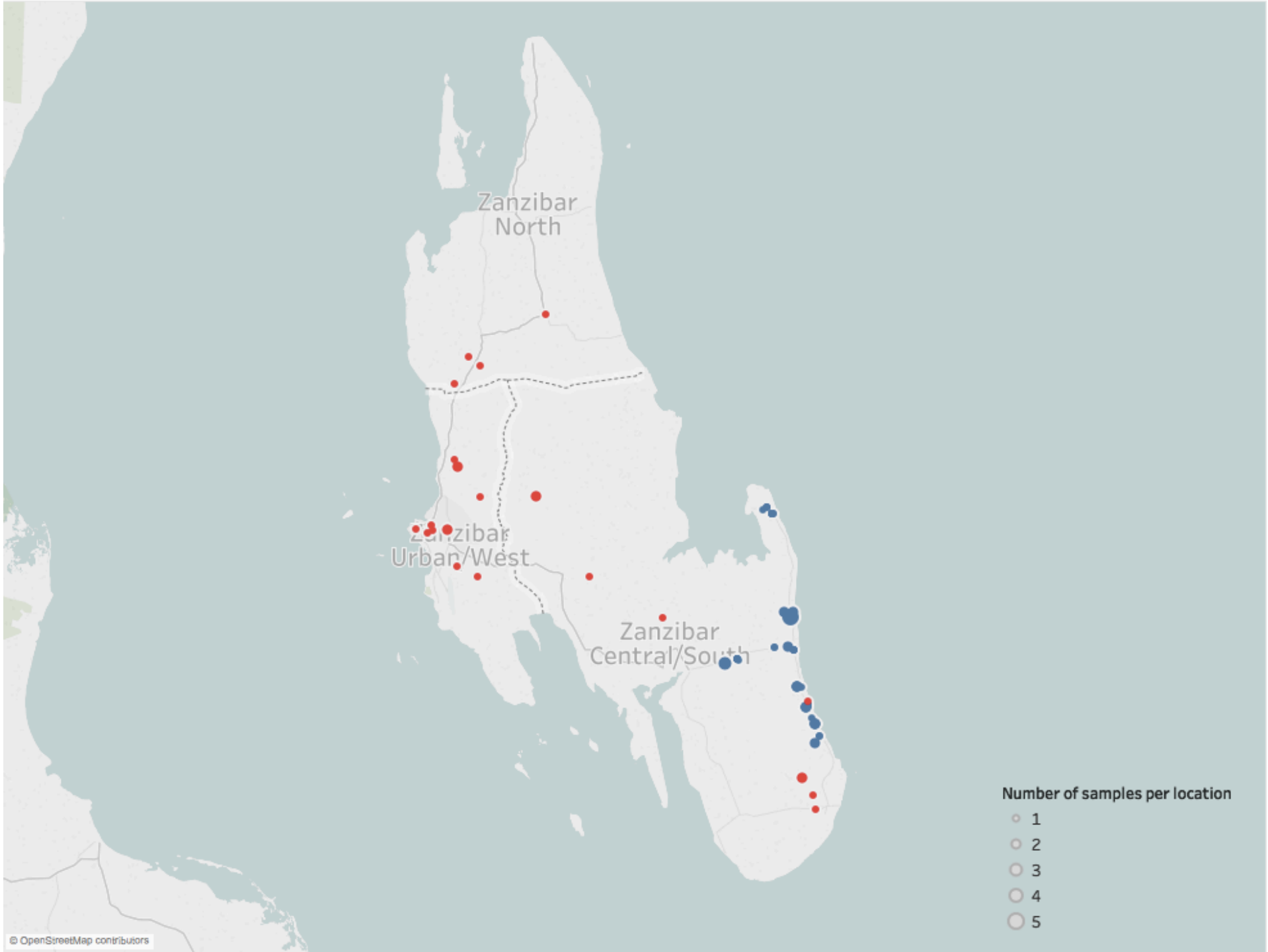
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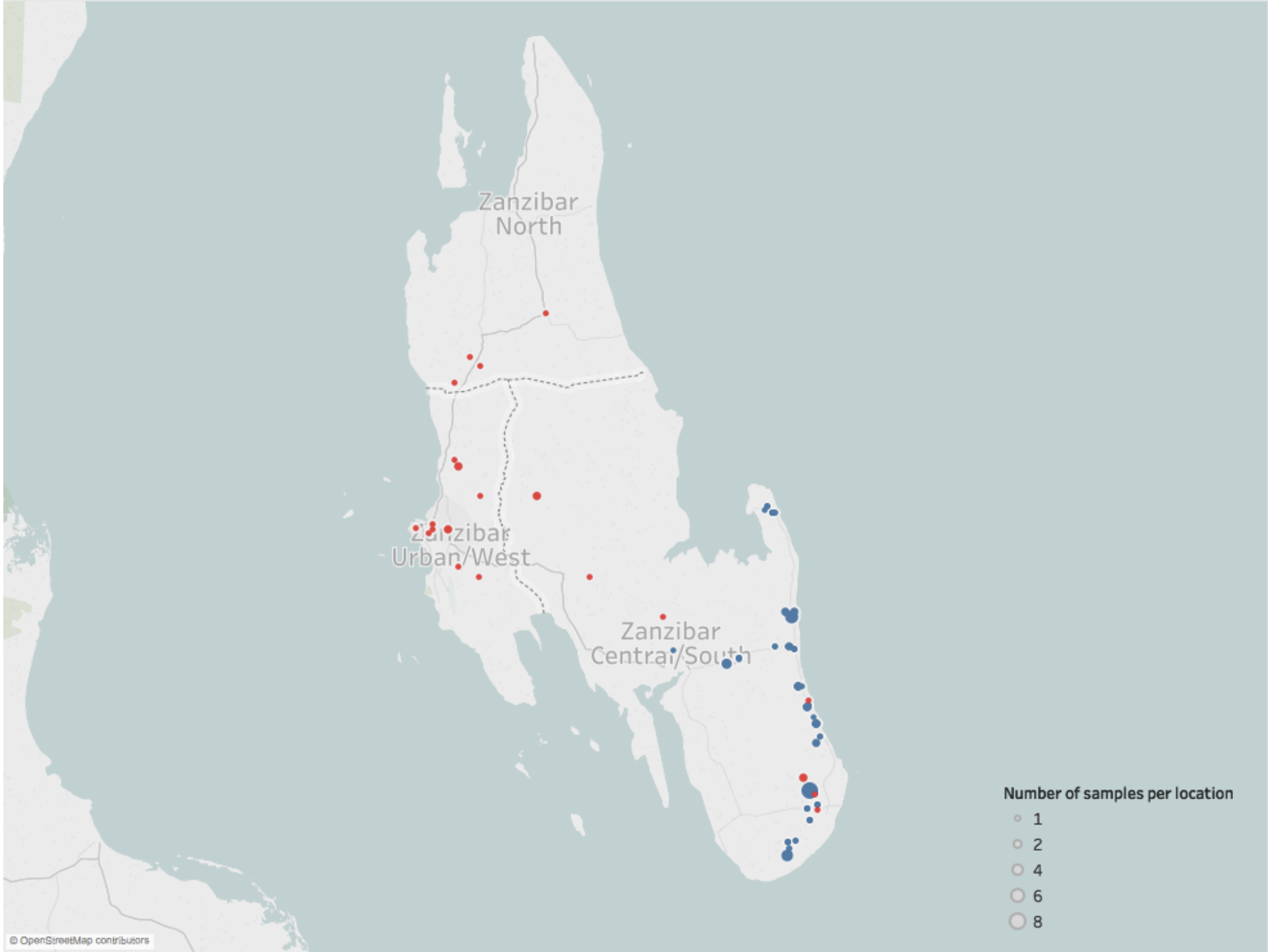
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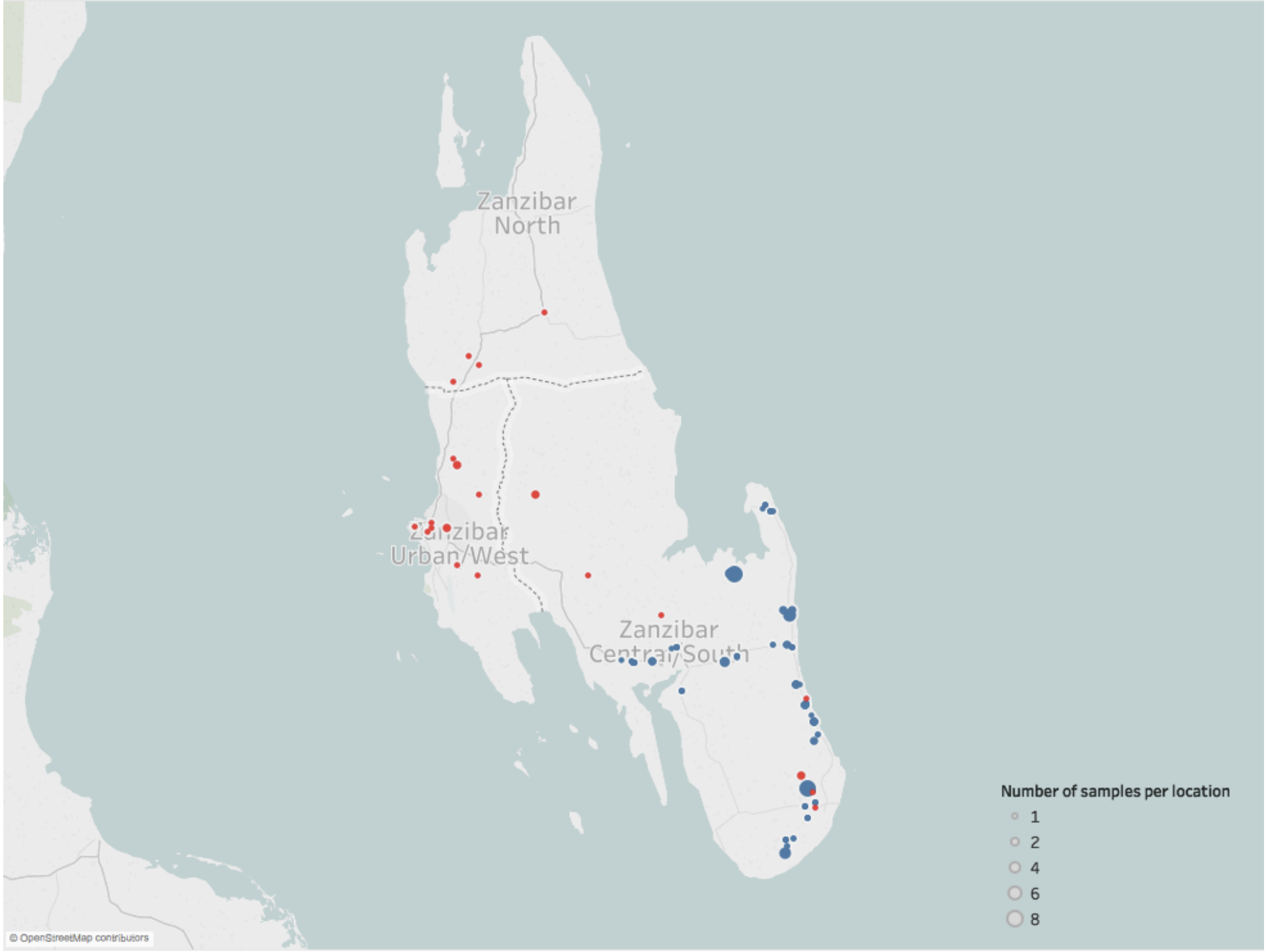
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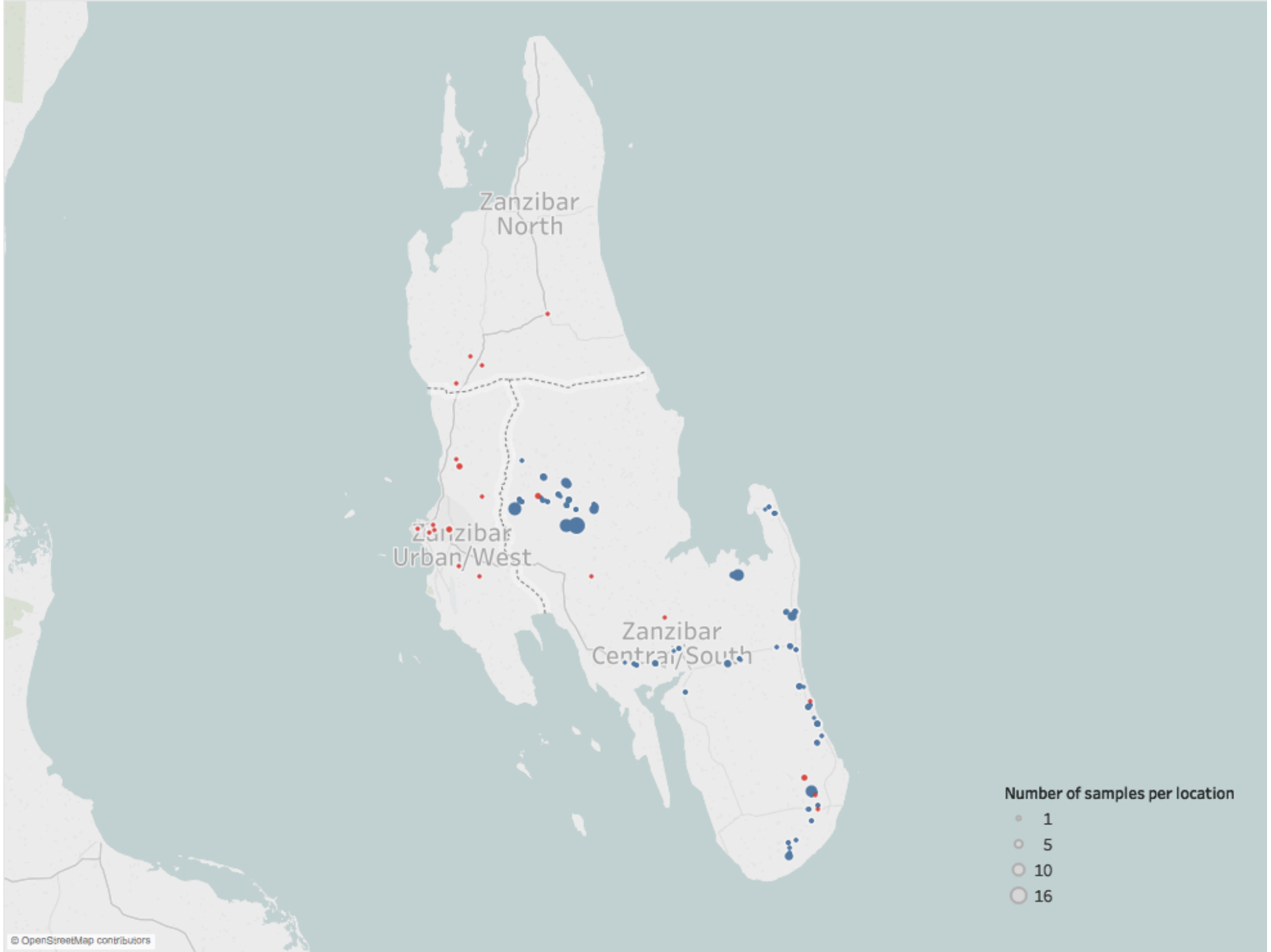
Zanzibar North
Zanzibar Urban/West
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Number of samples per location
1
5
10
16
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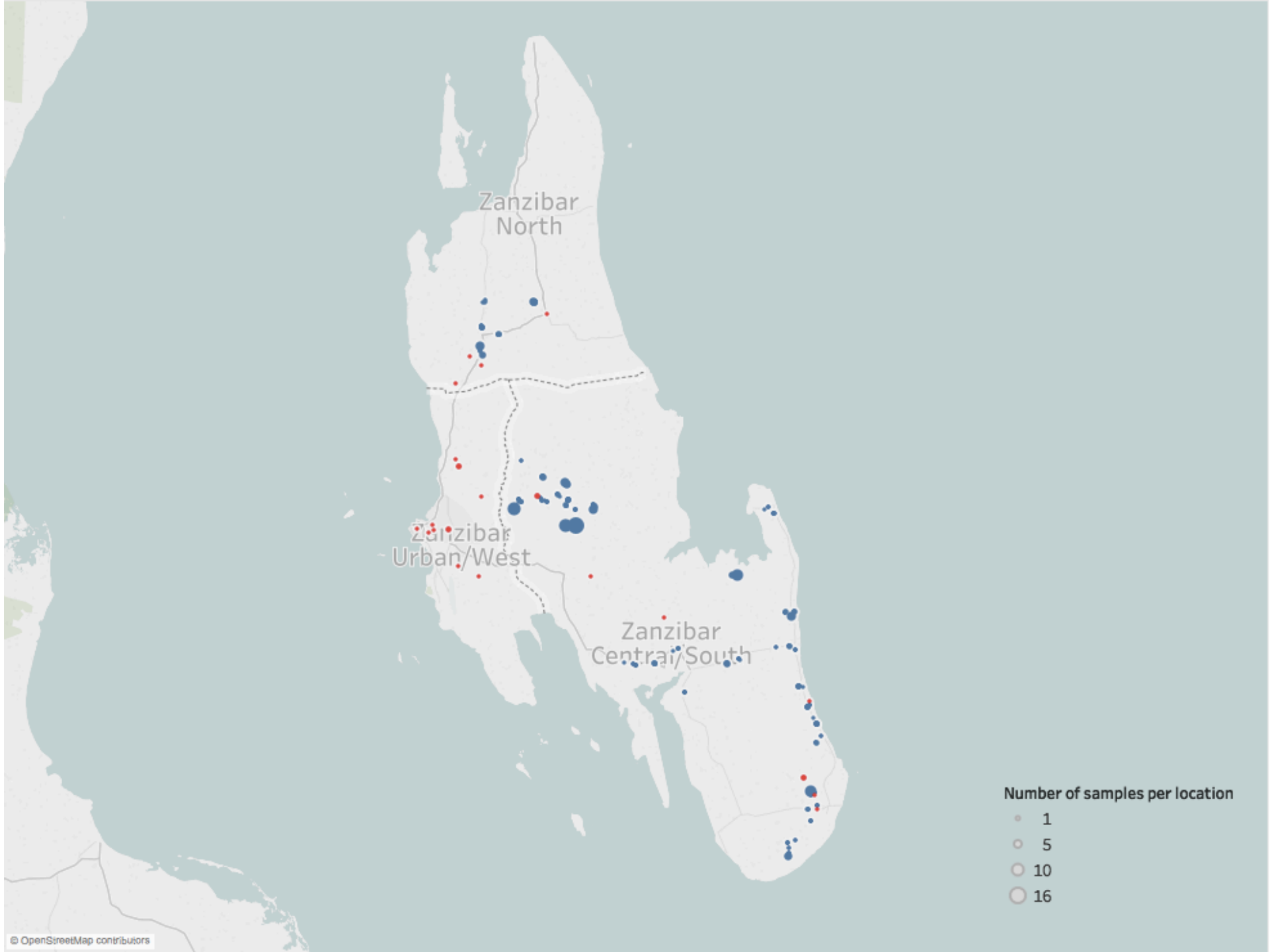
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16
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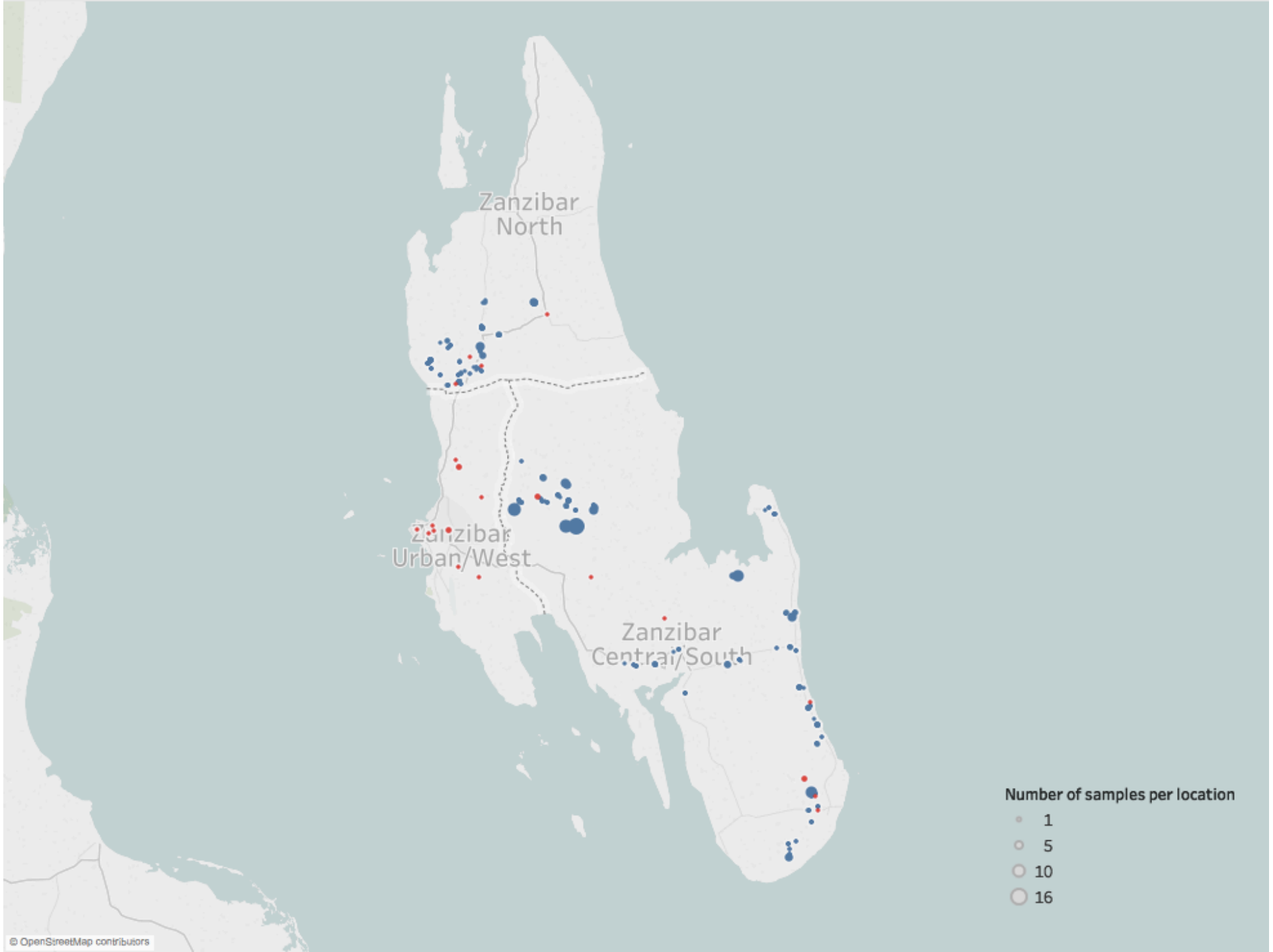
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Zanzibar Central/South
Number of samples per location
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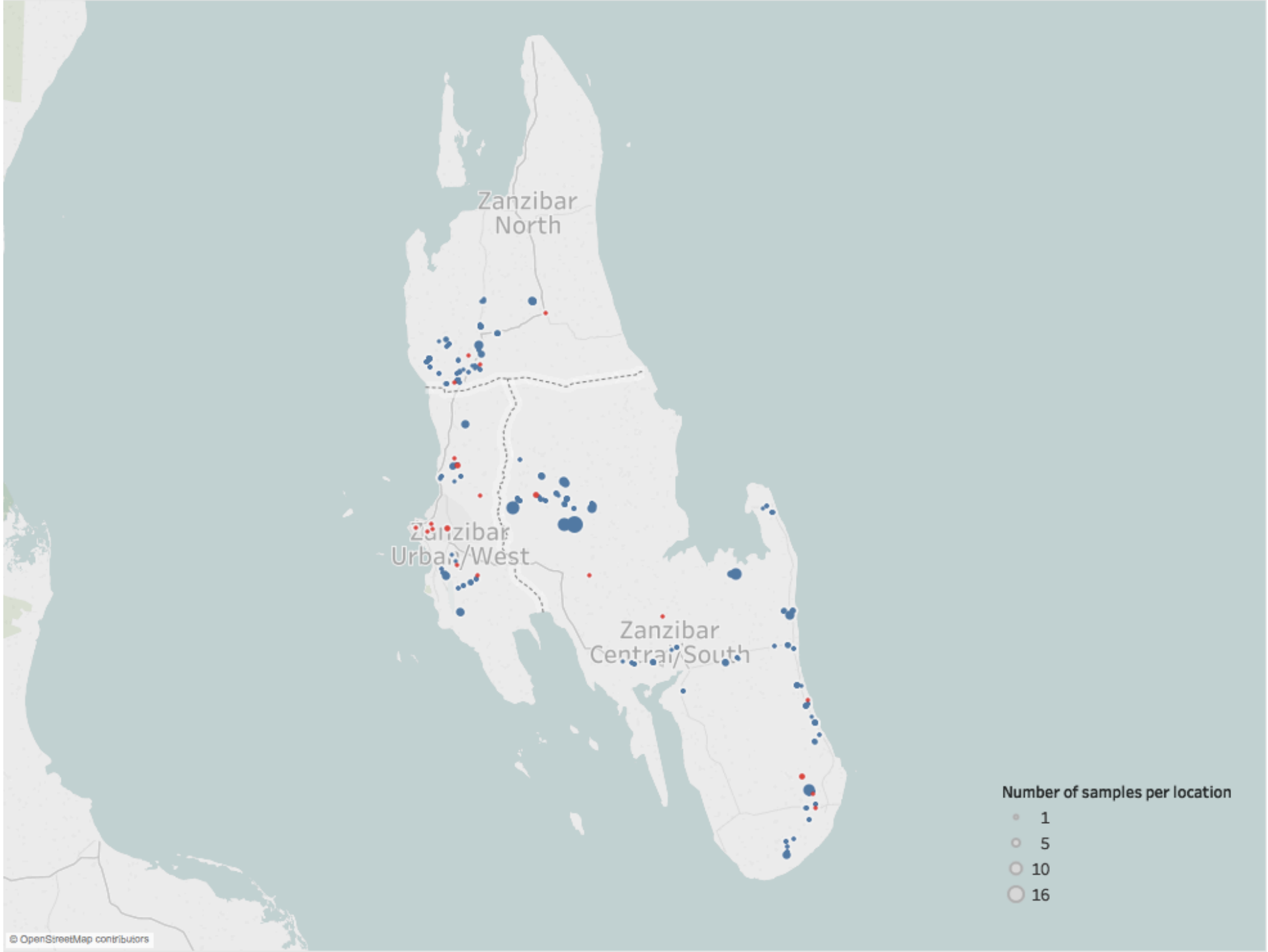
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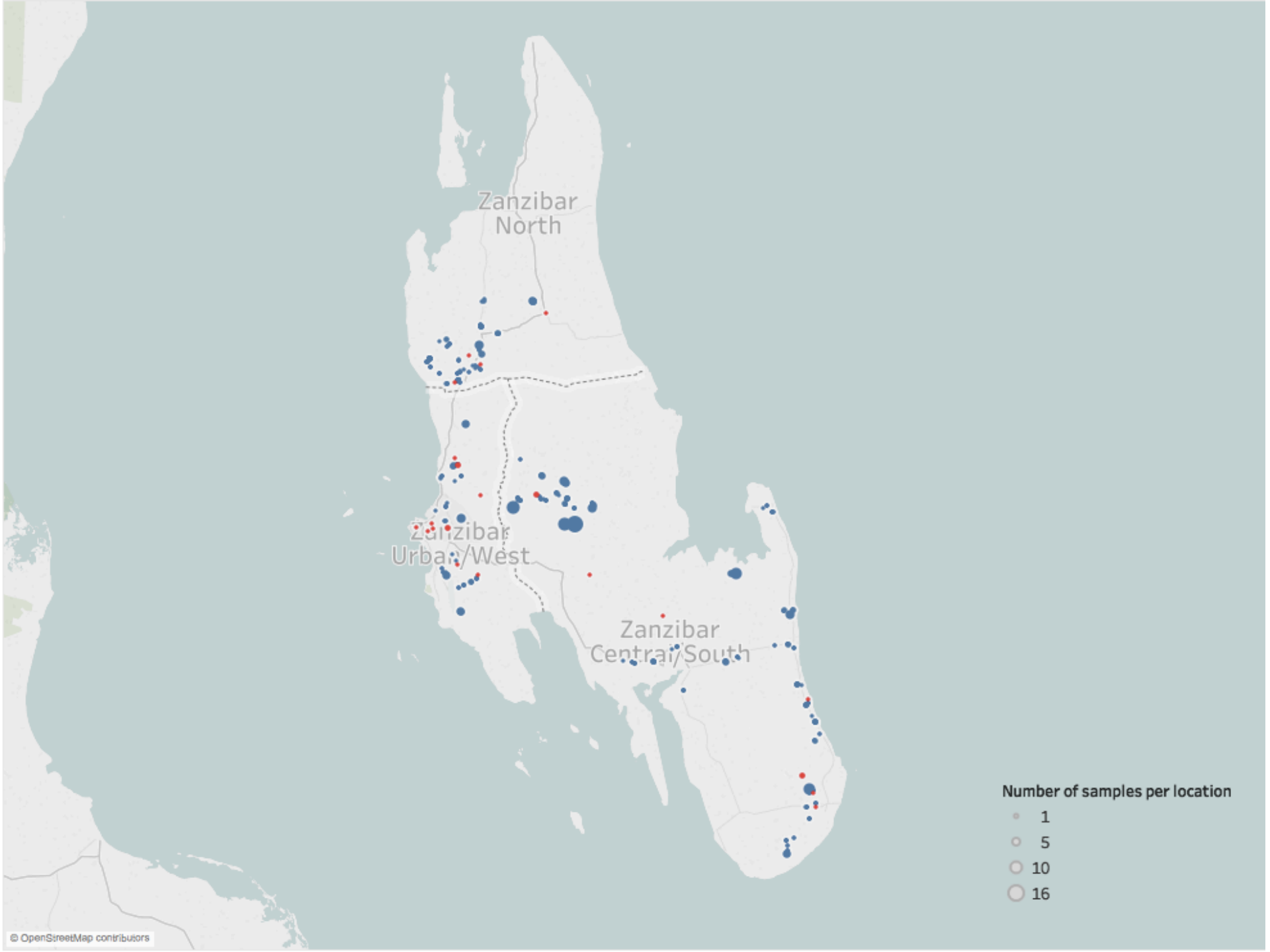
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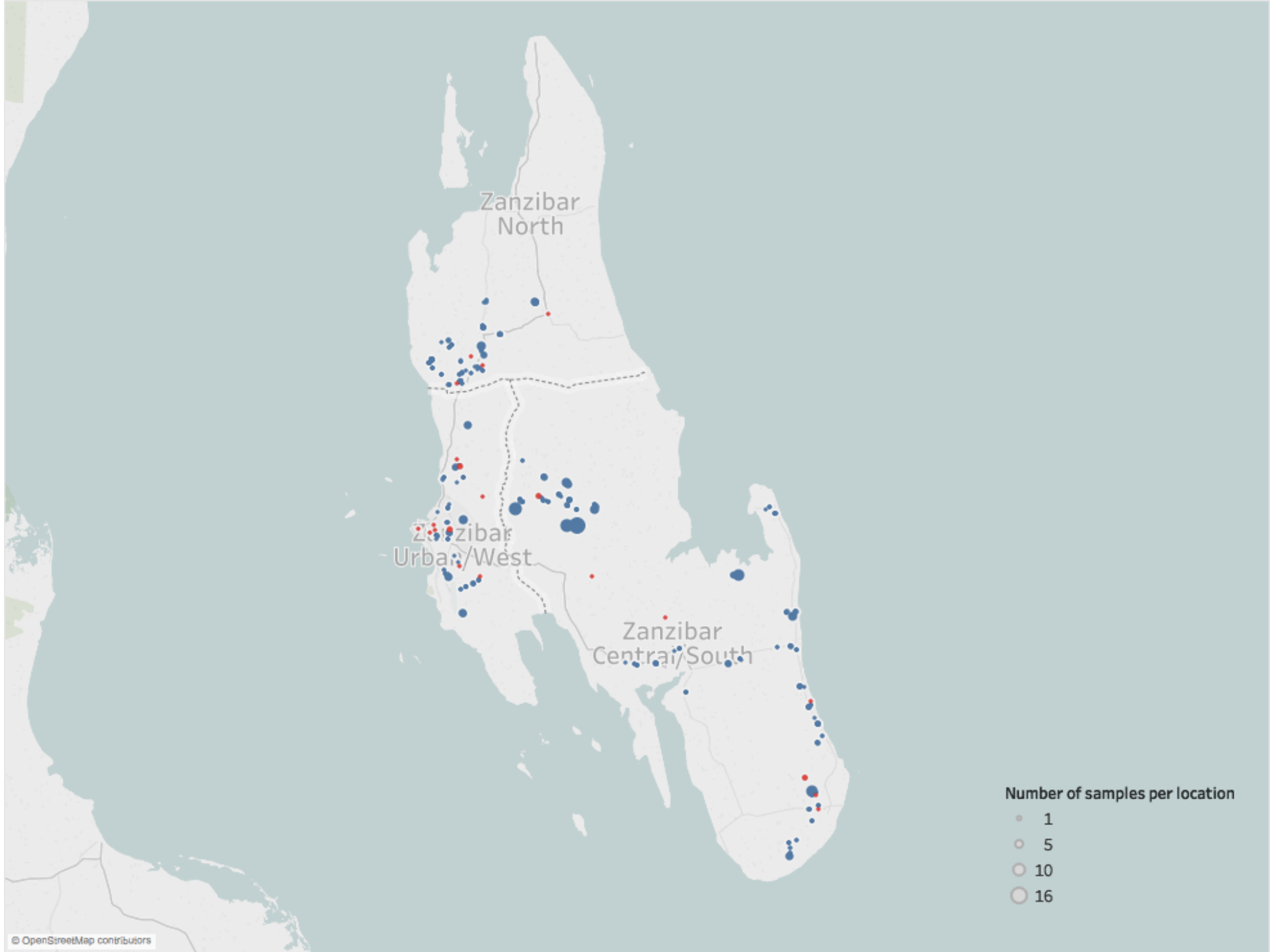
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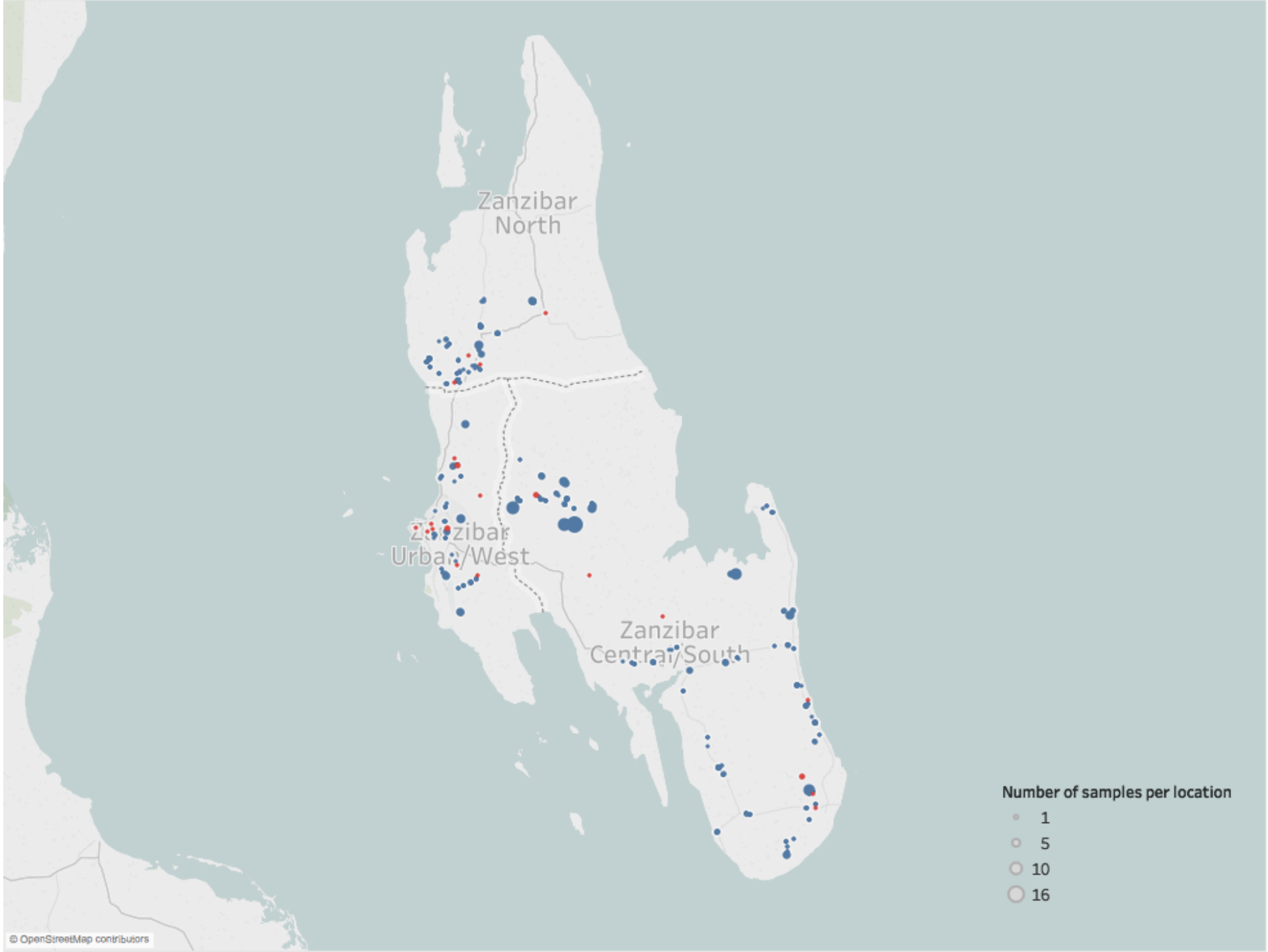
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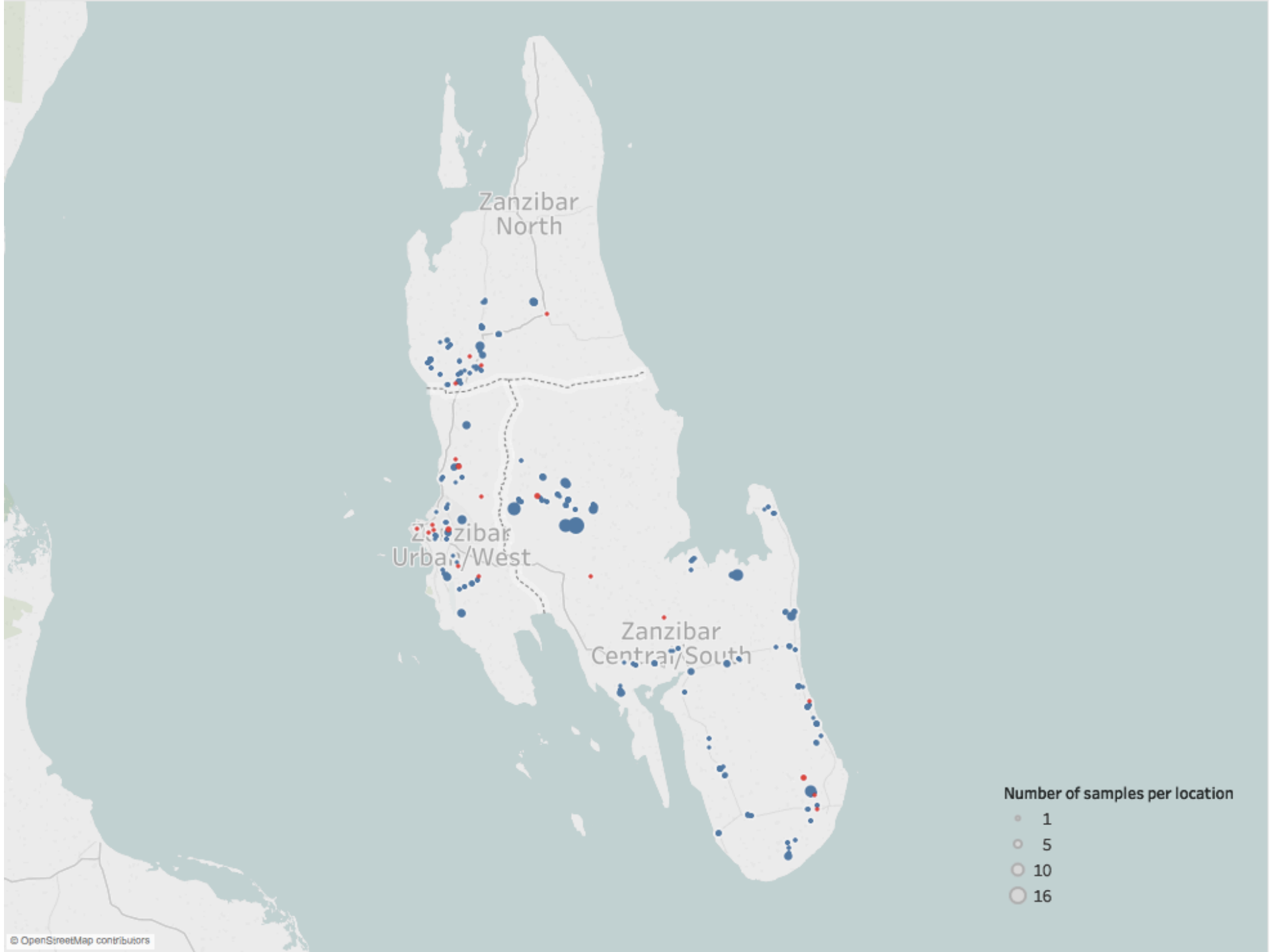
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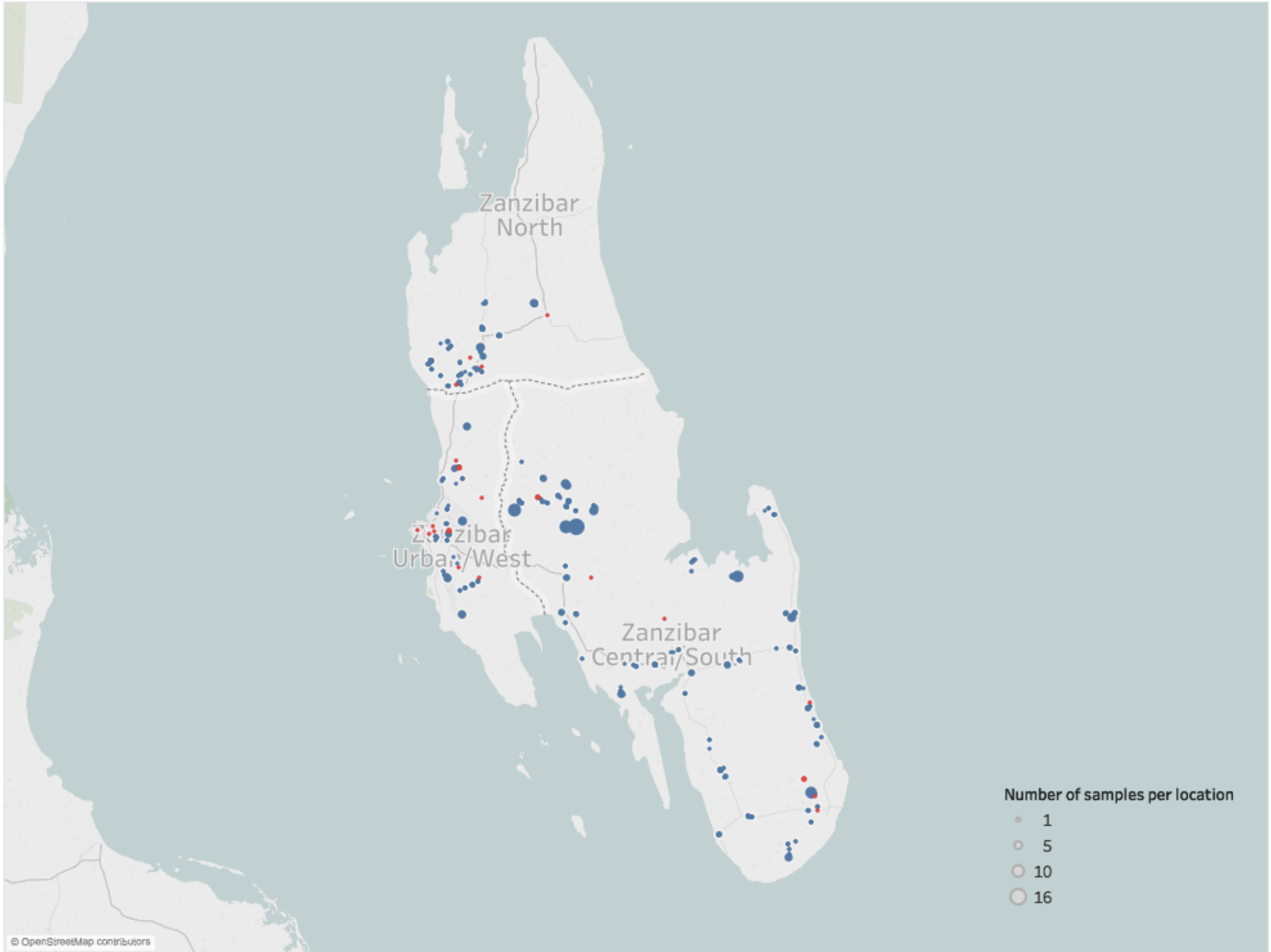
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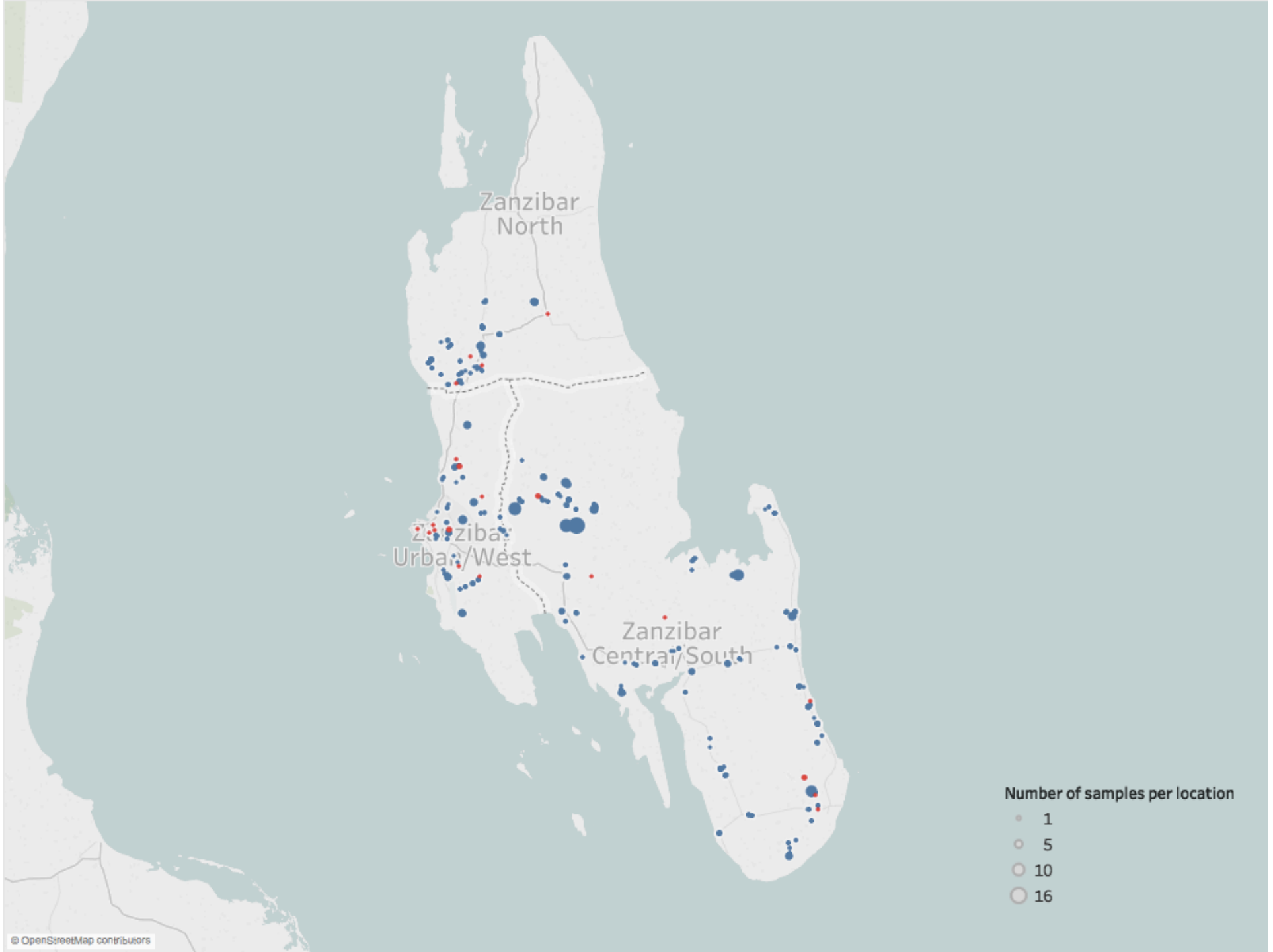
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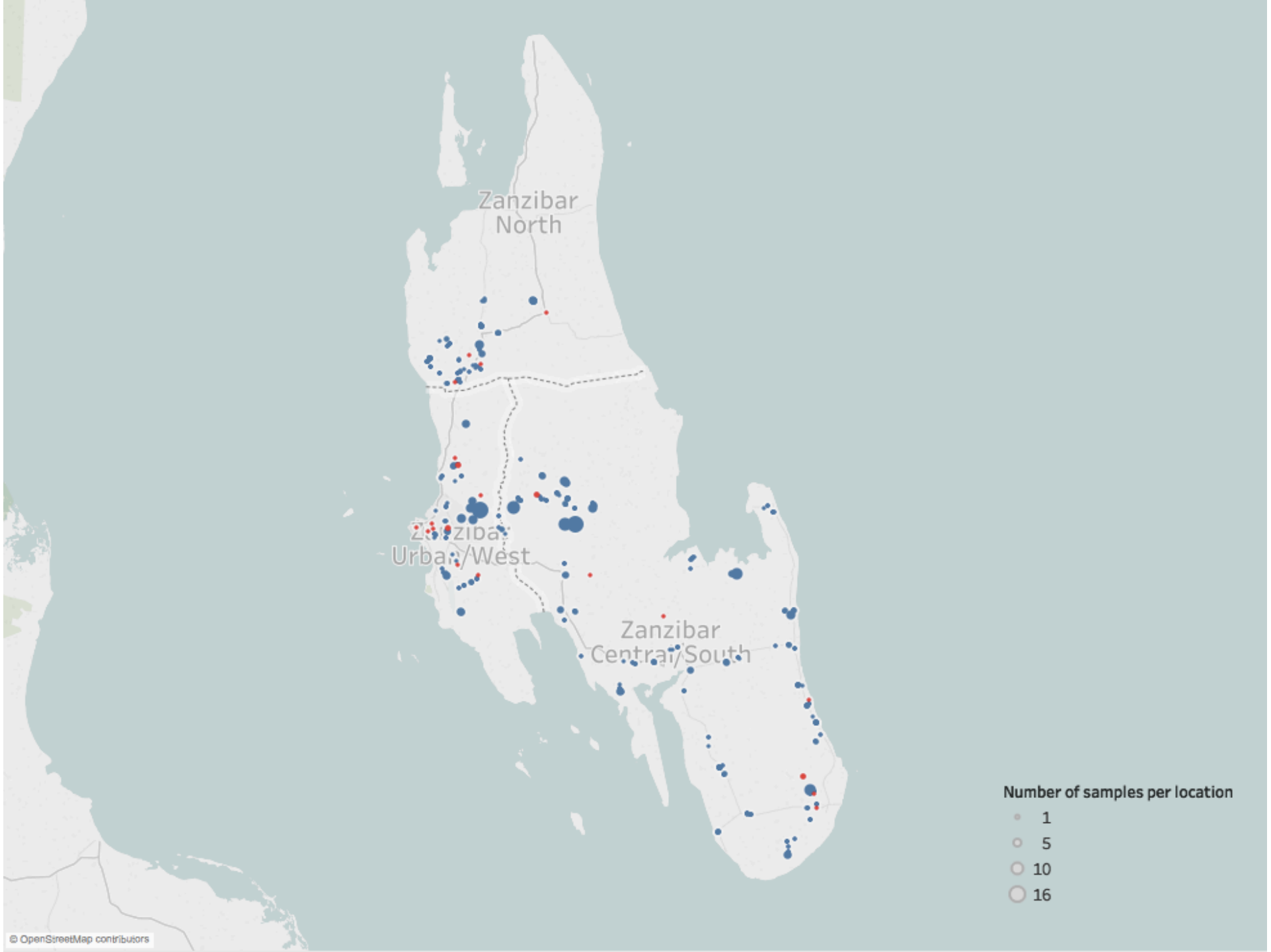
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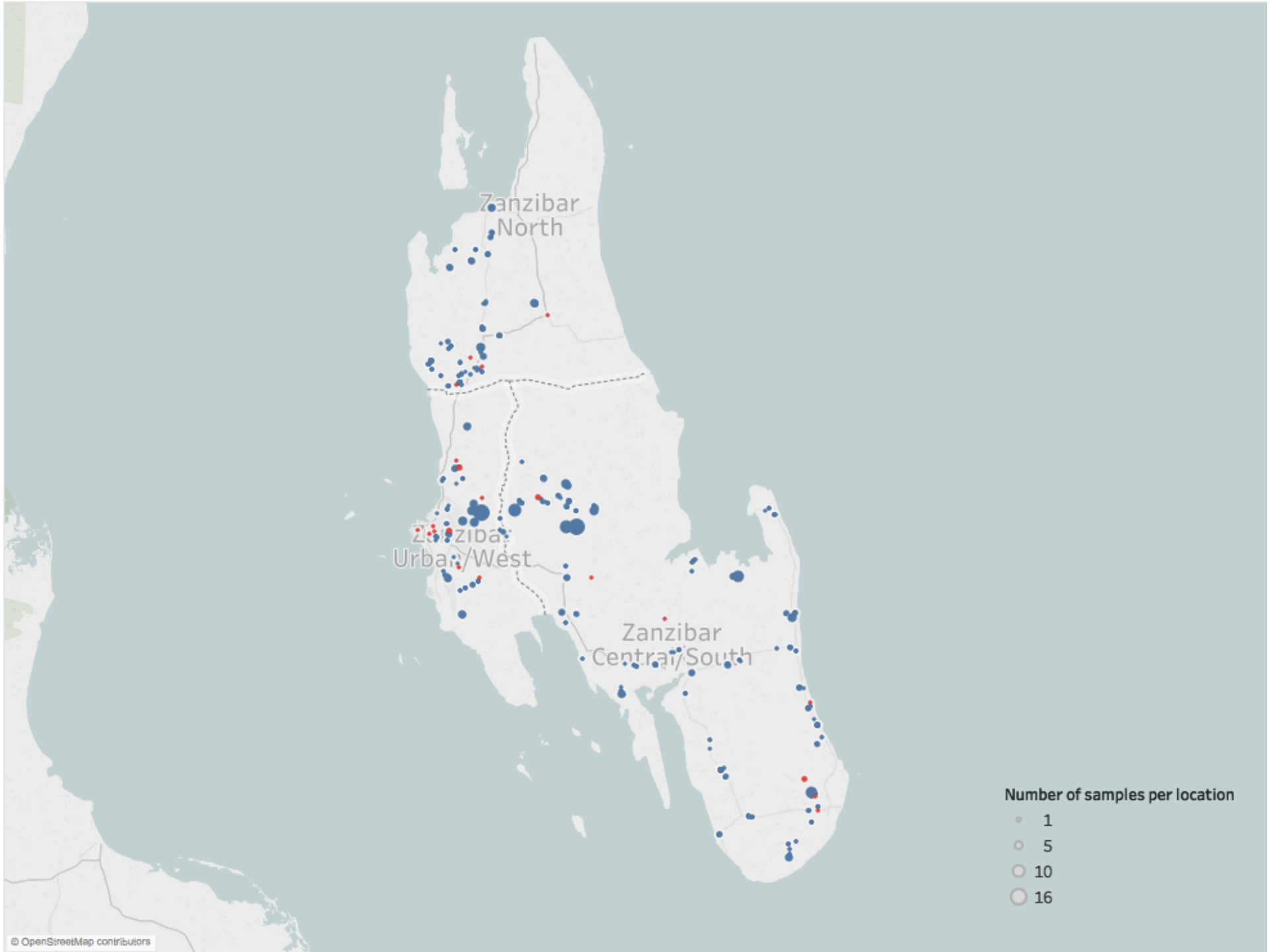
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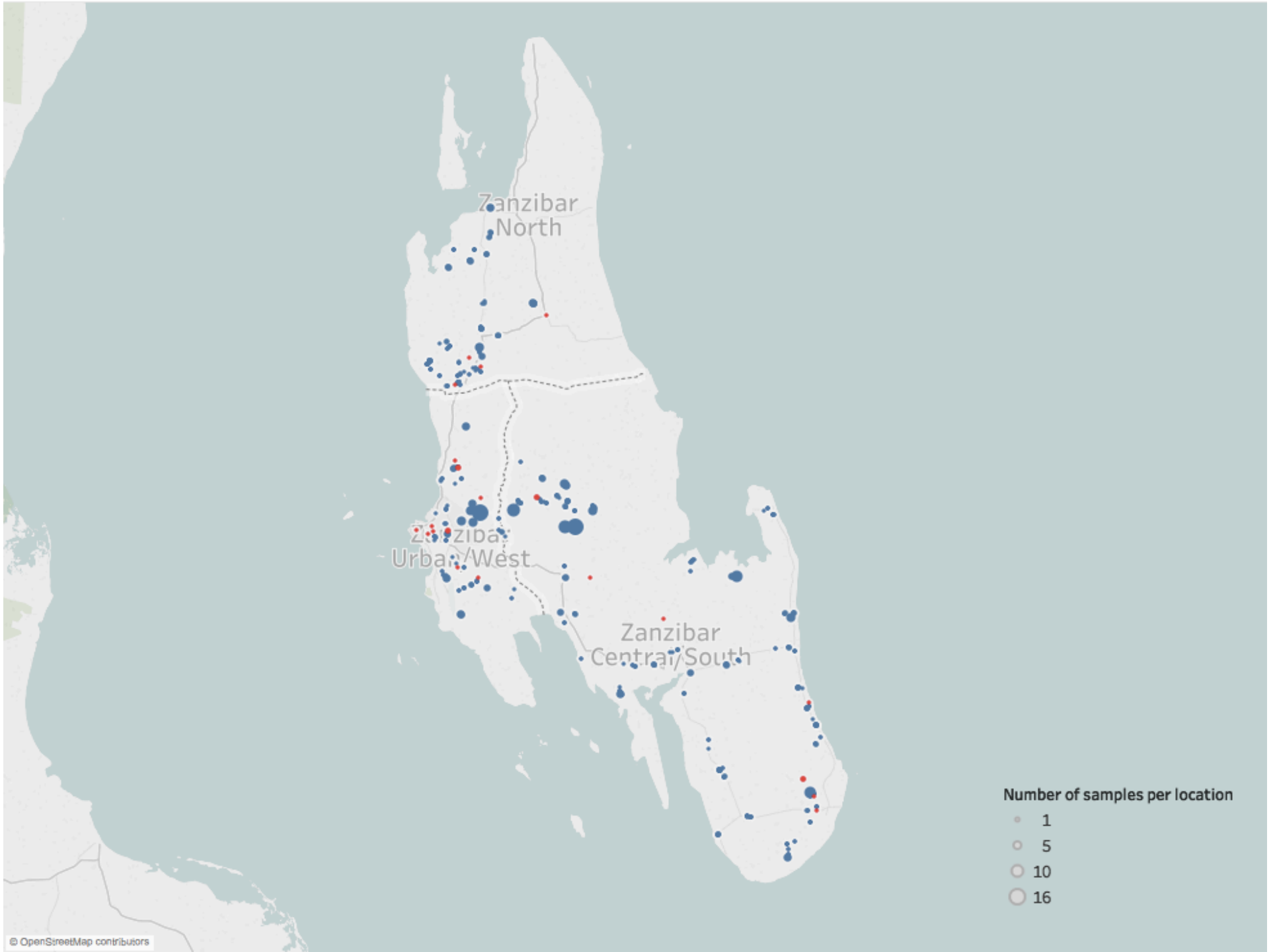
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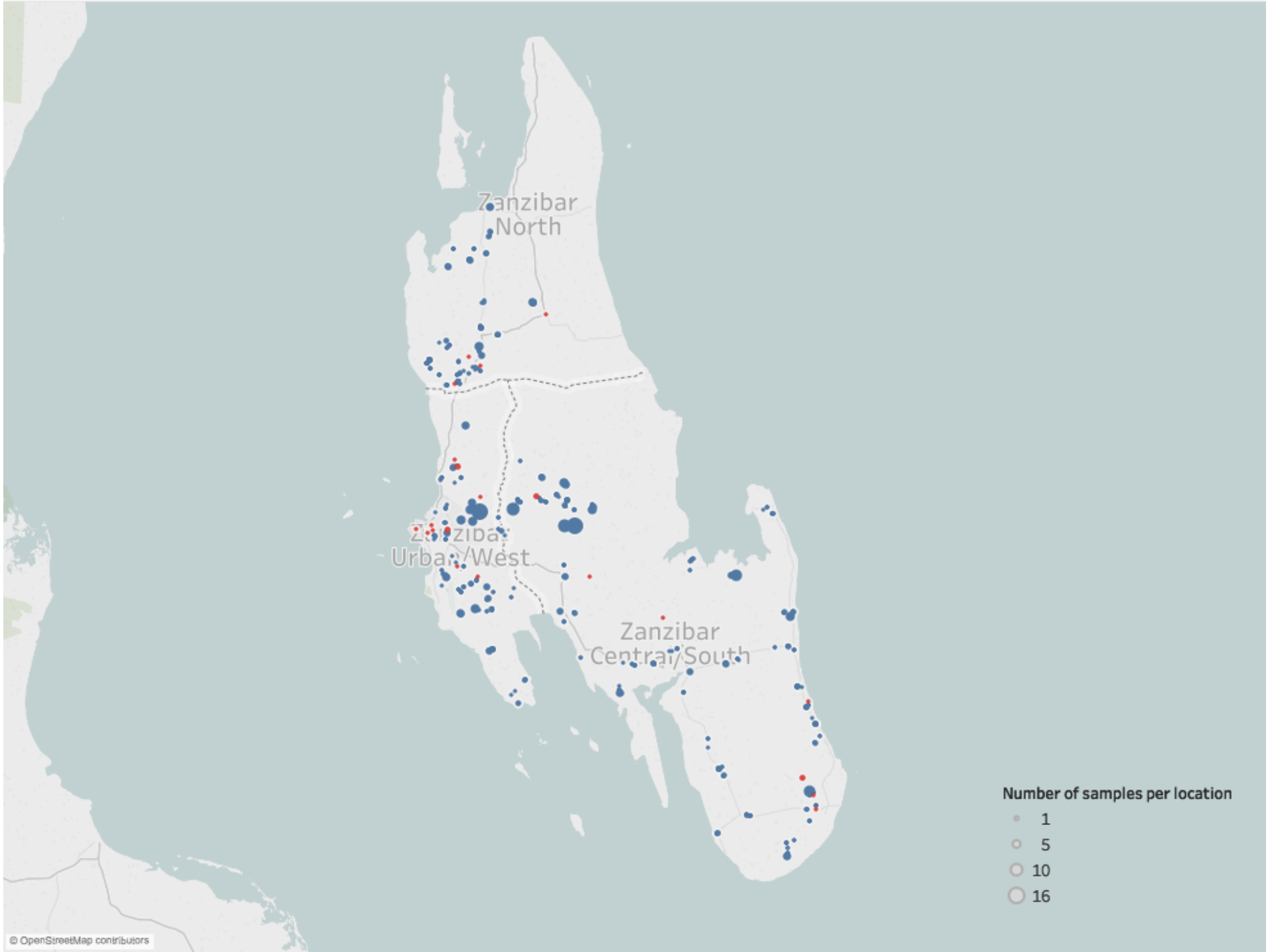
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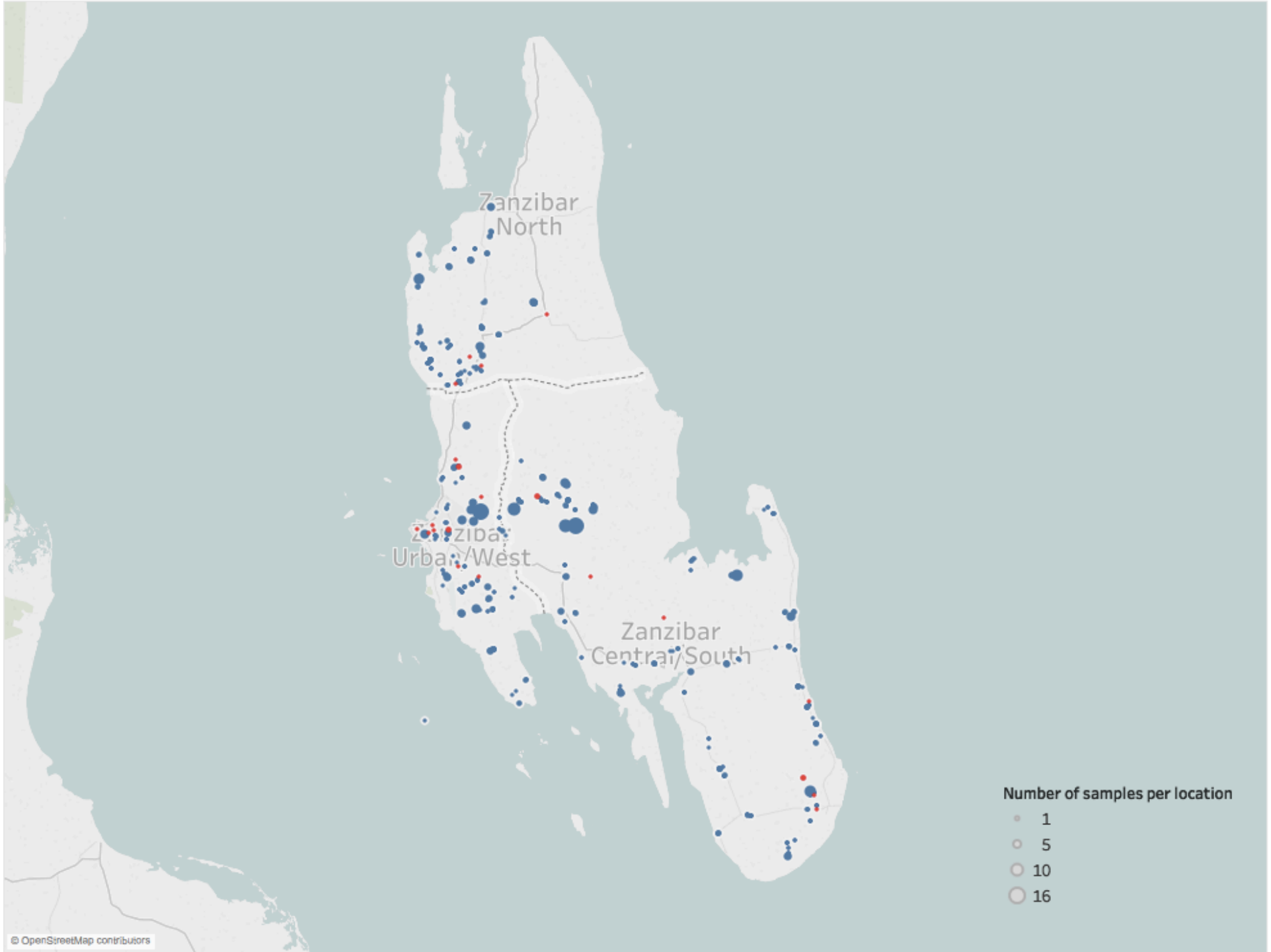
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Summary of the MDV campaign

- The mass vaccination campaign is ongoing – **vaccinating ±1.5% of the dog population per day.**
- End July: <1% coverage. One month later: ±16%
- Aim to have the entire dog population vaccinated within the next 10 weeks

Conclusion

- Zanzibar is on track to be the first region in Africa to be declared free from canine-mediated rabies by mass dog vaccination

- Continued surveillance and strategic dog vaccination will ensure that our objective is achieved

“Zanzibar Free from Rabies is Possible”

Thank you

This work is made possible by the generous support of World Animal Protection. The contents, however, is the responsibility of the Global Alliance for Rabies Control and the Ministry of Agriculture, Natural Resources, Livestock and Fisheries (Zanzibar) and do not necessarily reflect the views of World Animal Protection.