



Communitor  
Smart Communities

The Exact Map of Aedes



# Brazil | 2016 - Congenital Zika Virus Syndrome - A new epidemic

~2000 children affected

Source: Brazil Ministry of Health. Boletim epidemiológico. 2016

## Brazil | 2016 - Aedes borne epidemics



- 1,4 mi Dengue Fever Cases
- 174 k Zika Virus Cases
- 169 k Chikungunya Fever Cases
- U\$ 1 bi government expenditures in healthcare

Source: Brazil Ministry of Health. Boletim epidemiológico. 2016

## World



- + 100 countries exposed to the Aedes vector borne diseases
- 3 bi human beings endangered

Source: KRAEMER, SINKA, DUDA et al. The global distribution of the arbovirus vectors *Aedes aegypti* and *Ae. Albopictus*. 2105

## The outline of the problem

- Of the many diseases transmitted by *Aedes* sp., only Yellow Fever has an efficient vaccine
- Therefore, the only way to fight the many diseases transmitted by this genus of insect is to fight the insect itself, especially breeding sites

Sources: WHO. Dengue Guidelines for diagnosis treatment prevention and control. 2009

## The outline of the problem

- The combat efforts should be based on a field intelligence that could allow the efficient application of resources and the measurement of the results

Sources: WHO. Dengue Guidelines for diagnosis treatment prevention and control. 2009

## Public Sector Managers



89% acknowledge  
the inefficacy of  
current surveillance  
methods

## Private Sector Managers



86% do not know  
how to control  
the vector inside  
their installations





## The proposed solution

- The creation of a map that shows in a timely manner the populational concentration of *Aedes* sp
- The use of this information by public officers to plan and evaluate their actions
- The dissemination of this information to the general public to engage the population

How is this map created?

It follows a basic principle:

The more the  
eggs

The more the  
mosquitoes







How is this map created?

Georeferenced ovitraps are distributed on  
the area to be surveilled











How is this map created?

The female mosquito deposits its eggs on  
wooden paddles inside the traps



How is this map created?

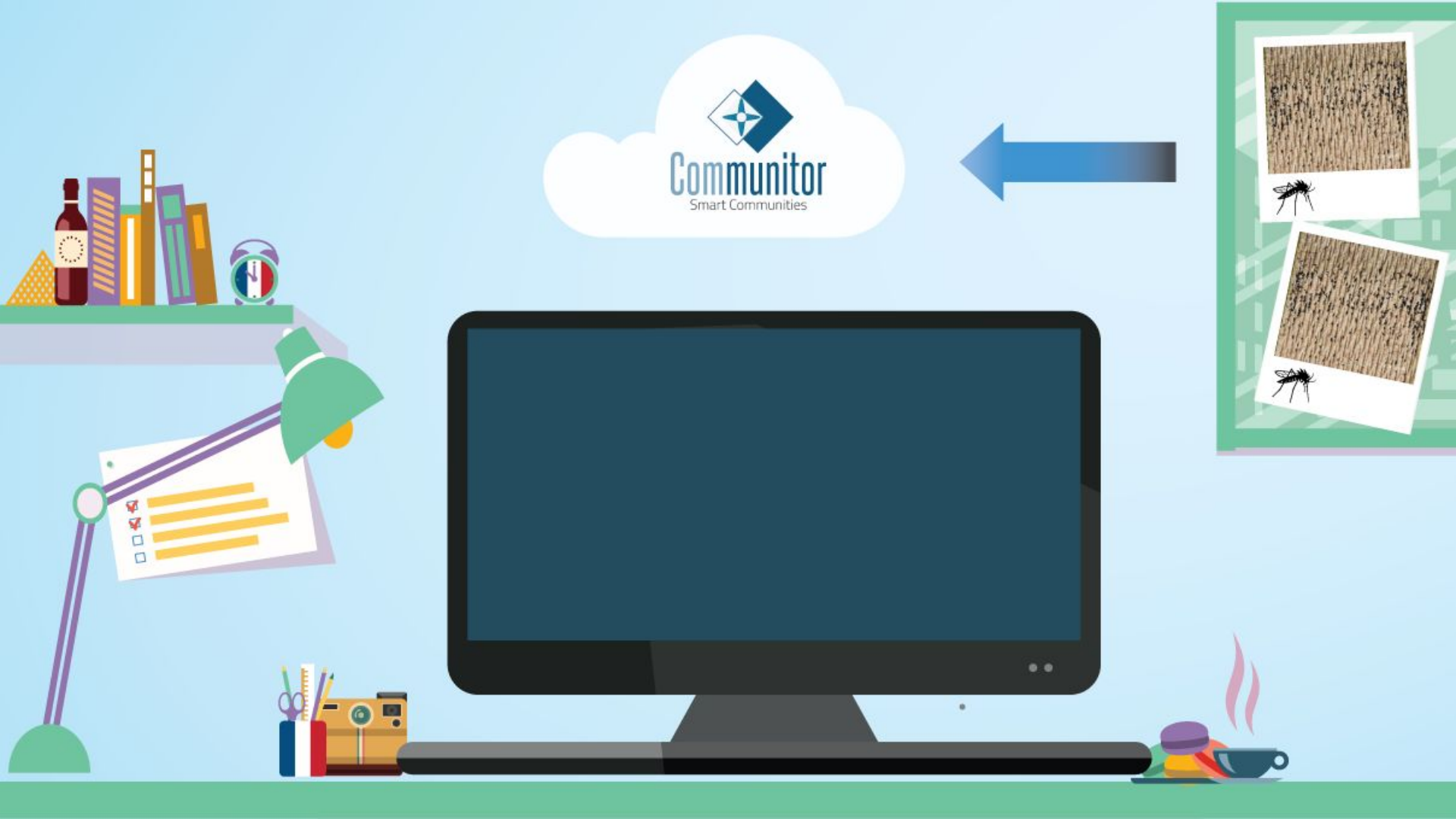
The wooden paddles are collected weekly  
and photographed

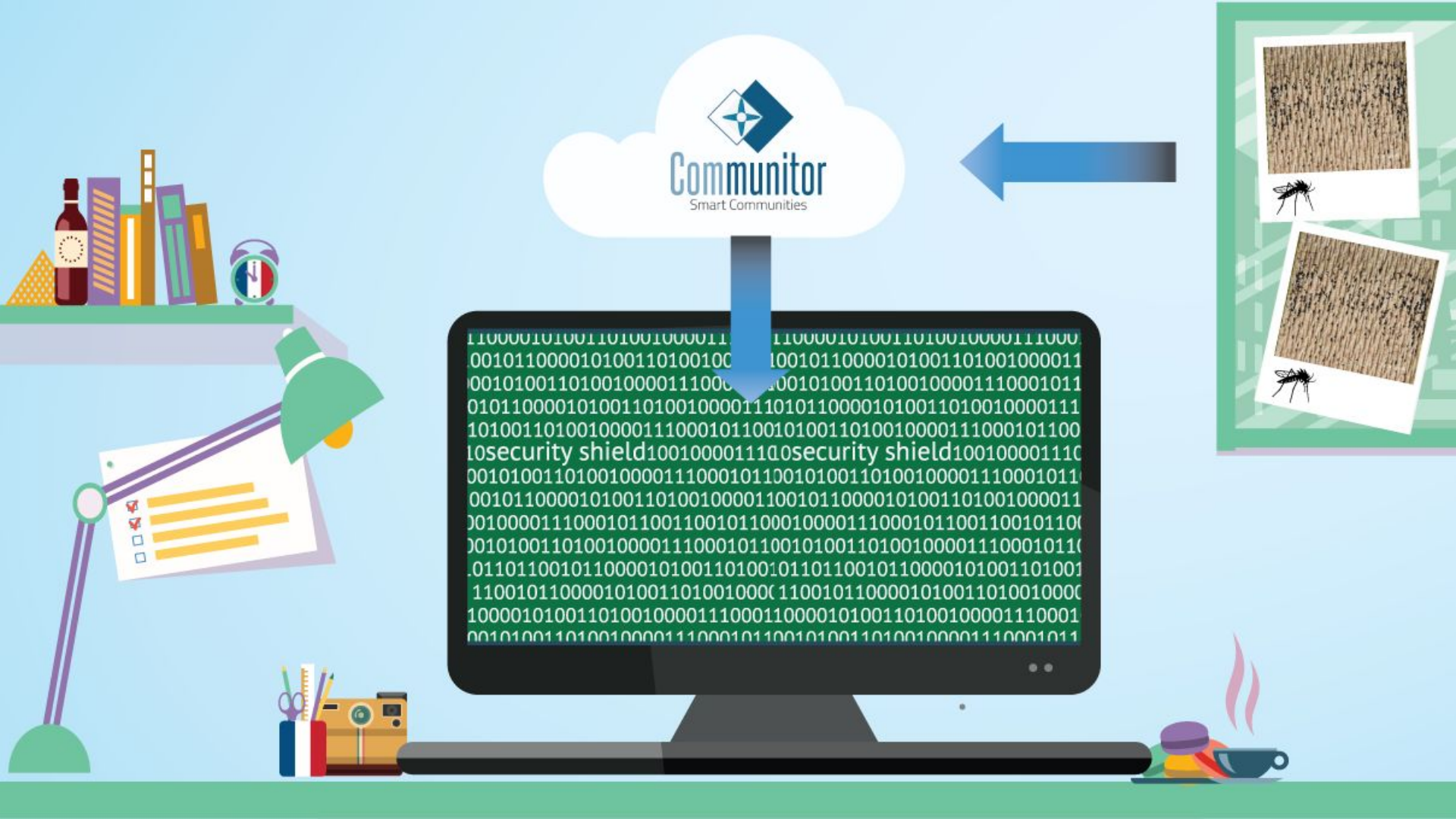


How is this map created?

The pictures are uploaded to a server and  
computer vision algorithms perform the  
egg counting process



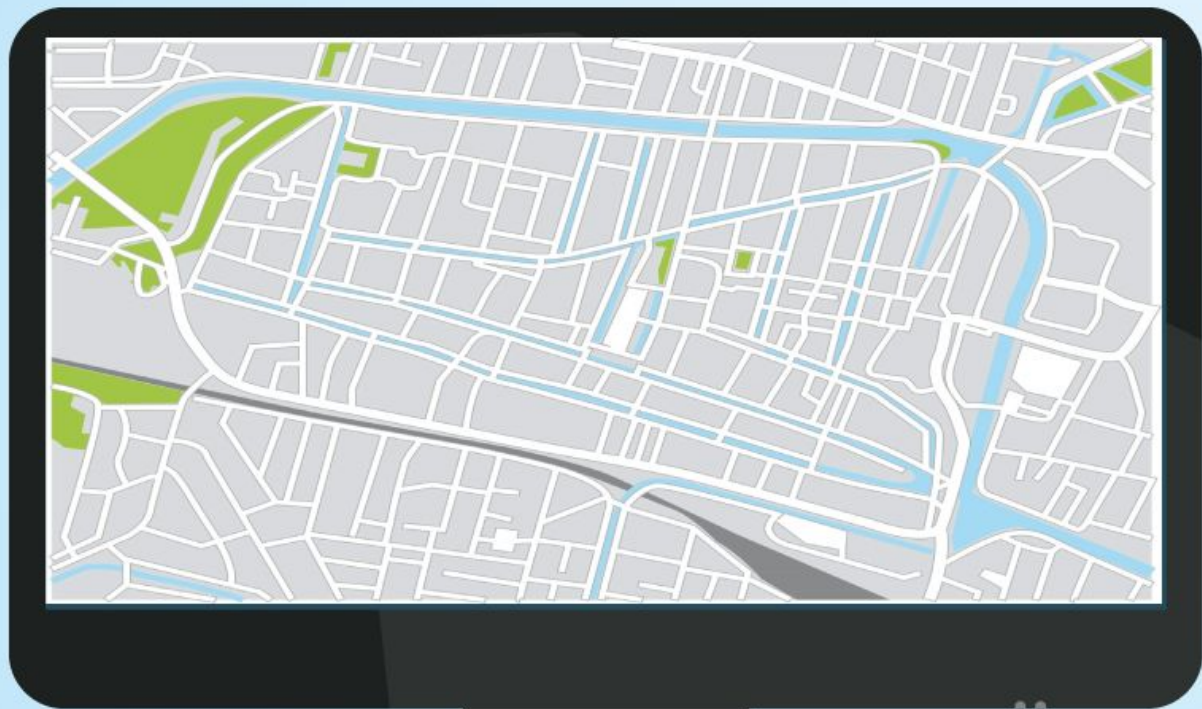


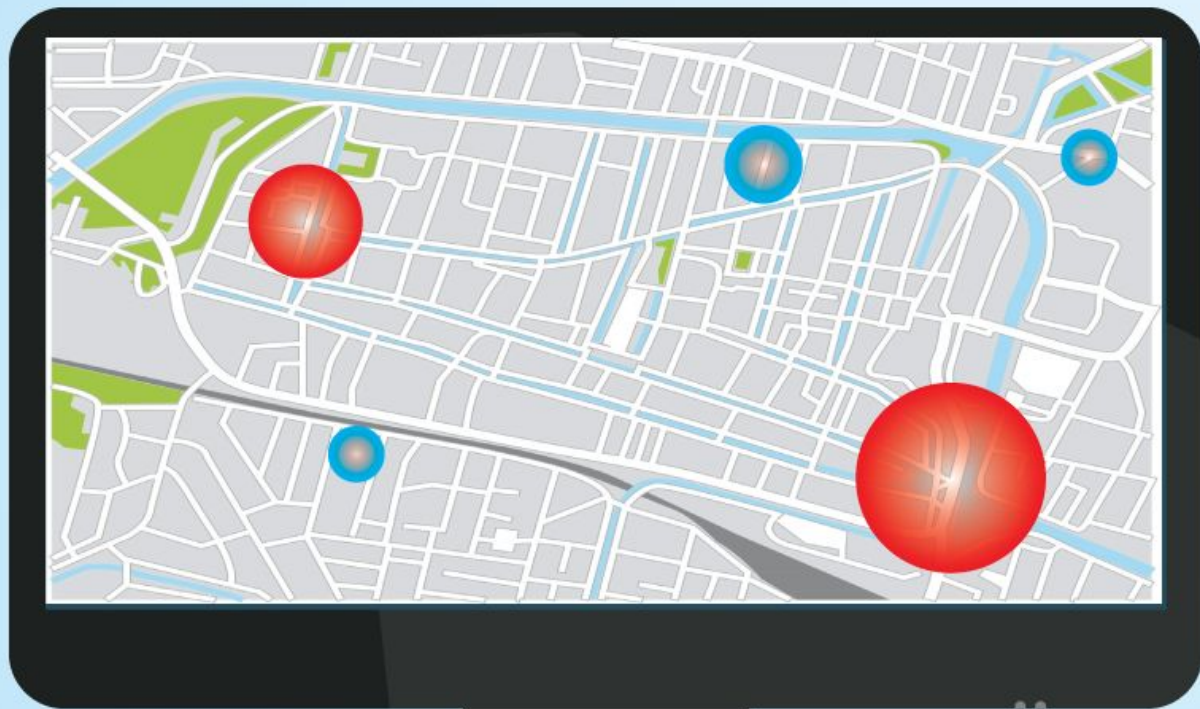





















How is this map created?

Heat maps and reports are generated





		 Communitor Smart Communities	Mosquito Traps	Ovitrap manual egg count	Automated focal visit
1	Accuracy of data				
2	Response speed				
3	Control efficiency				
4	Cost				

## MVP | Data

- Serra's Slum
- Pampulha's Airport
- Mariana City
- Sabará City
- Betim City



85.000

Protected Lives

# 5 step process

1



Manufacture of  
ovitraps

2



BTI Solution  
Aedes attractor

3



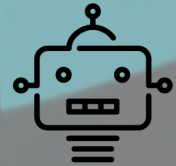
implantation of  
ovitraps

4



Paddle  
photography

5



Egg count



1

# The making of the ovitraps



# The evolution of the ovitraps



Our first manual  
ovitraps prototype



Our manual ovitraps  
prototype that  
works



Our industrial  
prototype  
(recommended for  
wet weather)



Our industrial  
prototype with lid  
(recommended for  
dry weather)





Biological larvicide  
*Bacillus thuringiensis*  
*israelensis* - BTI



*BTI water dilution*



Water dilution of  
*Panicum maximum*  
infusion



Attractive solution of the  
*Aedes* females (*Panicum*  
*maximum* grass infusion  
diluted in water plus BTI)

3



# Implantation of ovitraps



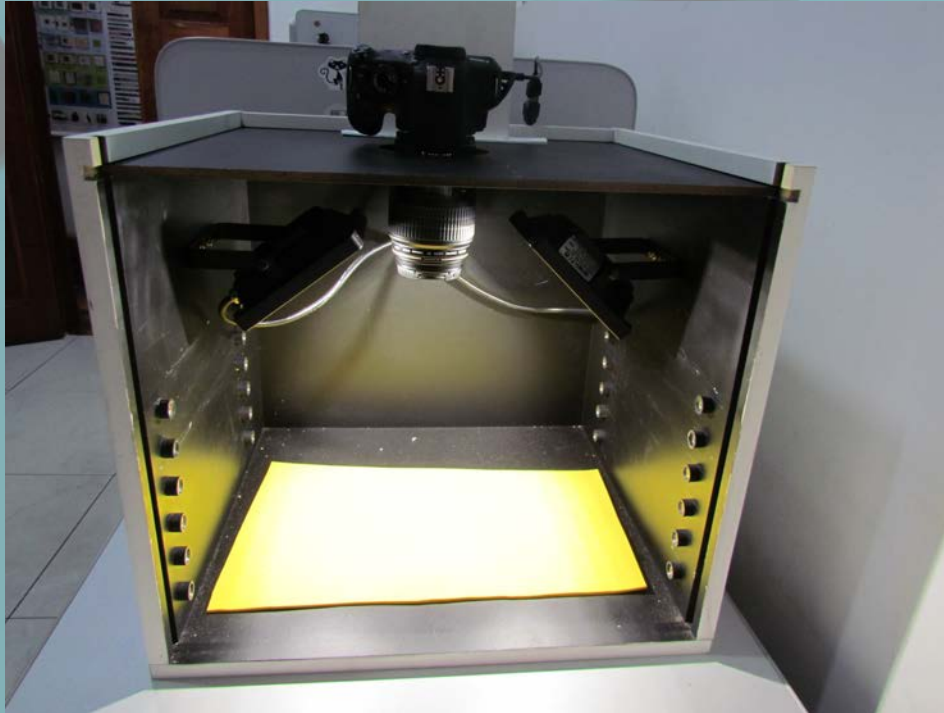






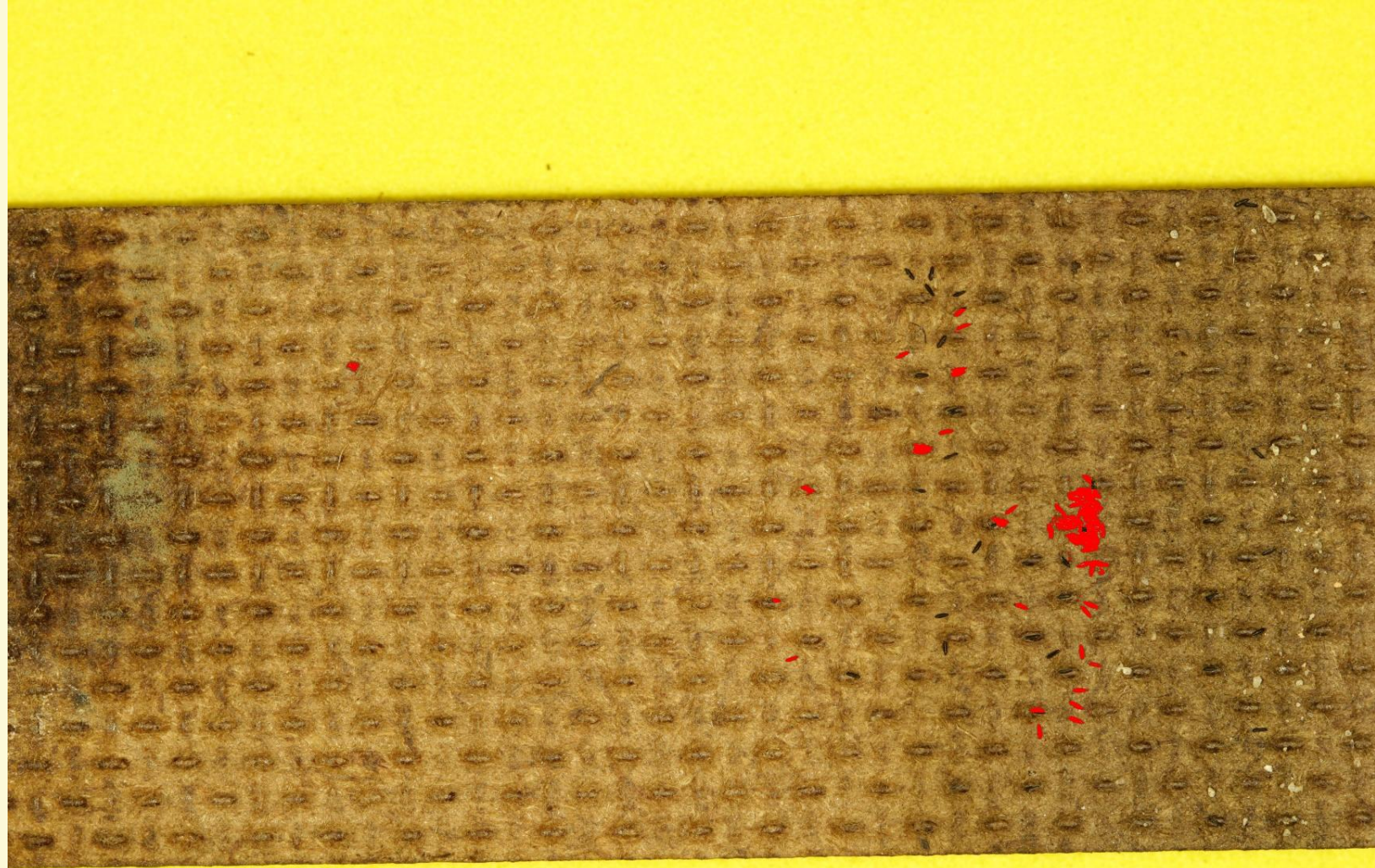


# Current photography of the paddles

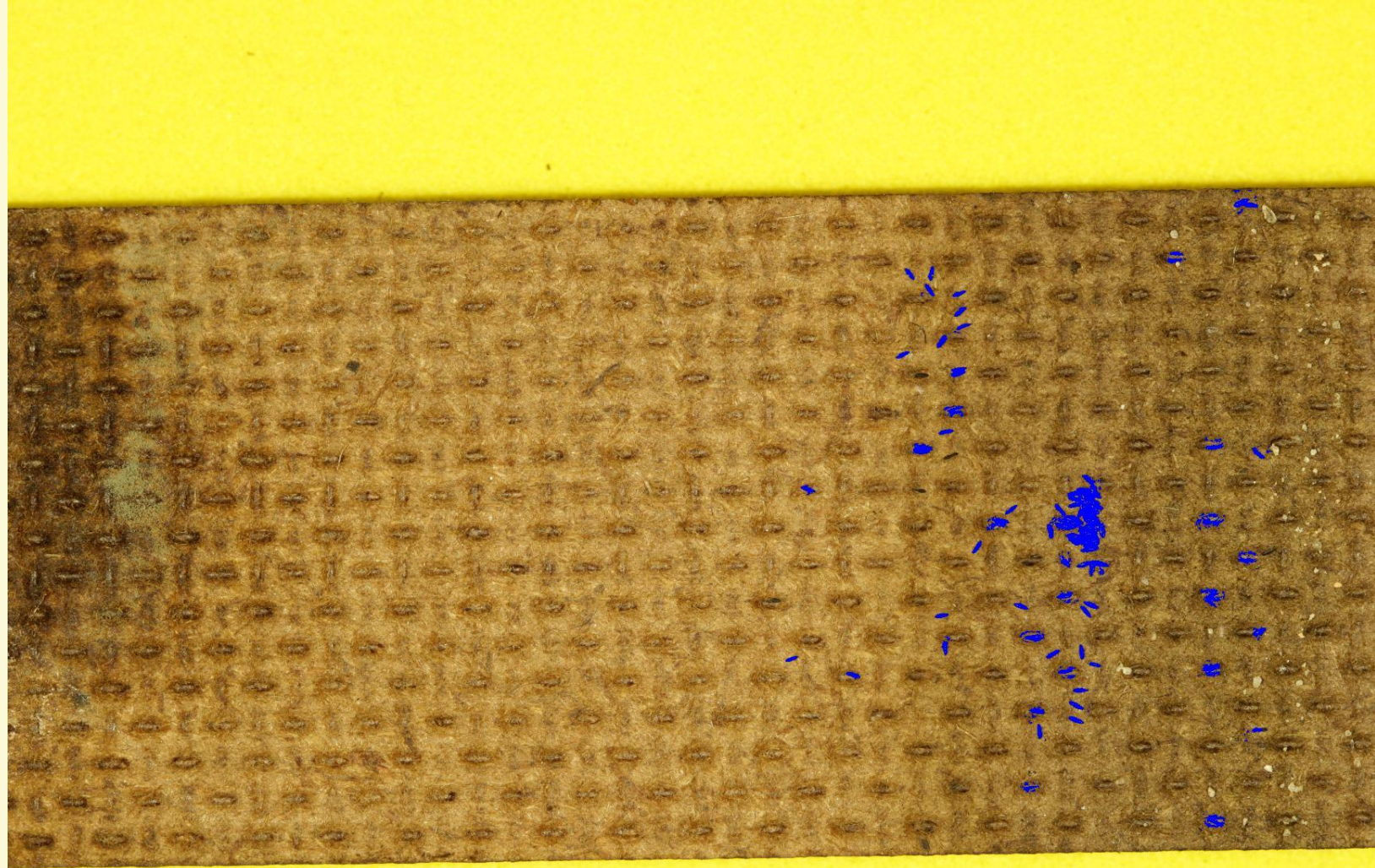




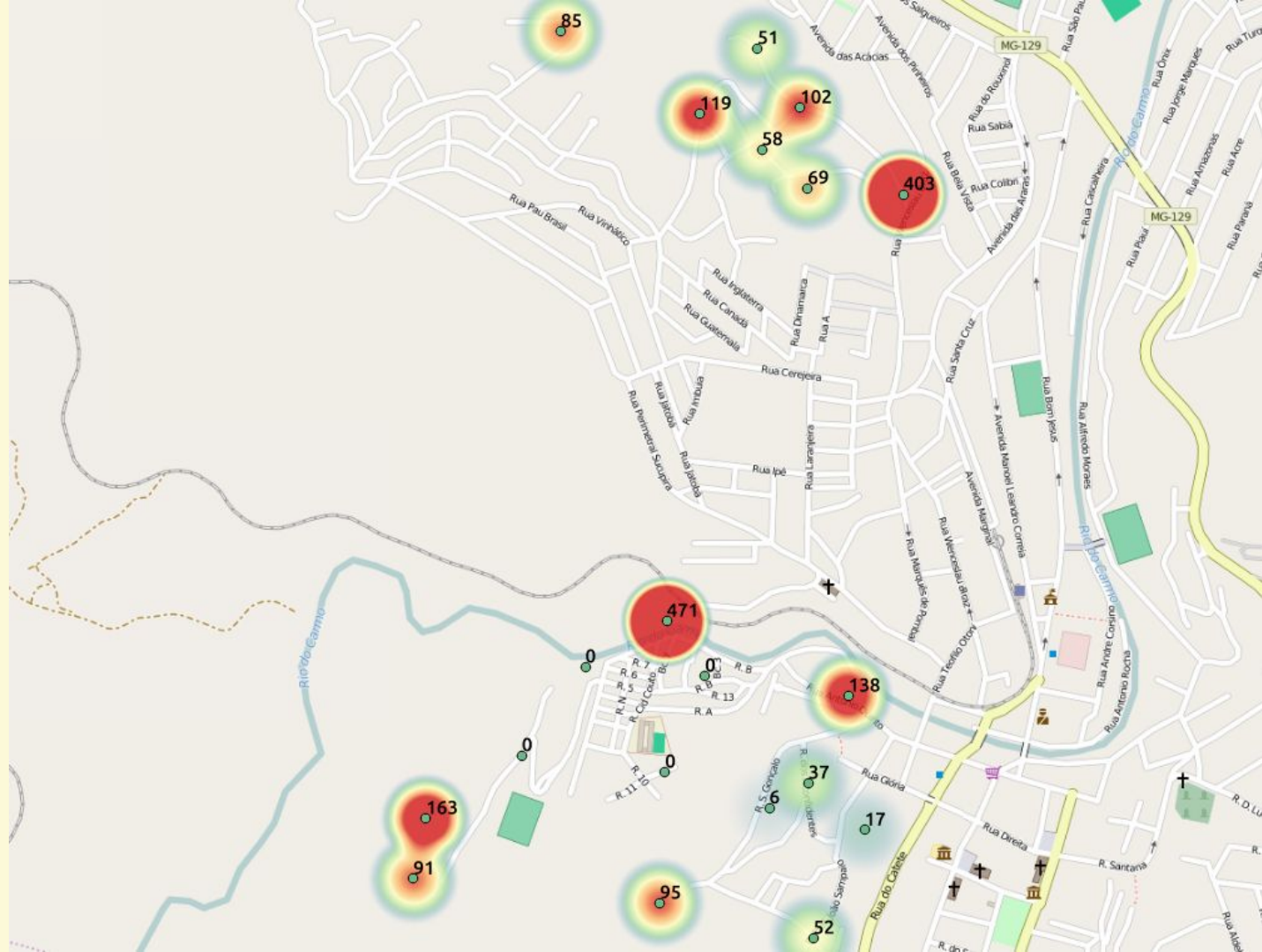


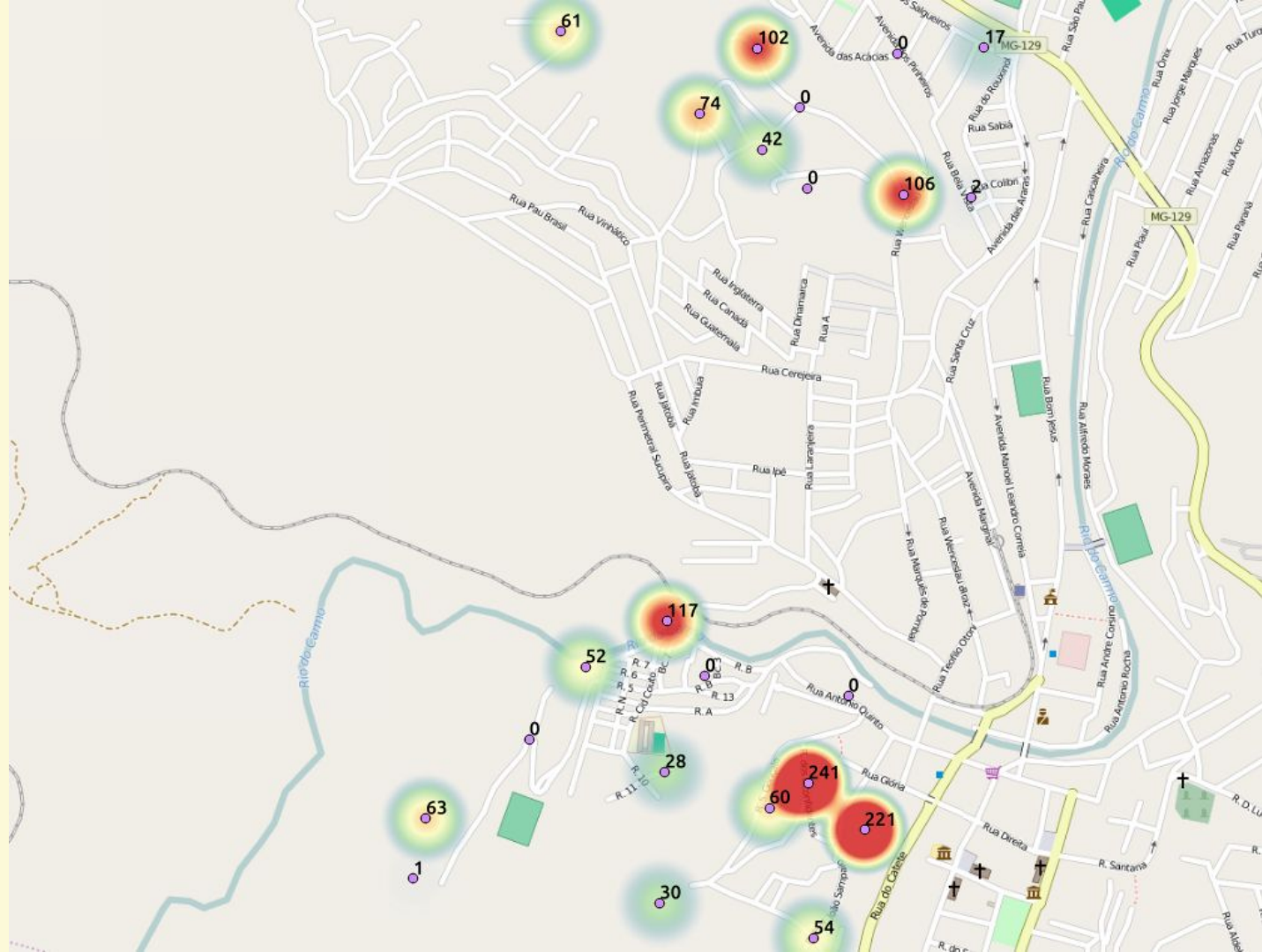


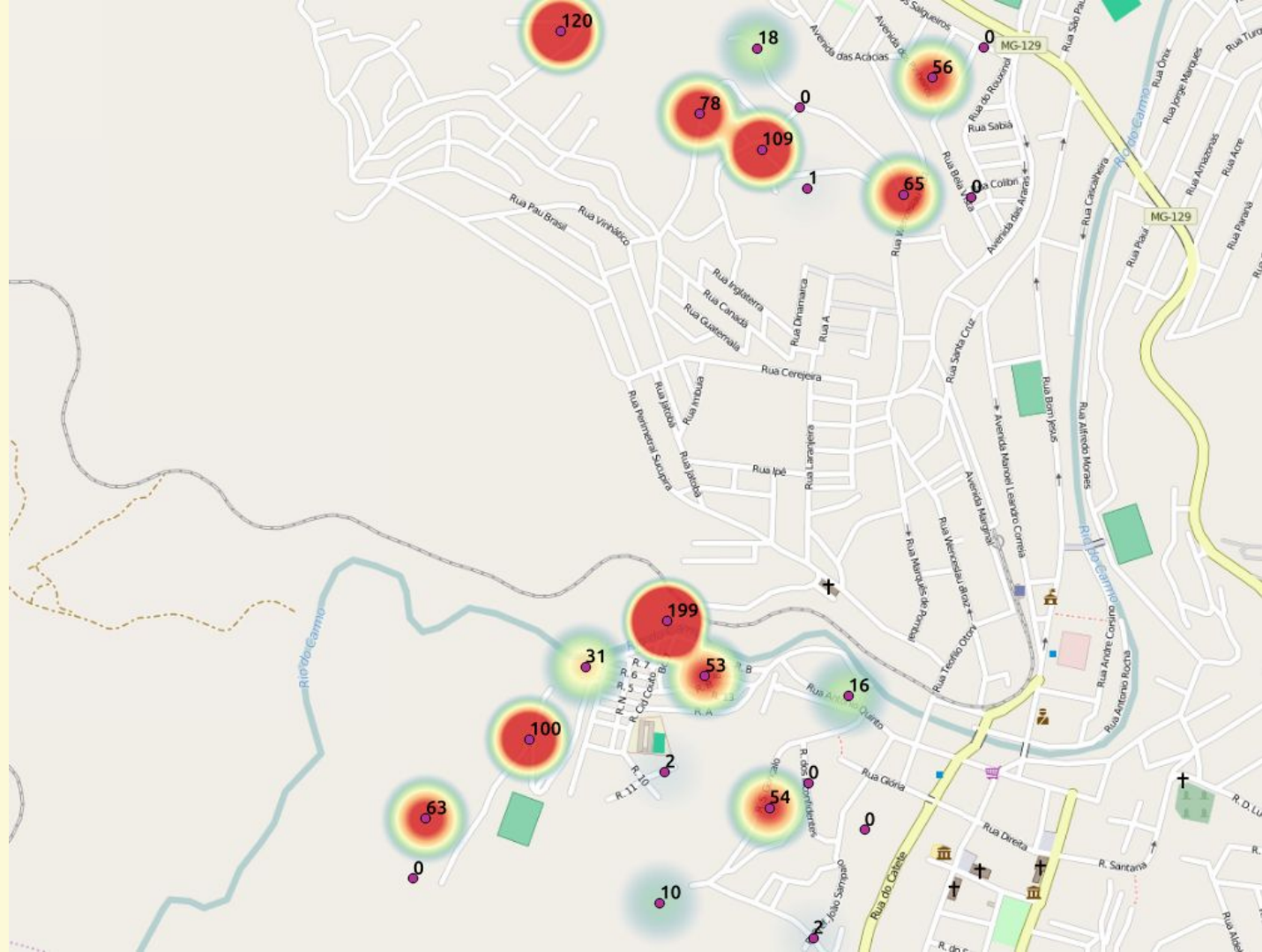












Tryton Administrador

Sair

Pesquisar...

+ Pessoa

- Ovitrapa

Zonas

Mapas

Ovitrapas

Inspeções

+ Administração

## Ovitrapas

  Novo  Gravar  Trocar  Recarregar  Anterior  Próximo Anexo(0)  Ação  Relacionar Imprimir

Endereço:

Latitude:

-20.378502

Longitude:

-43.428490



Descrição:

## Inspeções

     (0, 0)  

<input type="checkbox"/>	Data da Contagem	Contagem de Ovos	Agente	De	Até
<input type="checkbox"/>	03-02-2016		1 Helena Gomes	28-01-2016	03-02-2016
<input type="checkbox"/>	24-02-2016	0		03-02-2016	24-02-2016
<input type="checkbox"/>	02-03-2016	0		24-02-2016	02-03-2016
<input type="checkbox"/>	10-03-2016	25		02-03-2016	10-03-2016
<input type="checkbox"/>	17-03-2016	0		10-03-2016	17-03-2016
<input type="checkbox"/>	23-03-2016	115		17-03-2016	23-03-2016
<input type="checkbox"/>	28-01-2016	91		21-01-2016	28-01-2016







# Onde o bicho tá pegando?



## Vermelho

Cuidado! O bicho tá pegando!

- ☐ Faça a faxina contra a dengue dia sim, dia não;
- ☐ Use repelentes e roupas compridas;
- ☐ Avise seus vizinhos;
- ☐ Procure o mobilizador comunitário.

## Amarelo

Atenção! O mosquito está voltando!

- ☐ Faça a faxina contra a dengue dia sim, dia não;
- ☐ Use repelentes e roupas compridas;
- ☐ Avise seus vizinhos.

## Verde

Parabéns! Obrigado pelos seus esforços!

- ☐ Mantenha-se vigilante;
- ☐ Faça a faxina contra a dengue uma vez por semana.

#TodosContraoMosquito





# Thank you!

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# Communitor

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