Mus musculus domesticus invasion in Senegal : recent research using data of ObsMice sites

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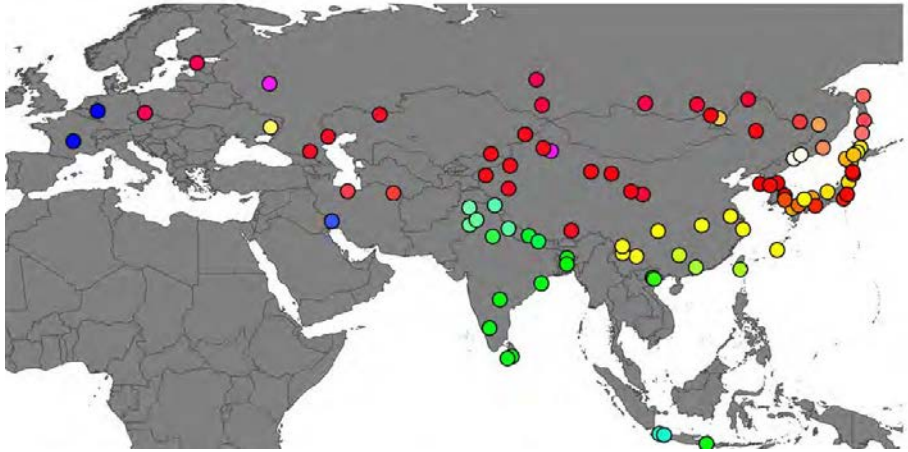
Why study the mouse invasion in Senegal?

- An invasion that is still relatively unknown in Africa



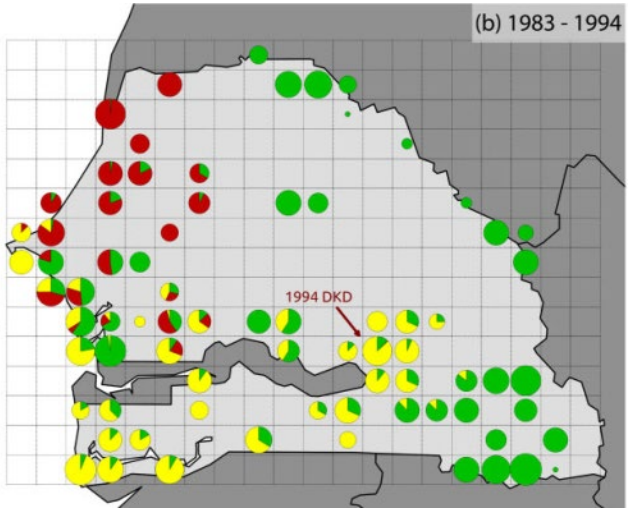
Fujiwara *et al.* 2022

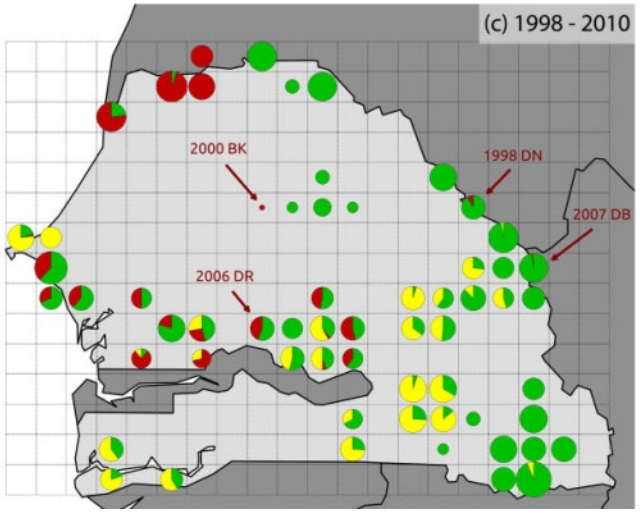
- A model species suitable to test various hypotheses

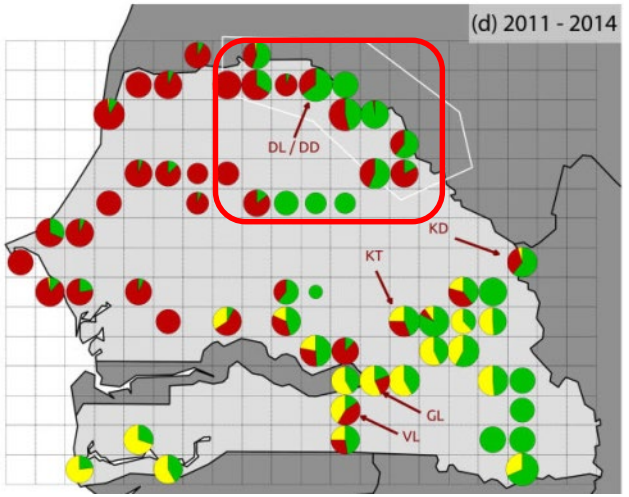
- An ongoing invasion with potential impacts on health and human activities

Before ObsMiCE: range expansion of the mouse in Senegal

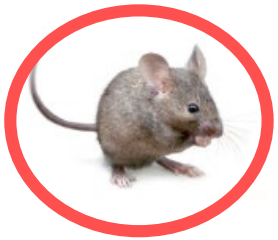
- 1983-2014



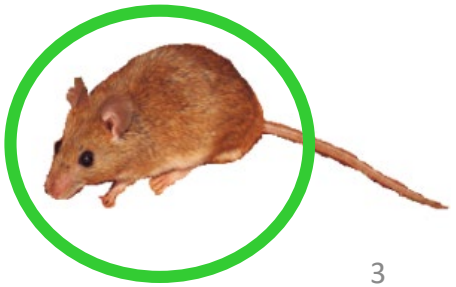




Dalecky *et al*. 2015

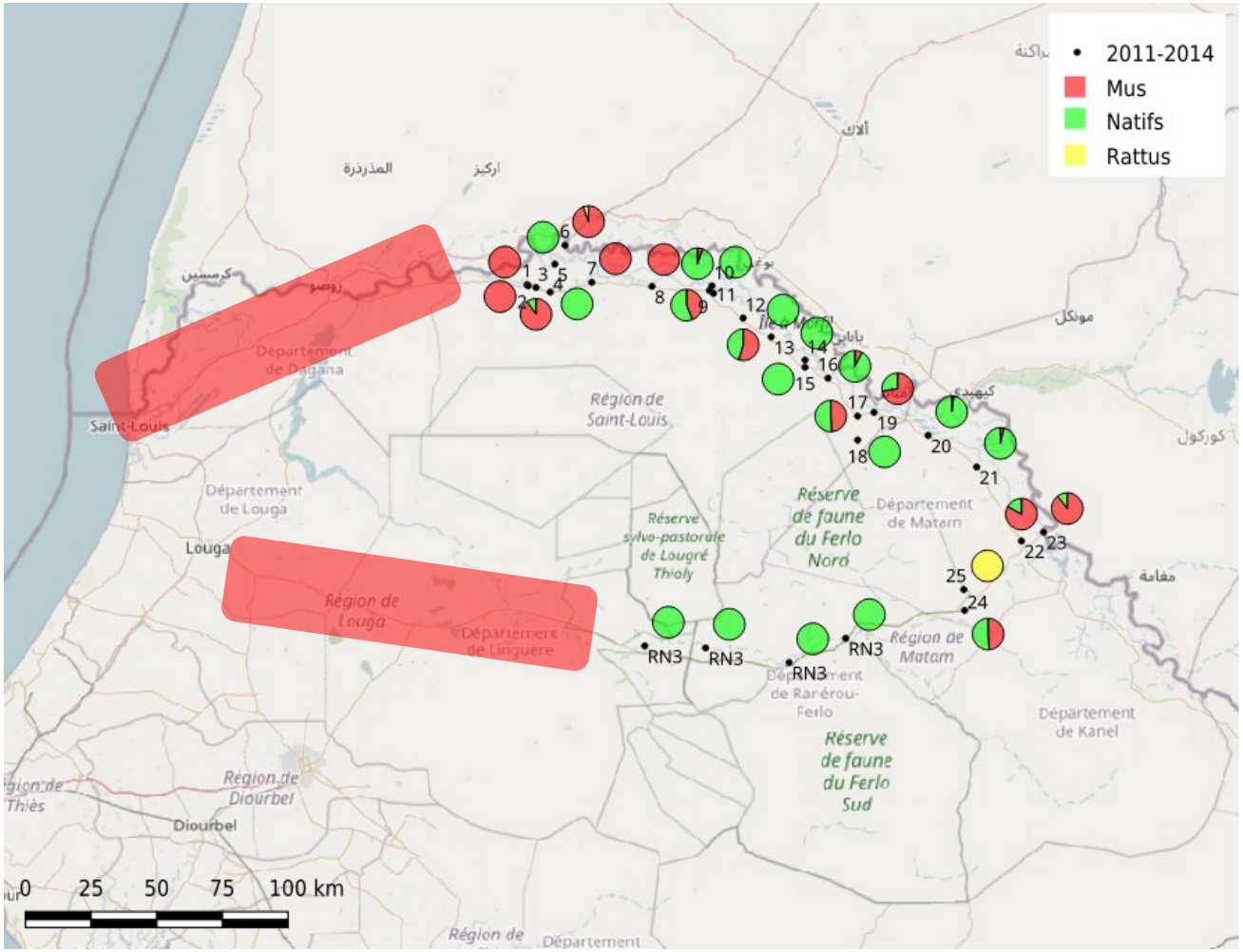


BPM: 11 220 occurrences



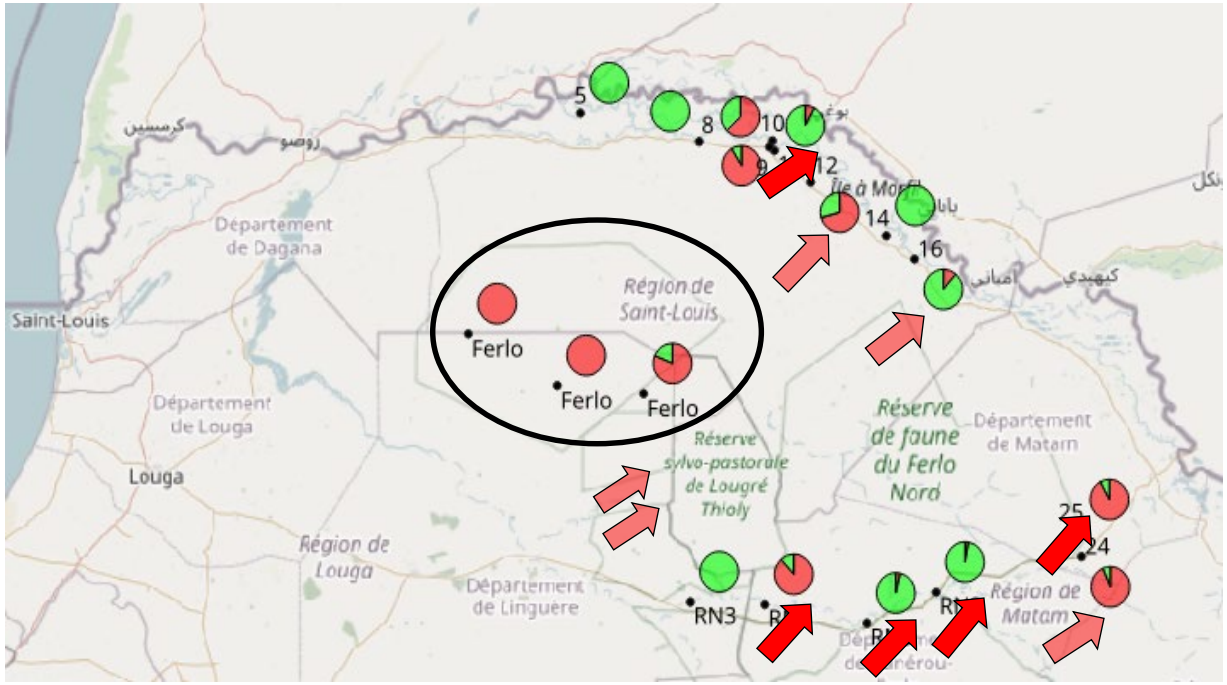
Before ObsMiCE: at the invasion front

- 2011-2014 4 field trips, 6390 night.traps, 1296 captures



Using ObsMiCE: survey of invasion fronts

- 2015-2018



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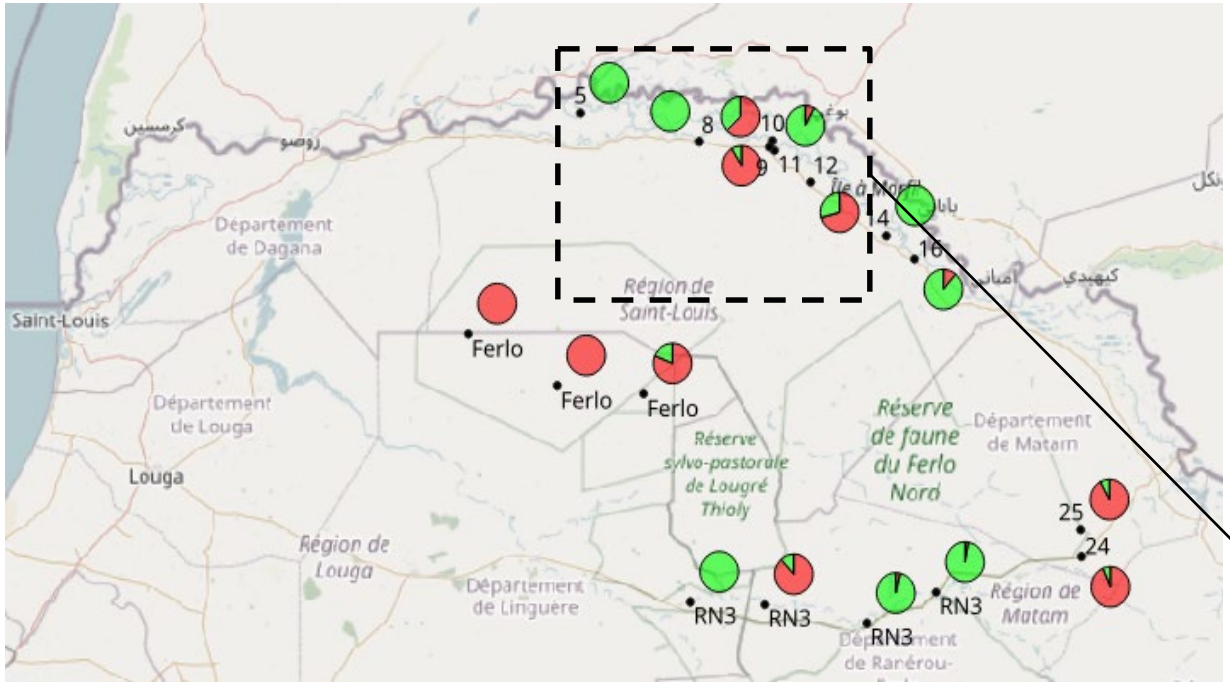
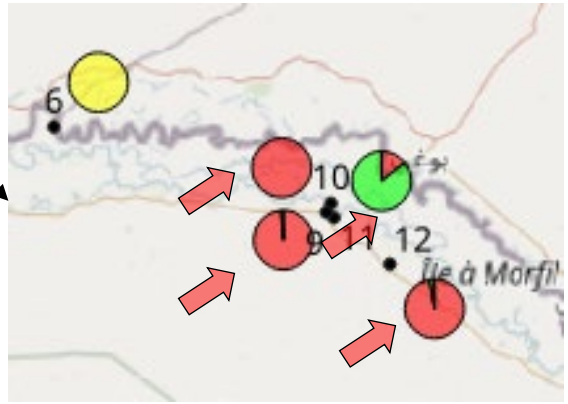
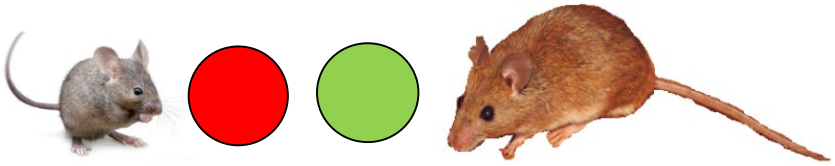


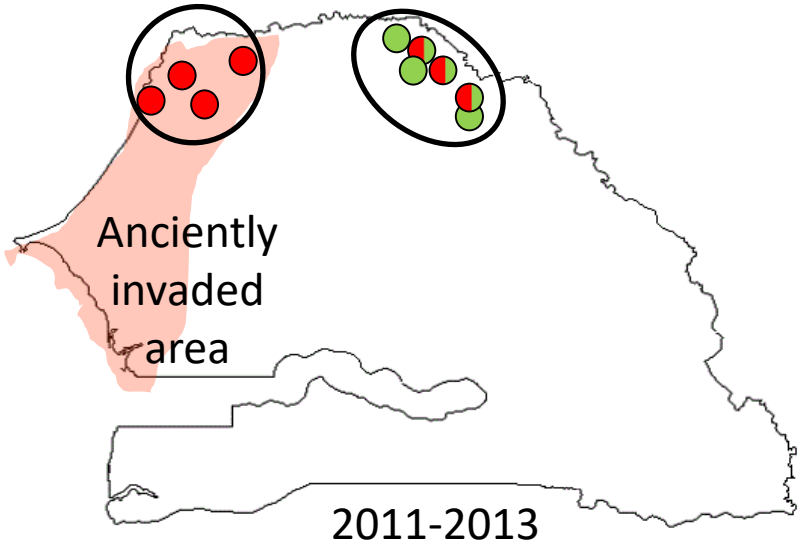
- 2019-2022



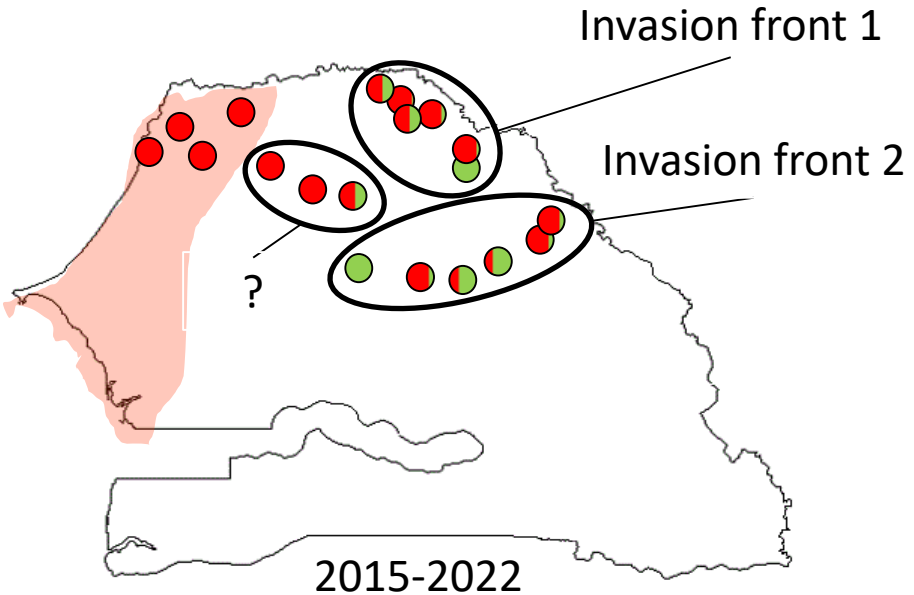
8 field trips, 6889 night.traps, 1186 captures

Invasion fronts at the core of comparative studies





2011-2013
ENEMI program

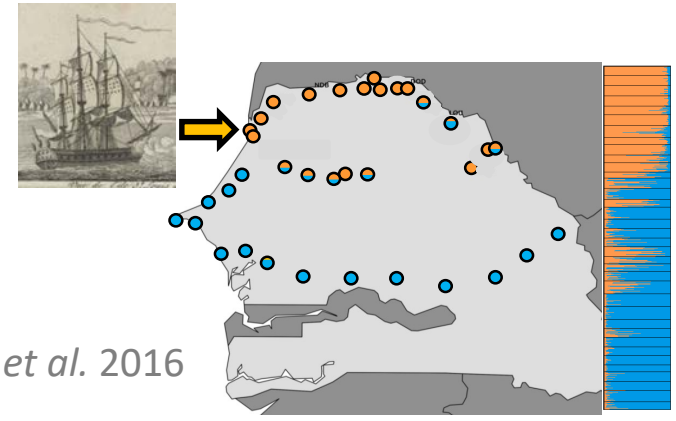


2015-2022
The post ENEMI research
CERISE & SPEED programs
DODEL Observatory

Describe the invasion history of the house mouse and its dynamics
Understand the causes and sanitary consequences

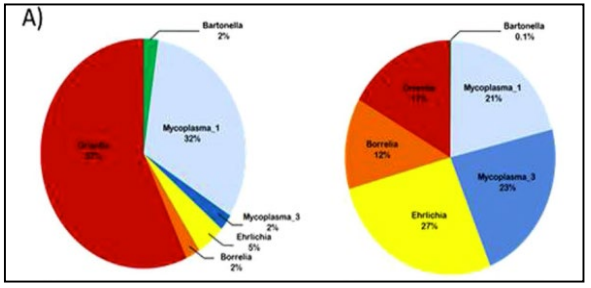
Before ObsMiCE: main results of ENEMI

- The mouse was introduced from Western Europe during the colonial era; its recent expansion is related to the development of roads



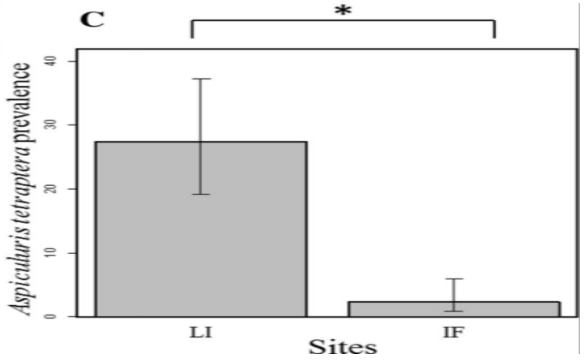
Lippens *et al.* 2016

- Bacterial communities are different at the invasion front compared to anciently invaded areas



Diagne *et al.* 2017

- Parasites could partly explain invasion success
  p. ex., support for the « enemy release hypothesis »



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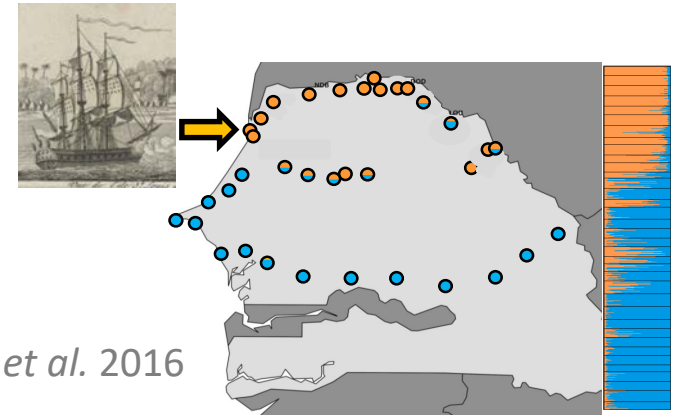

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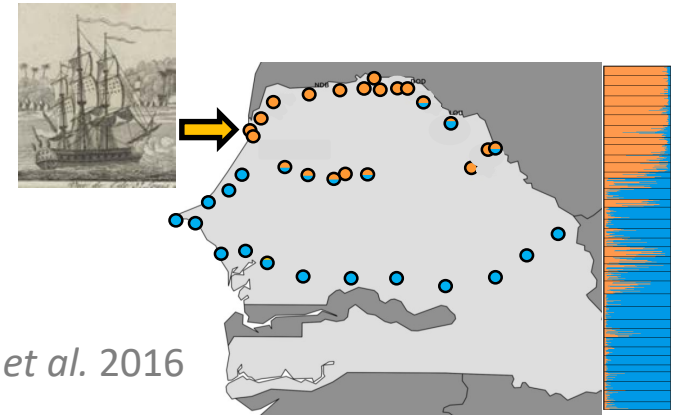

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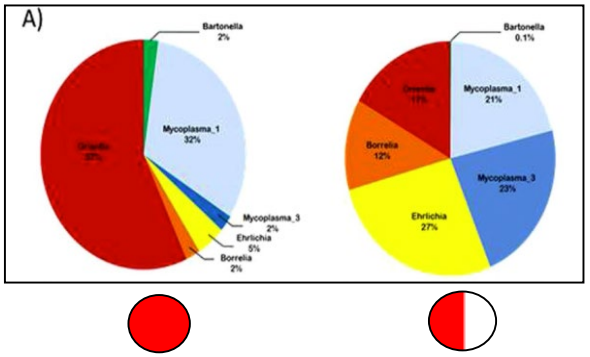

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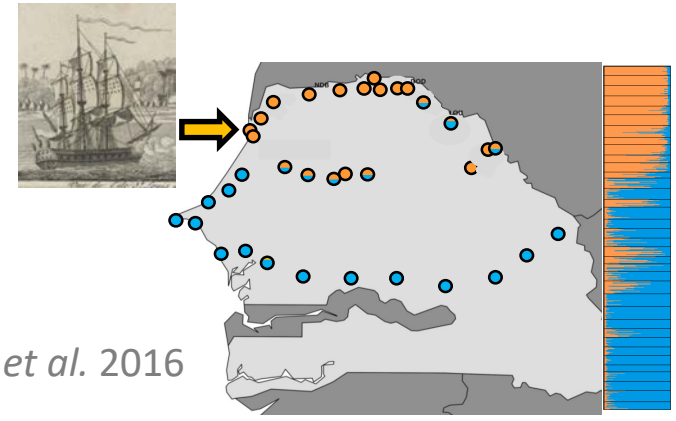

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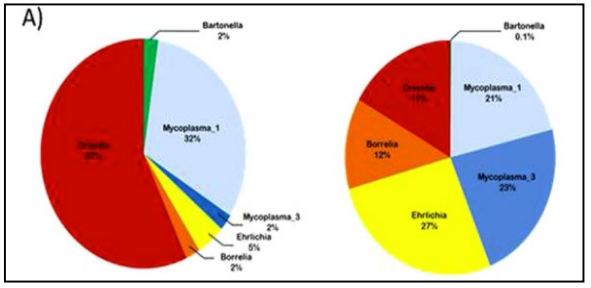

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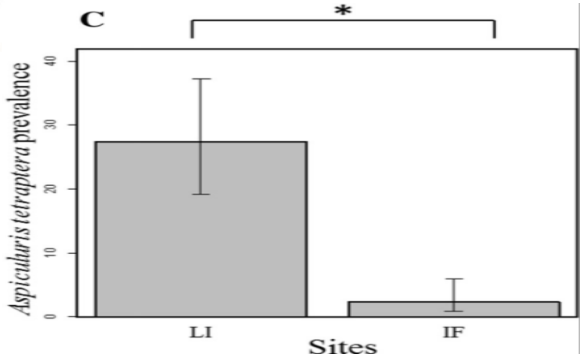

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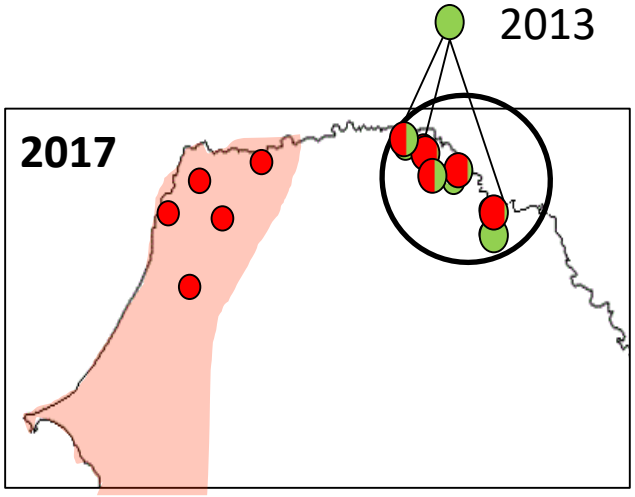
Some examples of research done on ObsMiCE data

Confirmation of patterns suggesting a role of parasites in invasion success



Diagne *et al.* 2020

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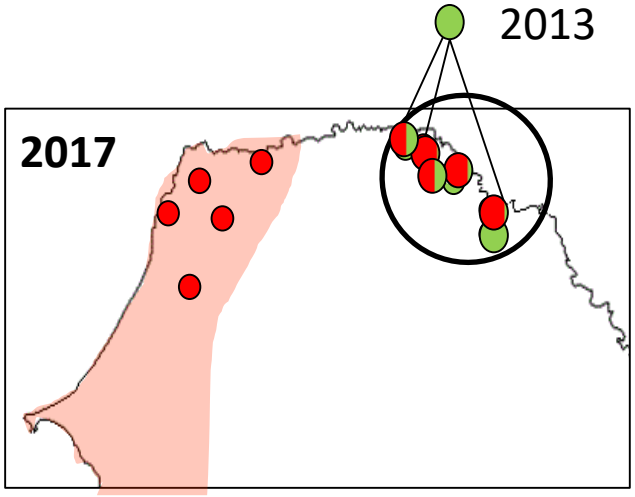
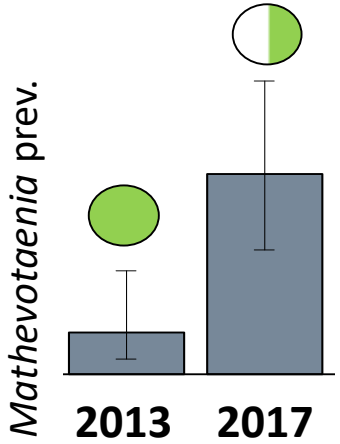


Diagne *et al.* 2020

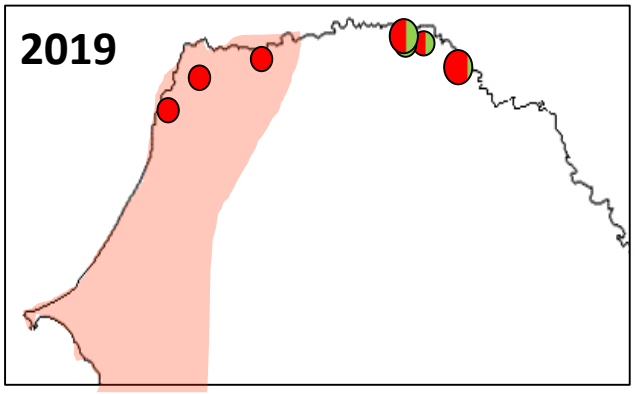
Site	Sampling year	*Aspt*
AEL	2013 (n = 28)	7.1% [1.3 – 22.9] (8.04 ± 36.59)
	2016/17 (n = 32)	12.5% [4.39–28.14] (0.625 ± 1.91)
DEN	2013 (n = 18)	
	2016/17 (n = 39)	
DOD	2013 (n = 22)	4.5% [0.2 – 22.2] (0.05 ± 0.21)
	2016/17 (n = 37)	2.7% [0.14–14.37] (0.03 ± 0.16)
DID	2016/17 (n = 16)	
DIW	2016/17 (n = 9)	
LAM	2016/17 (n = 32)	

=> Support for « enemy release »: *A. tetraptera* is lost by the mouse at newly invaded sites



=> Support for the «disease facilitation hypothesis »: native rodents are more infested by the cestode when the mouse is coming.

Exploration of a role of behavior in invasion success?



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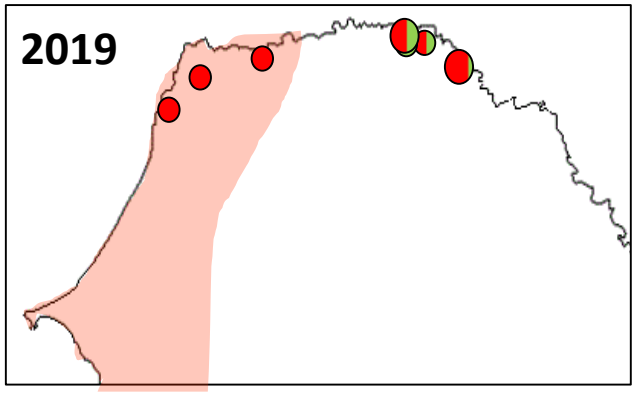
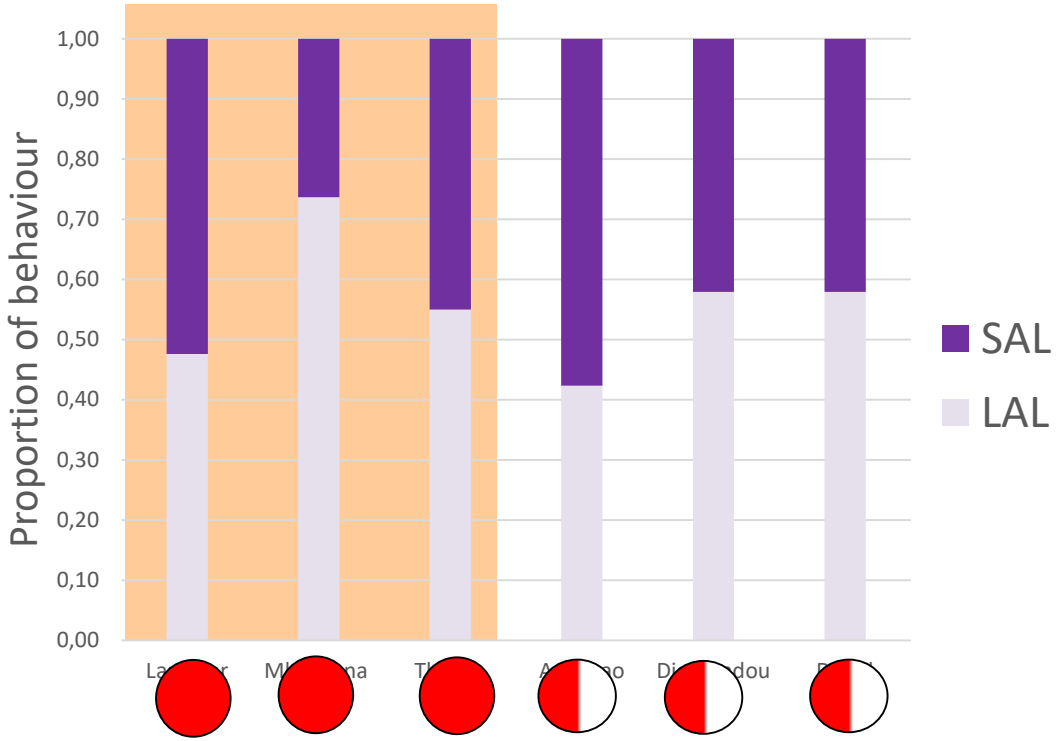


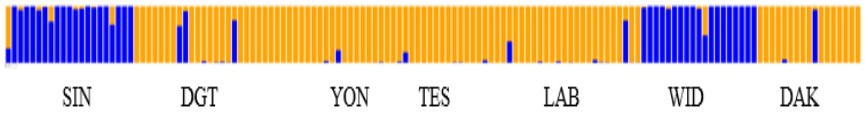


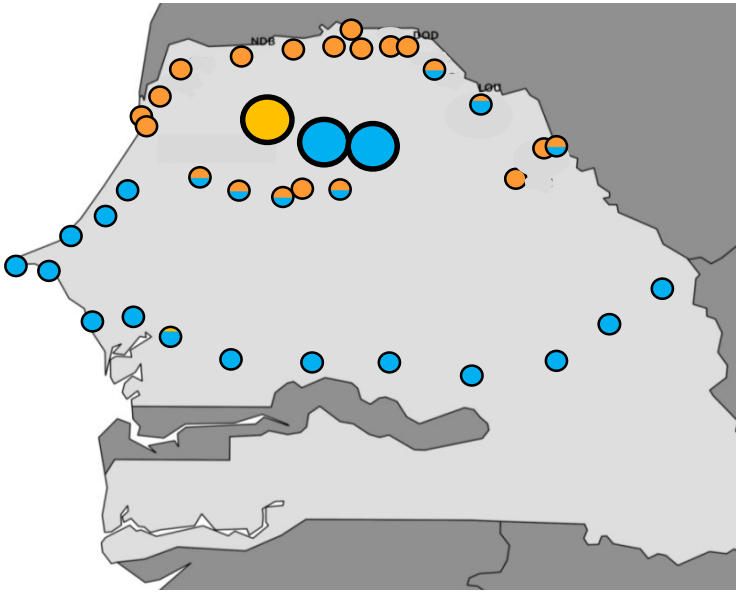
=> No support for a role of behavior: aggressive males are similarly distributed across all sites.

Complex invasion history of the central Ferlo

- The house mouse is dominant in villages

- 2 genetic groups, suggesting different invasion pathways





Sur le terrain...

Bases de données et collections

Nos étudiants
Jean-Claude Malick Sene
Mame Sokhna Gueye
Moussa Sall

Merci à toutes et tous!