

DEVELOPMENT OF MICROSATELLITE MARKERS FOR *ORNITHODOROS PHACOCHOERUS* IN THE CONTEXT OF THE INTERNATIONAL NIFNAF PROJECT

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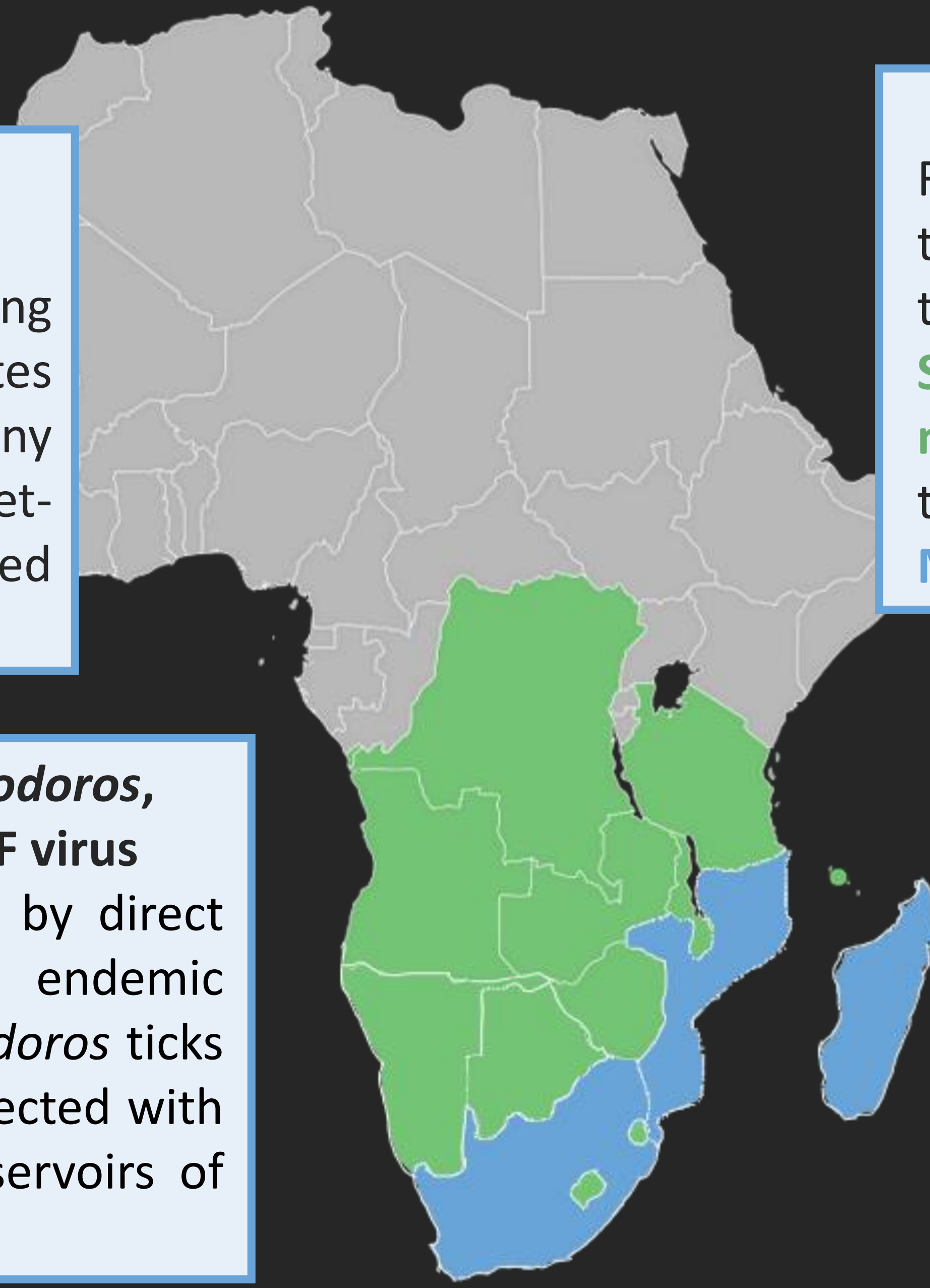
NIFNAF PROJECT

African Swine Fever (ASF) at the wild / domestic interface

ASF is a lethal hemorrhagic fever affecting domestic pigs. The ASF virus contaminates warthogs, without them developing any clinical sign of the disease. Contact between domestic and wild suids is monitored to understand ASF outbreaks.

Soft ticks of the genus *Ornithodoros*, vectors and reservoirs for ASF virus

ASF fever is mostly transmitted by direct contact between suids. Yet, in endemic areas, several species of *Ornithodoros* ticks can feed on warthogs and be infected with the virus, and then become reservoirs of the virus for several years.



International cooperation

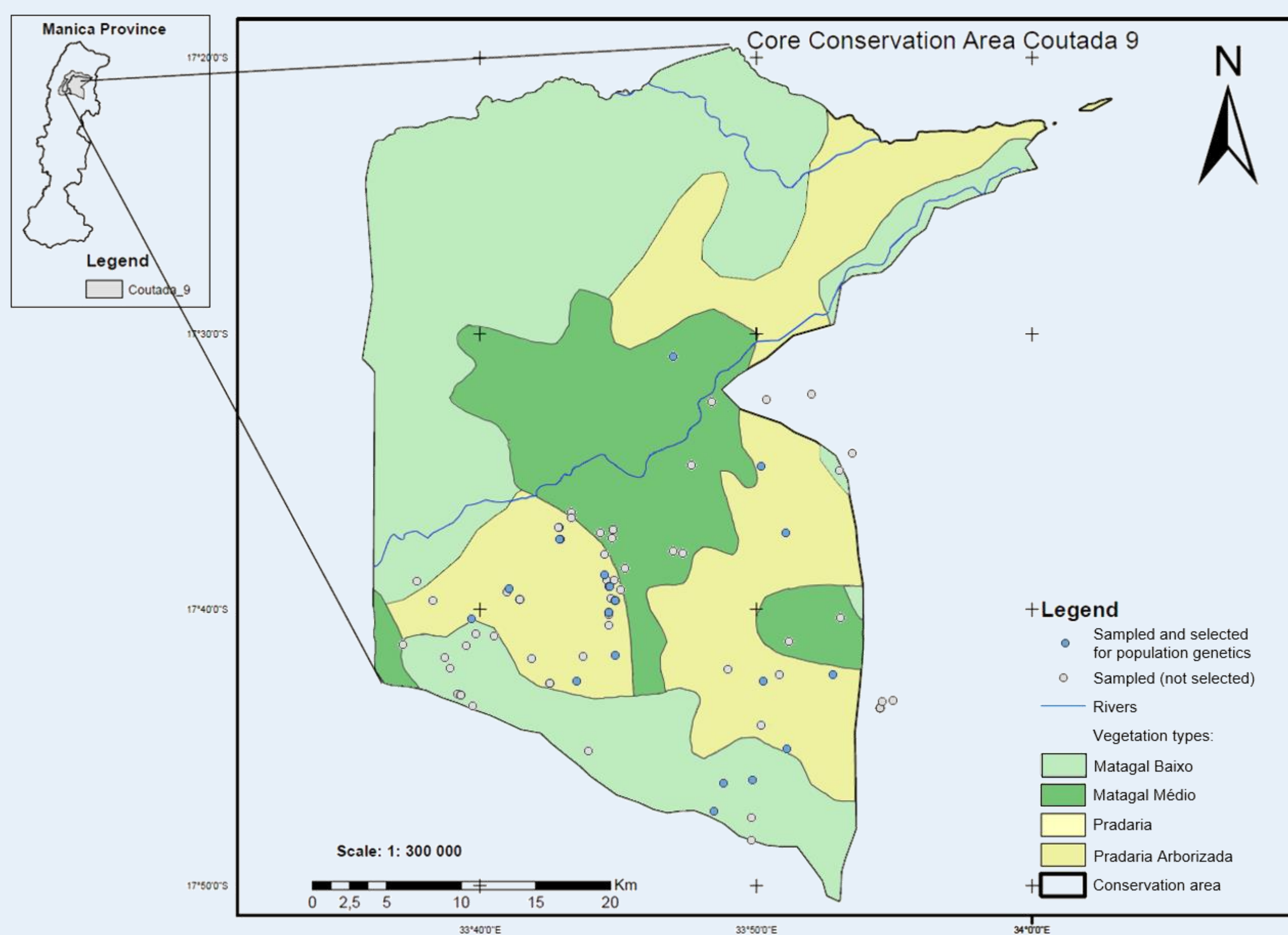
Financed by the American USDA and NSF, the project aims at better characterizing the spread of ASF in the area of the **Southern African Development Community (SADC)**. The collaboration includes teams from **South Africa, Madagascar, Mozambique**, France (CIRAD) and the USA.

Some NIFNAF objectives regarding the link between *Ornithodoros* ticks and ASF

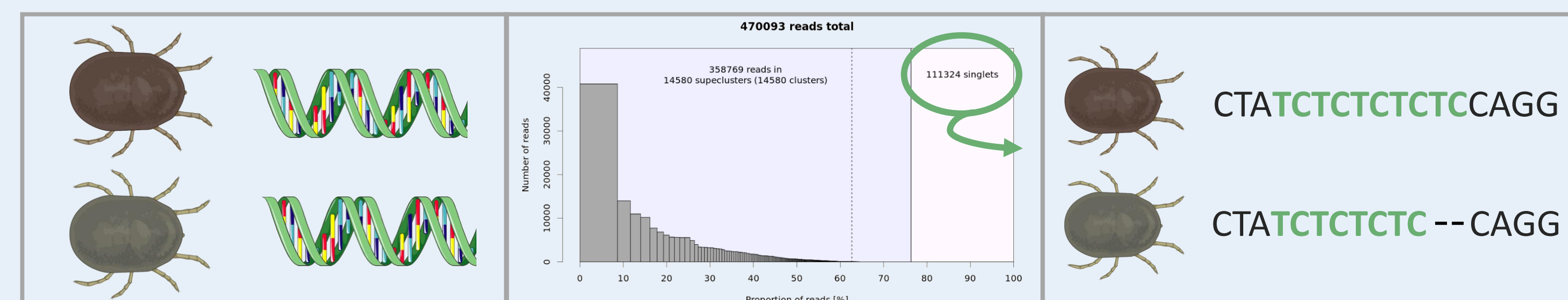
- Explore tick involvement in ASF virus transmission and maintenance
- Evaluate the movement of ticks between warthog burrows and risks for pig farms
- Investigate interactions between ASF virus and tick microbiota

POPULATION GENETICS

1 Sampling of soft ticks *Ornithodoros phacochoerus* was performed in seventy-five warthog burrows in the Coutada 9 reserve in Mozambique with twenty sites selected for population genetics.



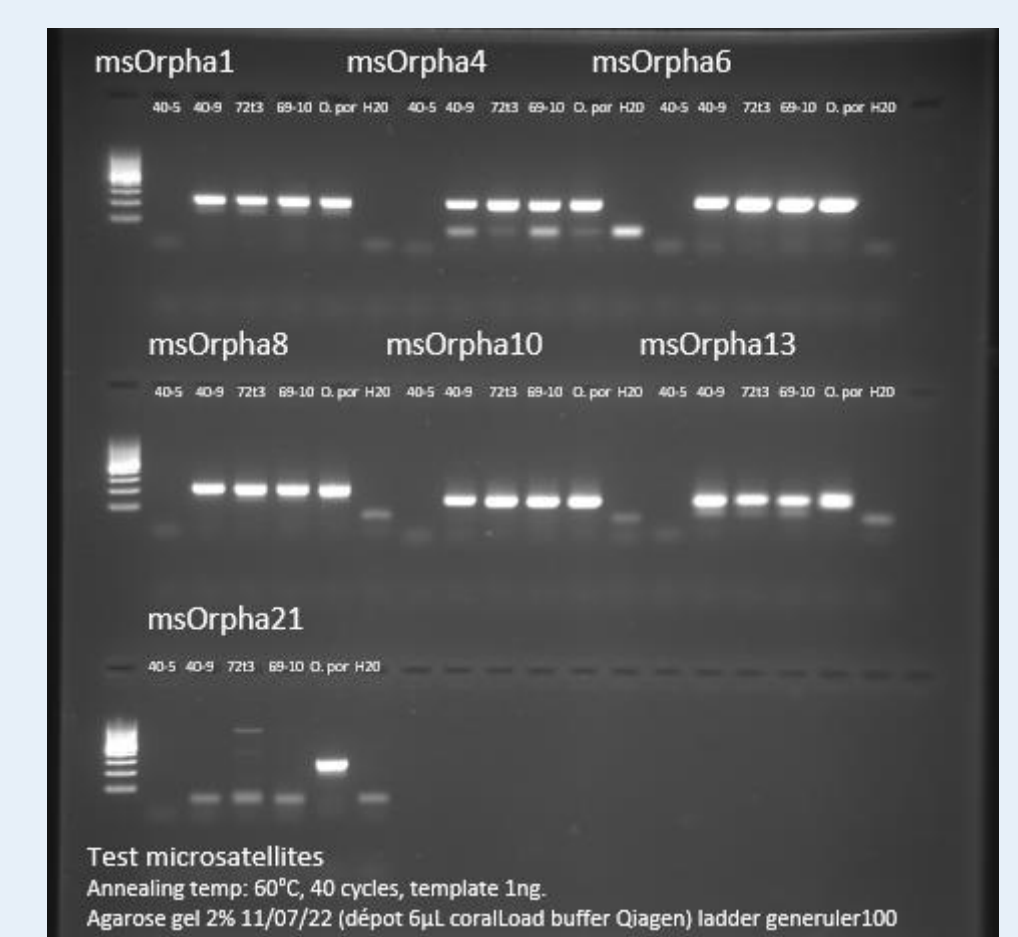
2 Development of microsatellite markers started using genomes of two close *Ornithodoros* species. Potential microsatellites were screened for and selected before in-lab test.



- Starting with *O. Porcinus* & *O. Moubata* genomes
- Elimination of repeated sequences using RepeatExplorer
- Screening for microsatellites / primer design using Palfinder
- Selection of markers that are polymorphic and common between the two genomes

3 Tests for the selected markers just started and will lead to eliminate non specific and non variable microsatellites.

- Test on *O. porcinus* DNA
- Test on target *O. phacochoerus* DNA
- Currently, eighteen markers selected out of twenty-four markers tested
- Next test using primers tagged with M-13 tail to look for polymorphisms
- Selection of the markers and multiplexing



WHAT'S COMING NEXT?

Microsatellite markers developed here will be used to investigate gene flux between several tick populations, both inside the natural reserve of Coutada 9, and at the interface with pig farms. From the results, the role of *Ornithodoros* ticks in the transmission of ASF from warthog to domestic pigs will be evaluated.

- Sampling of ticks was performed manually from warthog burrows
- Sites were selected according to localization and number of ticks sampled
- Ticks were cleaned and pictures taken before crushing for DNA extraction
- DNA was extracted individually for thirty ticks for each selected site

