

Monitoring the wild meat trade through DNA barcoding and pathogen screening of passenger-imported meat

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THE INTERCEPT PROJECT maps the current situation of monitoring (exotic) animal product imports from third countries into Belgium, highlighting both the legal and illegal aspects of the trade and its implications for public and animal health. Recommendations are being drafted to move towards a more robust framework for long-term monitoring including a centralized database that integrates data from various federal services and agencies to gain a better overview of the trade and to promote the dissemination of crucial information among federal services, agencies, and stakeholders. The project also aims to introduce a secure and efficient sampling method for officials, along with a molecular species identification pipeline for researchers, which will enable rapid DNA-based identification of illegally imported meat.

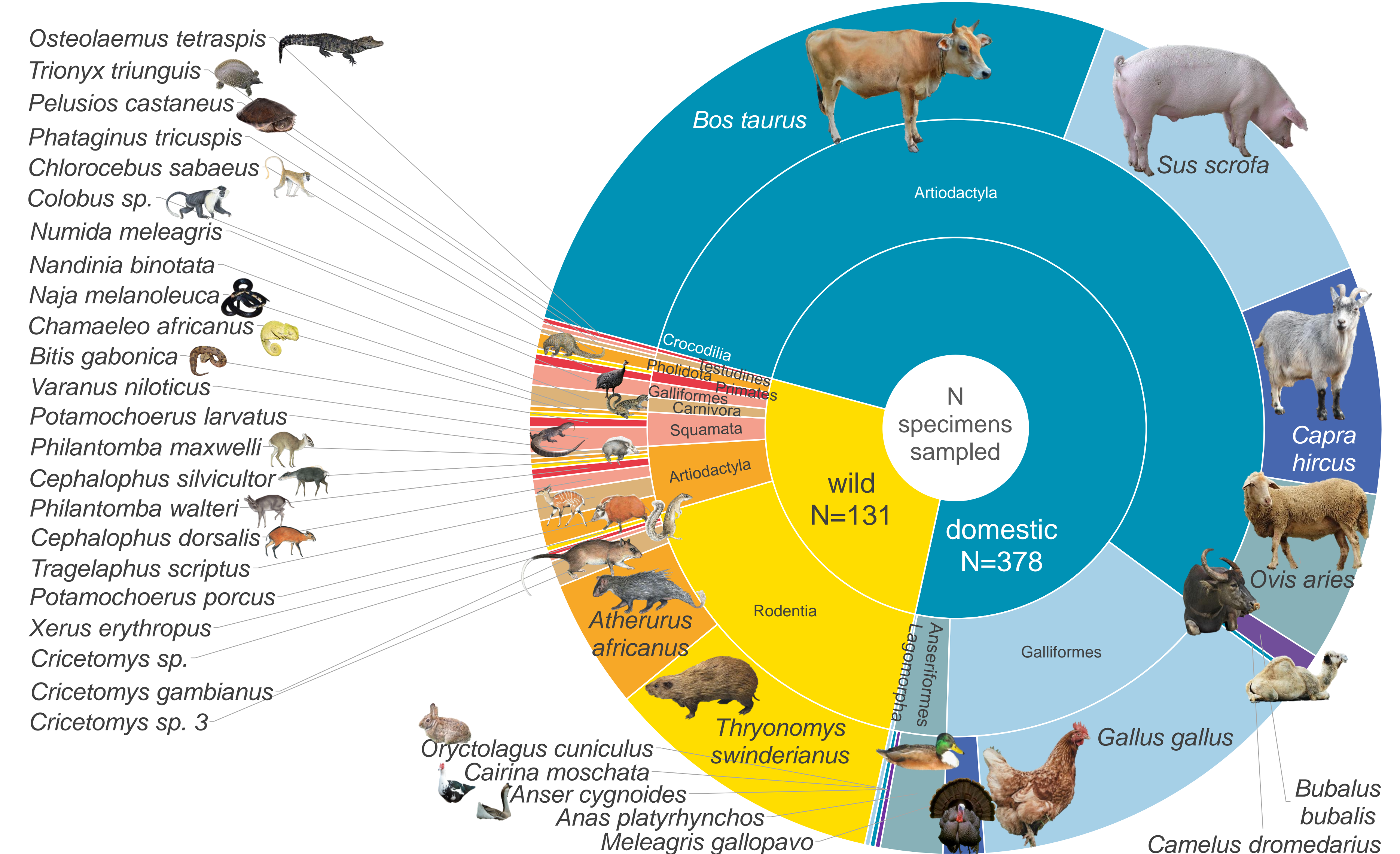
Sampling

Target: terrestrial, vertebrate meat in passenger luggage
628 specimens sampled (~1 / package)
during 28 BaCon & 8 luggage destruction actions
@Brussels International Airport
long-term sample storage @RBINS & RMCA biobanks
+ picture collection of all specimens



Species identifications

Ongoing using DNA barcoding. So far 506 specimens identified up to species-level and 3 up to genus-level, covering at least 36 species of which 11 CITES-protected species.



Pathogen screening

Ongoing orthopox qPCR screening (targets: I7L & E9L):
so far all 473 samples (mostly muscle tissue from both mammals and non-mammals) tested negative.

Ongoing metagenomic DNA & RNA pathogen screening for a selection of samples pooled per DNA-confirmed host species, preparation method (raw vs. cooked), and (when possible) export region. During a preliminary analysis of 8 pools: no viruses detected from the DNA pools, but both RNA & DNA viruses detected from RNA pools incl.

- a herpesvirus & chicken anemia virus in cooked chicken (N=5) from Middle Africa,
- peste-des-petits-ruminants virus and an enterovirus in cooked goat (N= 5) from Western & Middle Africa,
- a polyomavirus in cooked cane rat (N=5) from Western Africa, and
- an orthohepadnavirus & a spumaretrovirus in cooked Nandinia (N=4) from Middle Africa/unknown.

Further analysis is needed to confirm these findings and to chart additional microbial diversity.

Conclusion

By fostering collaboration among scientific institutions and federal agencies, this initiative aims to inform border control measures and will support future research into pathogens carried by both domestic and exotic meat, allowing better characterisation of the health risks associated with the illegal import of meat from 3rd countries.



Acknowledgements



Federal Public Service FINANCE

