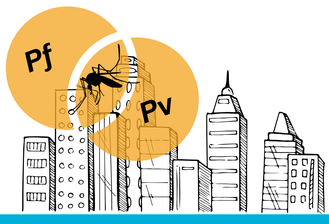

ANOPHELES STEPHENS!

Landscaping Review

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Author Summary

This review presents a deep dive into the research and investments related to *Anopheles stephensi.* 68 projects encompassing research areas, including transmission dynamics, gene modification, vaccine production, genomics, surveillance, invasive species, drug production, and insecticides were identified. A total of USD 89 million has been allocated to the represented *An. stephensi* research so far, predominantly from government institutions. This landscaping review provides an overview of the current research and investments aimed at understanding and mitigating the invasion and the significant implications for malaria control in urban areas. It also highlights potential areas for further research and exploration.

Brief Introduction

Anopheles stephensi, a mosquito of the genus *Anopheles*, whose female is capable of transmitting both *Plasmodium falciparum* and *Plasmodium vivax* malaria parasites to humans, has significantly expanded its range in recent years, with the potential to cause malaria outbreaks in several regions in Africa.

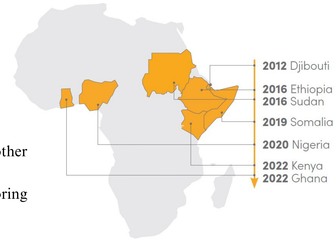


Image: World Health Organization, 2023

Objectives

1. Describe the geographic scale and scope of ongoing *An. stephensi* research and other relevant projects.
2. Overview of the distribution of active *An. stephensi* surveillance or monitoring programmes.
3. Describe the funding sources for projects.
4. Document the list of questions under evaluation.
5. Identify key knowledge gaps in *An. stephensi* research.

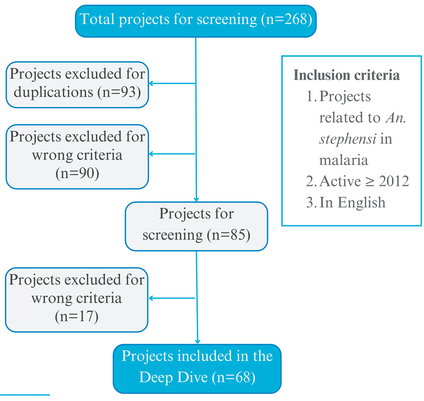
Methods

MESA TRACK
The malaria projects database

Step 1
Systematic data collection from multiple sources, curation, and review of active research.

Step 2
Principal investigators contacted to verify project details and fill information gaps.

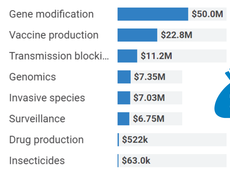
Step 3
Projects categorised into research areas based on common objectives.



Results

Total Projects	Total Funding	Project Sites
68	$89.0M	16
15 active	$37.1M active	8 active

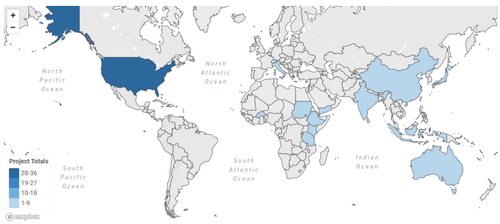
Funding Scenario



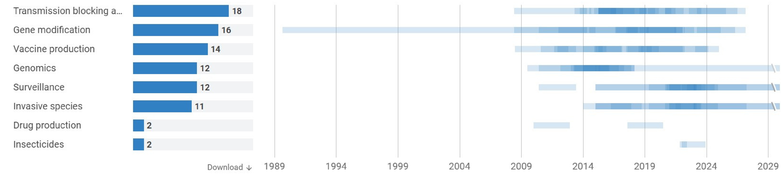
25 Funding Sources

- 15 government institutions
- 9 private institutions
- 1 self-funded

Geographic Distribution



Research Area | Total Projects | Project Timeline



Research Gaps

Impact studies (correlation of invasion and burden of disease), control strategies, surveillance and monitoring, impact of climate change, urban malaria dynamics.

Discussion

The report highlights potential research gaps and areas for further exploration. These include the need for a deeper understanding of *An. stephensi*'s actual impact on the burdern of malaria, the effectiveness of control strategies such as gene modification and larviciding, surveillance and monitoring tools, the impact of climate change on *An. stephensi* distribution, and a focus on the dynamics of urban malaria transmission by this vector.

Conclusion

The identification of research gaps related to *An. stephensi* highlights the complexity of the challenges posed by this mosquito species in the context of malaria control. Addressing these gaps through collaborative research efforts is essential for developing targeted control strategies, improving surveillance methods, and ultimately enhancing the effectiveness of malaria control in regions threatened by *An. stephensi*. To combat this significant public health concern, interdisciplinary cooperation and sustained research efforts are imperative.

References

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- World Health Organization, 2022. WHO initiative to stop the spread of Anopheles stephensi in Africa (No. WHO/UCN/GMP/2022.06). World Health Organization. Accessed: 14/09/2023. https://www.who.int/publications/i/item/WHO-UCN-GMP-2022.06

MESA Deep Dive on *Anopheles stephensi*

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Poster number: 100