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Literature Review Protocol: Risks from cross-species disease transmission for the restoration of endangered Sahelo-Saharan antelope

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ADMINISTRATIVE INFORMATION

Support - Smithsonian Scholarly Studies.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - T1112we2his protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 October 2024 and was last updated on 10 October 2024.

INTRODUCTION

Review question / Objective Compile potential infectious agents and parasites of domestic livestock and wild ungulates in countries with active Sahelo-Saharan antelope translocation programs: Chad, Morocco, Senegal, and Tunisia.

Rationale Current guidelines for conservation translocations strongly encourage disease risk analyses. Literature reviews can be an important first step to understand disease threats at the destination ecosystem, to inform vaccination protocols, screening, and other preventative health measures. The 2018 mass mortality event in reintroduced oryx illustrates the need for a broader investigation into infectious disease risks for Sahelo-Saharan antelope (SSA) and domestic livestock at current and prospective conservation sites. In this literature review, we aimed to compile potential risks and knowledge gaps for SSA translocations in Chad, Morocco, Senegal, and Tunisia..

Condition being studied Infectious disease risks at the wildlife-livestock interface in regions with active SSA conservation programs: Chad, Morocco, Senegal, Tunisia.

METHODS

Search strategy Ten thematic categories guided keyword selection: “Livestock,” “Wild Ungulates,” “Locations,” “Infectious Diseases,” “Death,” “Morbidities,” “Outbreaks,” “Pathogens,” “Epidemiology,” and “Diseases – Priority” (S1). Simple and complex search strings comprising three categories were used (S1). Results were retrieved from four databases: Web of Science Core Collection, ProQuest, PubMed, and Zoological Record. Each database was queried 27 times, for a total of 108 searches targeting reports from 2000-2020.
An initial geographically broad search was carried out for English-language articles pertaining to the historic ranges of all SSA. A second series of searches refined “Locations” to only Chad, Morocco, Senegal, and Tunisia, to focus on

regions with active or prospective SSA reintroduction programs. An additional search of the four databases using the refined geographic range, time period, and search strings was performed for French-language articles.

Participant or population Population of interest: domestic cattle, camelids, sheep, goats, wild ungulates.

Intervention N/A.

Comparator N/A.

Study designs to be included Prevalence studies, case reports, etc..

Eligibility criteria Inclusion: geographic range (Chad, Morocco, Senegal, Tunisia), English or French language, host species (wild or domestic ruminants and camelids).
Exclusion: Papers discussing exclusively human cases, experimental infections, predictive modeling, vector or parasite ecology, antimicrobial resistance, or food-borne pathogens or mastitis (unless systemic), reviews with no new data and studies with duplicate findings**.**

Information sources Electronic databases: Web of Science Core Collection, ProQuest, PubMed, and Zoological Record WOAH-WAHIS database**.**

Main outcome(s) List of infectious agents and parasites.

Additional outcome(s) List of infectious agents and parasites.

Data management Citations were managed using Zotero (Corporation for Digital Scholarship, 2021). During the first review round, one or two independent reviewers (LE, JHY for English articles, ID for French) assessed each record's metadata for relevance (reports of infectious diseases in wild and domestic ruminants and camelids), with any disputes resolved by a third party (DZ). For citations of uncertain relevance based on metadata alone, the full article was assessed (Fig. 1). During the second review round, one independent reviewer (LE, JHY for English articles, ID for French) read full articles to determine relevance. Inaccessible papers not available for full review were excluded.

Quality assessment / Risk of bias analysis During the first review round, one or two independent reviewers (LE, JHY for English articles, ID for French) assessed each record's metadata for relevance (reports of infectious diseases in wild and domestic ruminants and camelids), with any disputes resolved by a third party (DZ). For citations of uncertain relevance based on metadata alone, the full article was assessed (Fig. 1). During the second review round, one independent reviewer (LE, JHY for English articles, ID for French) read full articles to determine relevance. Inaccessible papers not available for full review were excluded.

Strategy of data synthesis Descriptive statistics only.

Subgroup analysis N/A.

Sensitivity analysis N/A.

Language restriction English, French.

Country(ies) involved United States (University of California at Davis).

Keywords Sahelo-Saharan antelope; livestock; conservation translocations; Chad; Morocco; Senegal; Tunisia.

Dissemination plans Publication.

Contributions of each author

Author 1 - Jennifer Yu - Drafted manuscript, performed 1st and 2nd review of articles, methodology.
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