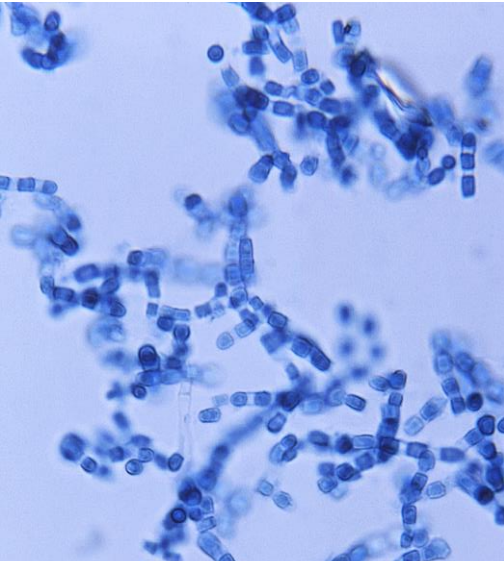# TEXAS A&M AgriLIFE RESEARCH

Determining the Prevalence of *Coccidioides spp*. in Semi-Arid Soils of Texas

Christopher J. Cobos[1], Joseph A. Burke[1], Terry Gentry[2], Bridget Barker[3], Daniel Kollath[3], Glenda Grawe[4], and Katie L. Lewis[1]

IDENTIFYING COCCIDIOIDES IN TEXAS

There is a notable lack of knowledge in the ecology and epidemiology of *Coccidioides* spp., a fungal pathogen and causative agent of Coccidioidomycosis (Valley Fever). The ecological niche and climatic parameters ideal for *Coccidioides* spp. prevalence is not completely elucidated and the published endemic range is most likely outdated. Texas has historically been included in this range; however, few studies have focused on identifying soil and environmental bioaerosol samples across the state for the fungal pathogen. As a result, Valley Fever may be drastically under-reported and misdiagnosed in Texas, more specifically across the Texas Southern High Plains and Trans Pecos areas. Understanding the geographic distribution and natural habitat factors relevant to the growth and prevalence of *Coccidioides* spp. in the soil will help in elucidating these parameters as well as positively affecting the epidemiological outcome of Valley Fever.

Could land-use and management practices affect *Coccidioides* spp. presence?

Project Goal

Describe the previously unreported ecological niche and confirm the endemic range of *Coccidioides* spp. across Texas.

What We Will Measure

Our lab will collect soil and bioaerosol samples across Texas, focusing sampling efforts primarily in the semi-arid regions of the state and areas heavily populated by ground-dwelling animal species traditionally associated with the fungus (*Heteromyidae*). The presence of *Coccidioides* spp. will be determined via molecular confirmation (single-tube nested PCR & qPCR).

Laboratory contact

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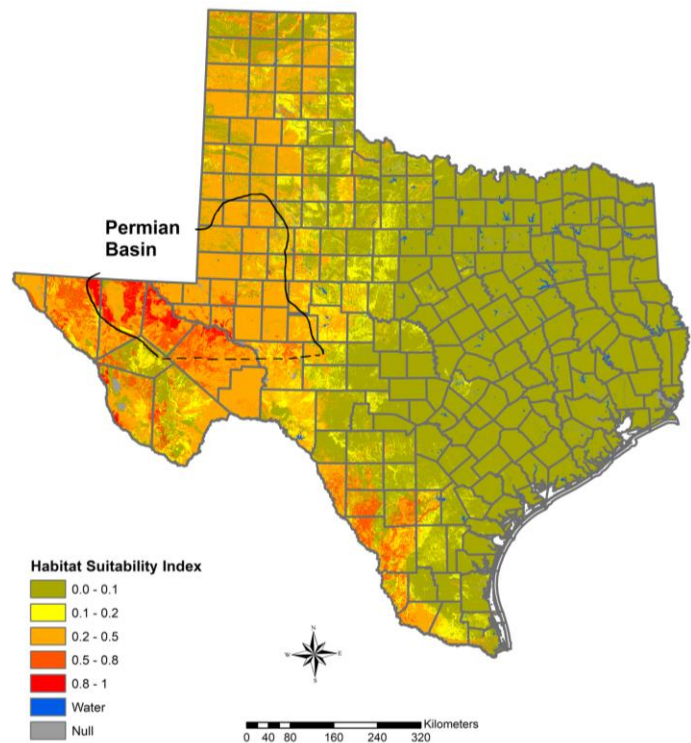
The predicted *Coccidioides* habitat suitability index for Texas showing high suitability across the Permian Basin and Trans-Pecos area (Dobos *et al.*, 2021, PLoS One 16:e0247263).

Collaborators

TEXAS A&M UNIVERSITY Soil & Crop Sciences

Valley Fever Institute *at Kern Medical*

NAU NORTHERN ARIZONA UNIVERSITY

TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER

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