

# Prioritizing Conservation Needs for Native U.S. Oaks of Concern

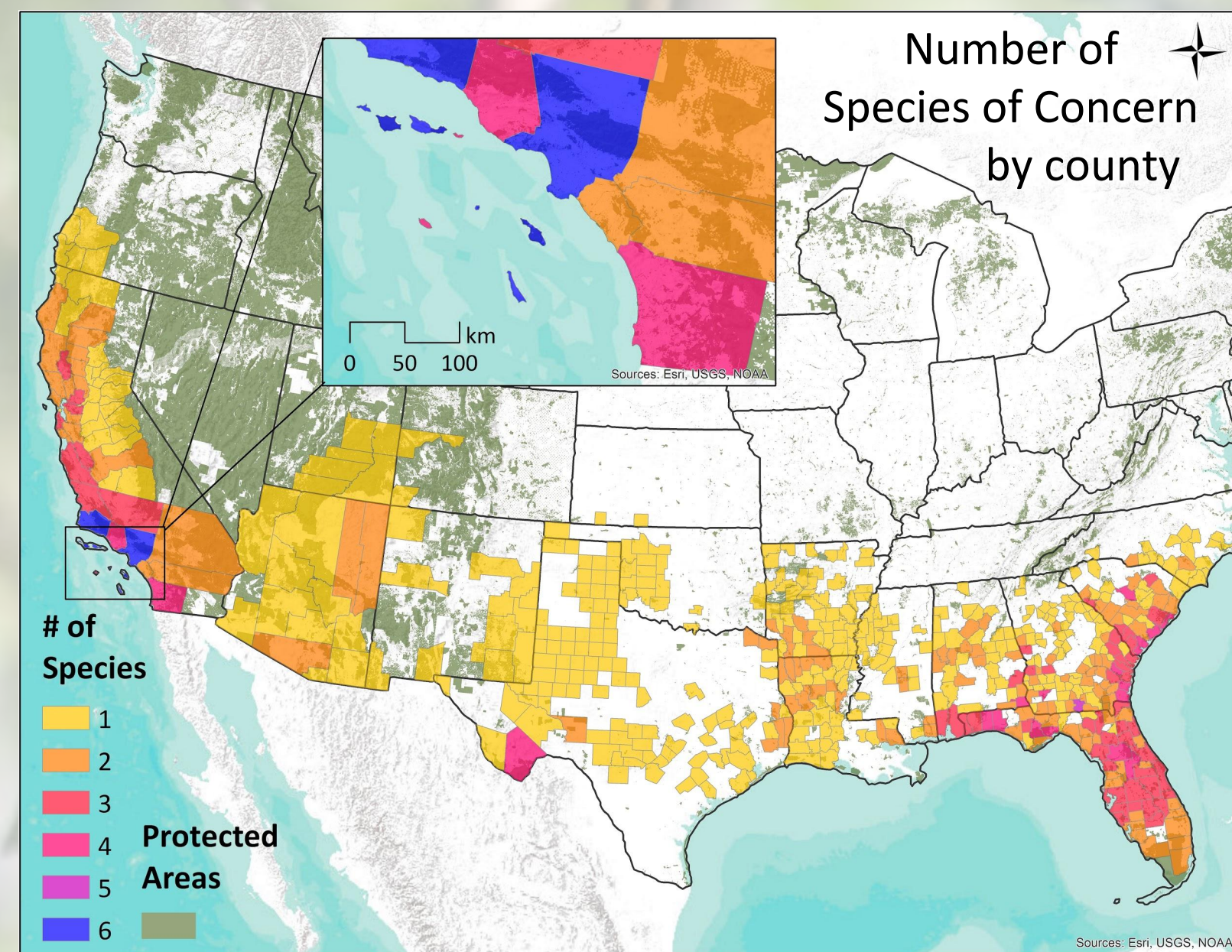
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Oaks play an integral role both ecologically and economically in North America, with 91 native oak species in the United States alone. Of these, 16 are listed by the IUCN Red List as globally threatened with extinction. To meet the need for efficient and effective direction of limited resources toward conservation actions, we completed a Conservation Gap Analysis of U.S. Native Oaks. This analysis combines threat assessments with conservation data to systematically prioritize species and conservation actions, guiding long-term preservation of oak diversity through promotion of closer coordination and collaboration among the conservation community.

## Choosing Target Species



28 native U.S. oak "Species of Concern" were selected as target species for the analysis, based on relative level of conservation need based on:

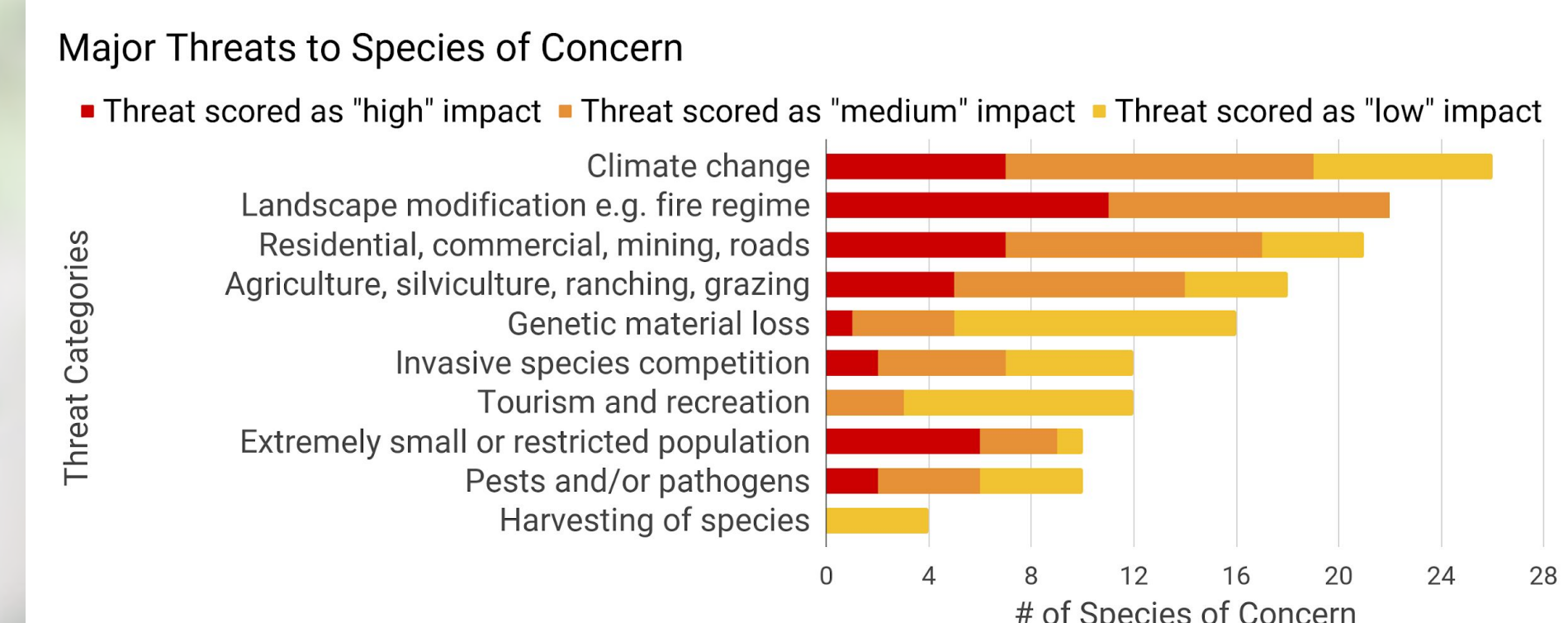
- The Red List of US Oaks (Jerome *et al.* 2017)
- NatureServe
- Species-specific climate change projections (Potter *et al.* 2017)
- *Ex situ* representation & expert input

## Gathering Data

- Compiled and filtered a variety of spatial point datasets to create distribution map for each Species of Concern
- Reviewed published and grey literature
- Communicated with experts across sectors

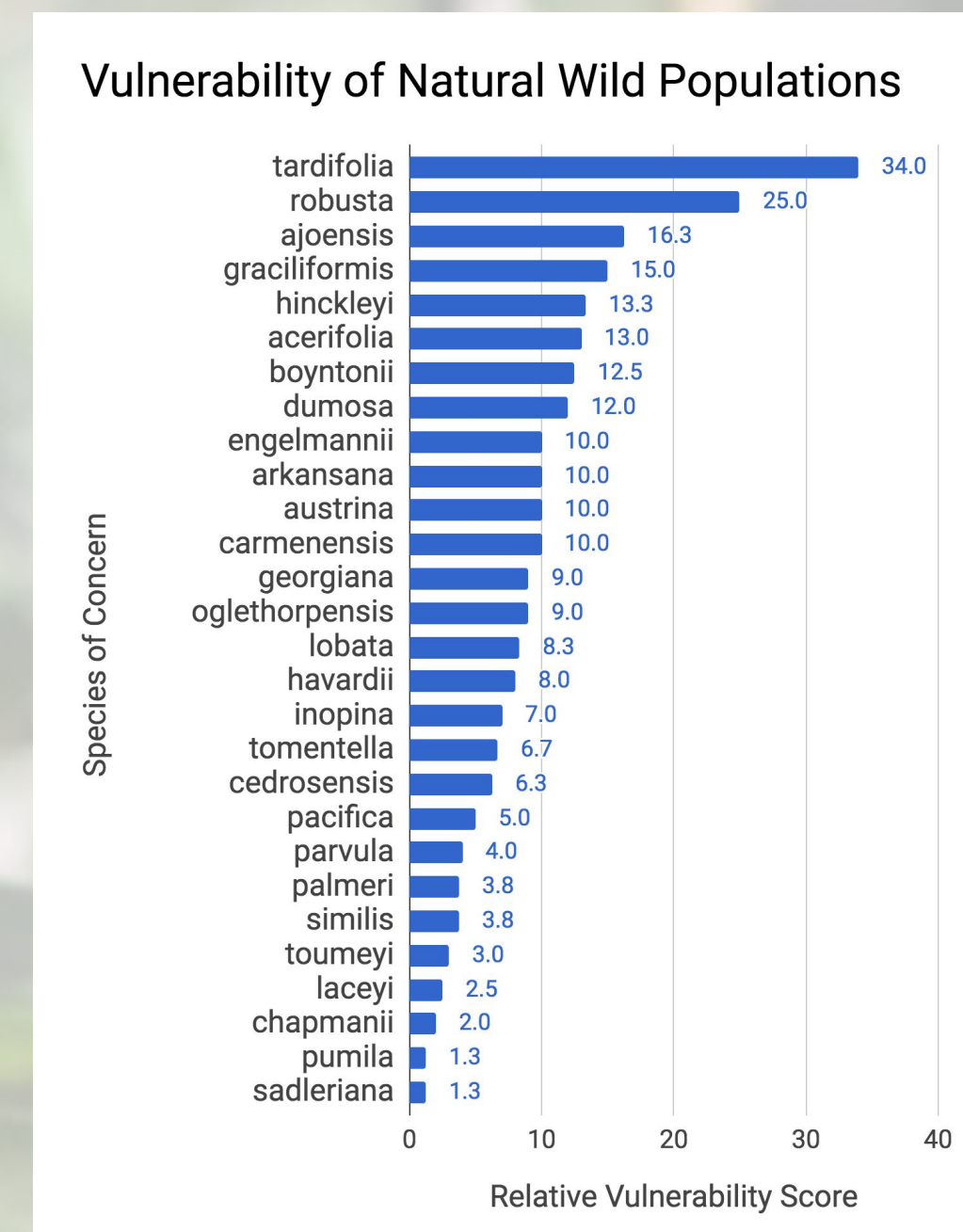
## Threat Assessment

Root cause(s) of *in situ* circumstances were pinpointed and quantified by considering 11 threat categories for severity, likelihood, and distribution among subpopulations, and then rating each factor as "high," "medium," or "low" relative impact.



## Vulnerability Assessment

An "Average Vulnerability Score" was calculated for each Species of Concern, using a scoring matrix based on the IUCN Red List Categories and Criteria; factors considered include:



- Population Size
- Range / Endemism
- Population Decline
- Regeneration
- Fragmentation
- Genetic Variation

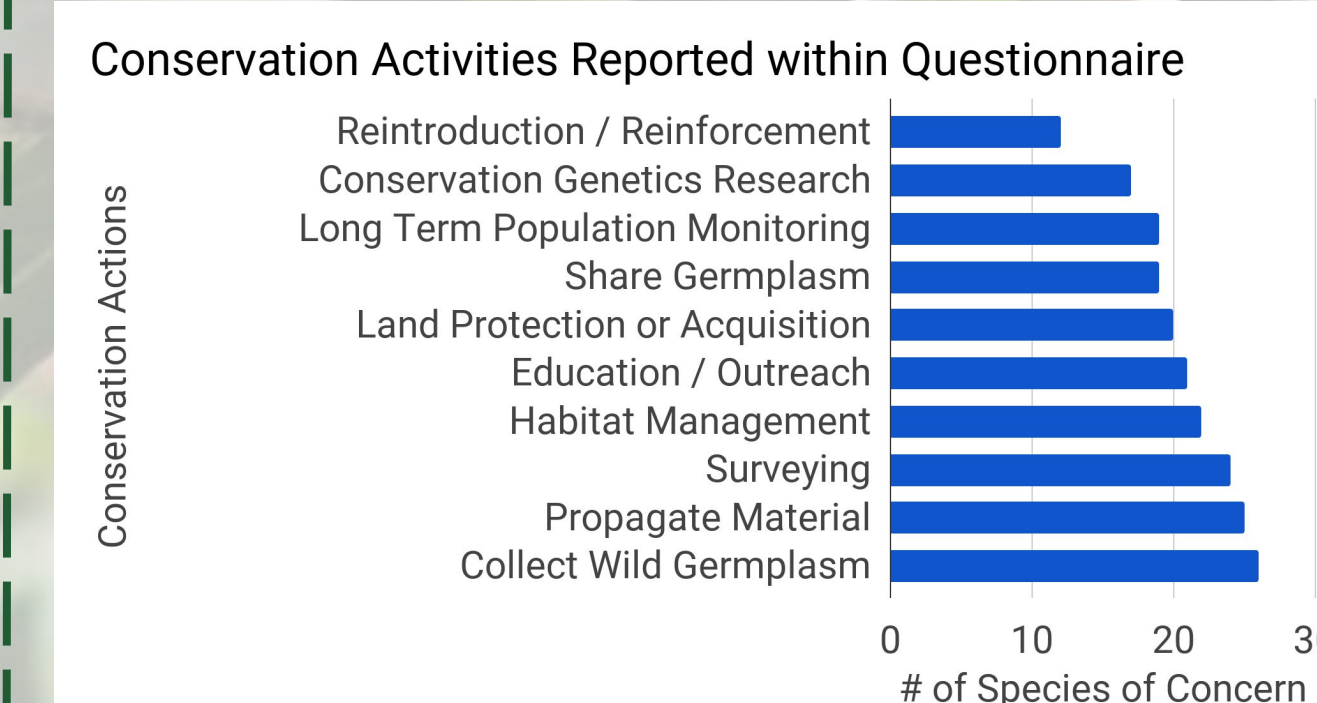
## Conservation Review

Known past, present, and planned conservation actions were identified and described in each of 12 conservation action categories selected based on:

- The Global Strategy for Plant Conservation
- North American Botanic Garden Strategy For Plant Conservation

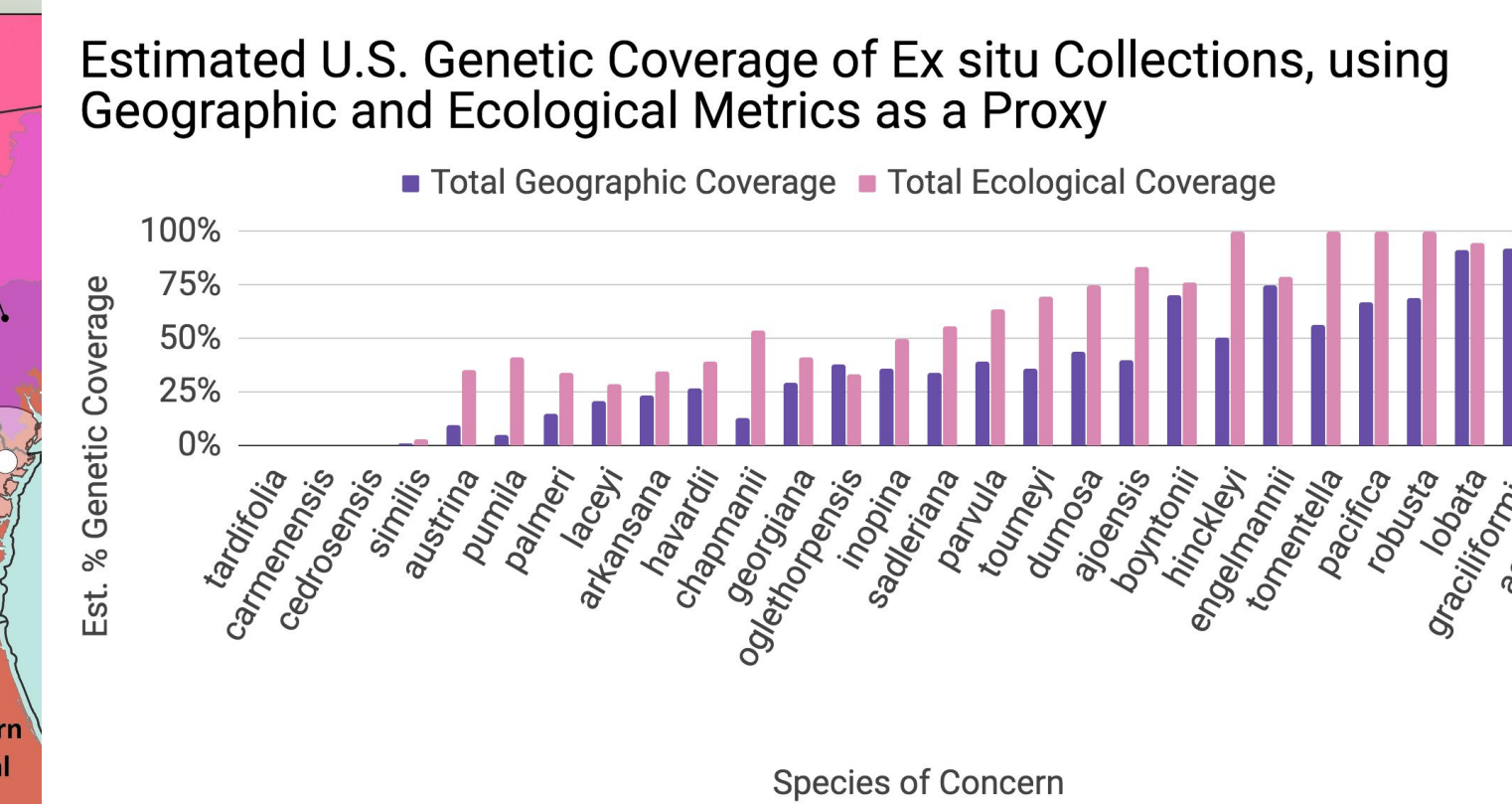
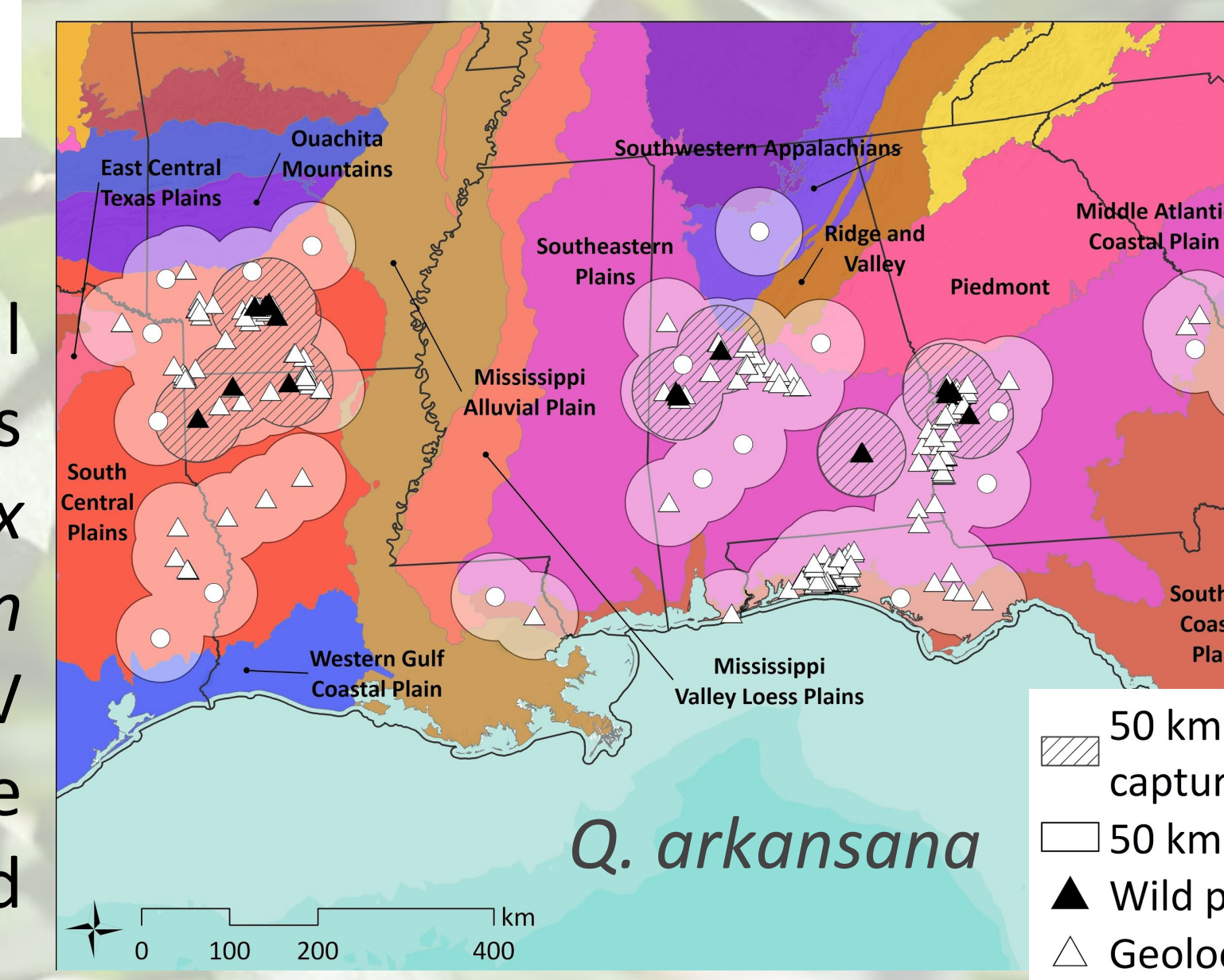
Further data gathering and analyses were performed in 3 areas:

### 2. Conservation Action Questionnaire

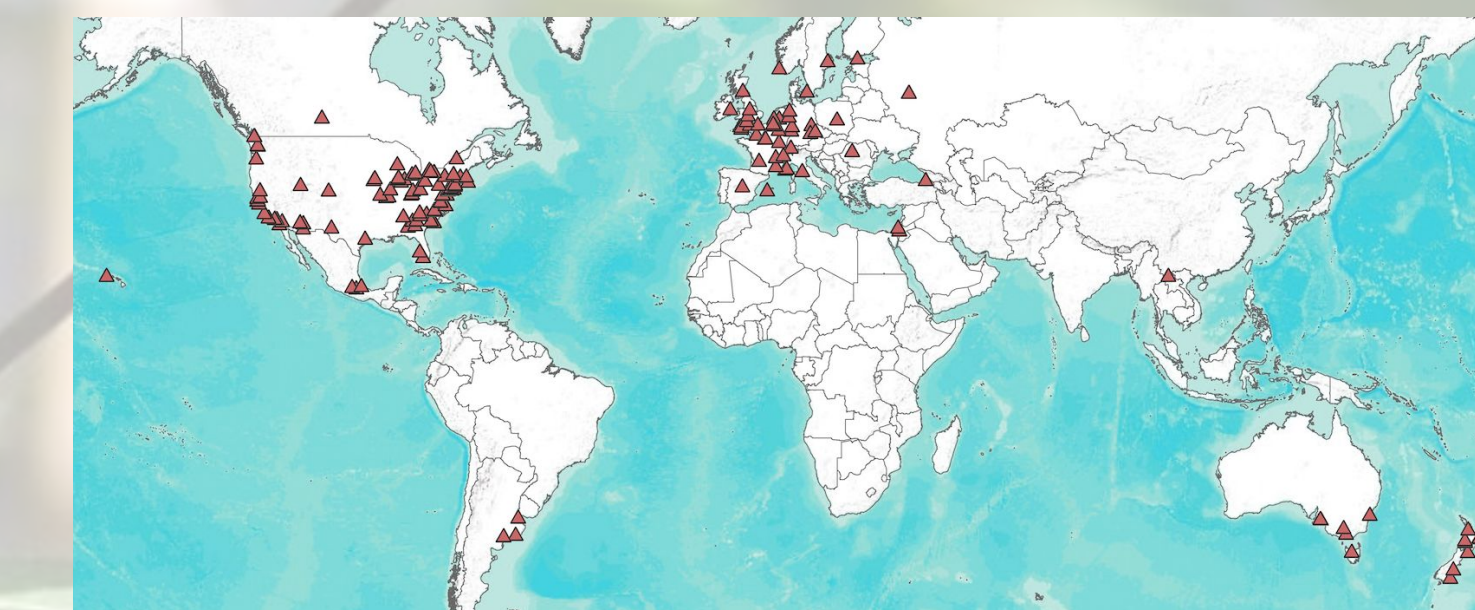


331 respondents from 255 institutions, 83 of which provided input for Species of Concern

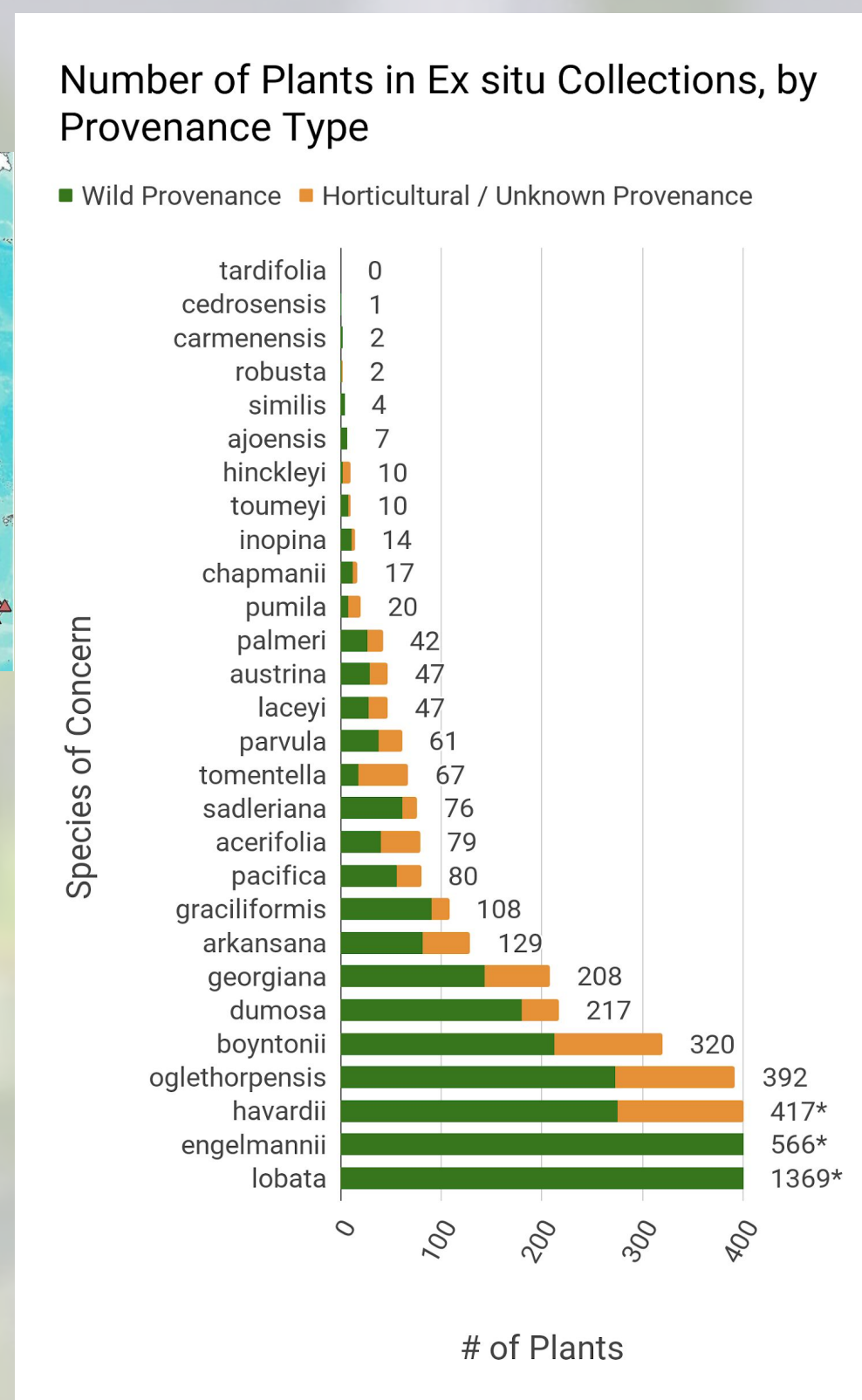
An estimate of potential genetic diversity capture was calculated by comparing *ex situ* wild provenance with *in situ* distribution; EPA Level IV Ecoregions are shown in the map's background



### 1. Global Ex situ Survey



165 respondent institutions from 26 countries

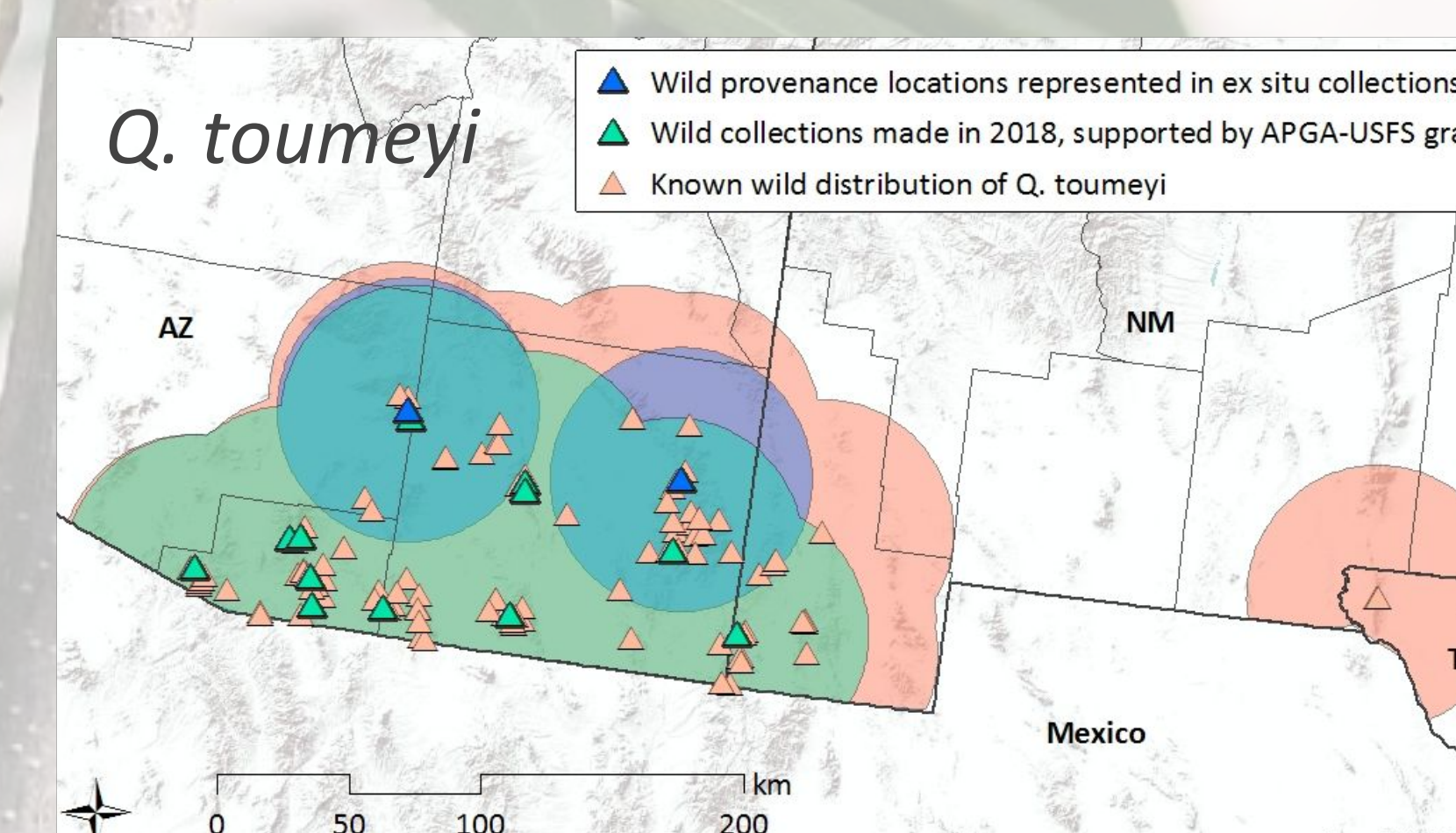


### 3. Spatial Analyses

## Conservation Needs Evaluation

This final analysis compares threats with conservation activities, to recommend and prioritize conservation actions which should be continued, strengthened, and/or initiated to appropriately address the specific circumstances of each Species of Concern.

We distributed our initial results among the American Public Gardens Association Plant Collections Network (APGA PCN), to aid in planning targeted collecting expeditions. 6 APGA-USFS Tree Gene Conservation Partnership grants were awarded in 2018 for the collection of priority oaks identified within our analysis.



Progress towards further *ex situ* representation is exemplified by 2018 *Q. toumeyi* collecting efforts

