

Herping Highs and Lows: Uncovering Sampling Patterns in the Madrean Sky Islands

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Background

- The **Madrean Sky Islands**: North American biodiversity hotspot made up of approx. 60 isolated mountain ranges spanning from NW Mexico to the SW United States
- Term “**sky island**” comes from these mountain ranges being characterized by “island” patches of high-elevation montane habitat carved by “seas” of Sonoran/Chihuahuan desert scrub and grasslands
- As Earth’s climate changes, important to keep an eye on biodiversity hotspots to see how they respond to temperature and habitat shifts
- **Importance of voucher specimens and natural history collections:**
 - Allow researchers to track changes in morphology, extinction events, distribution, genetic diversity, and life-history traits and explore deeper biodiversity questions
 - Well preserved and cared for specimens can last for decades, allowing for multiple uses, projects, and exposures to people who might never see these species in their natural habitats

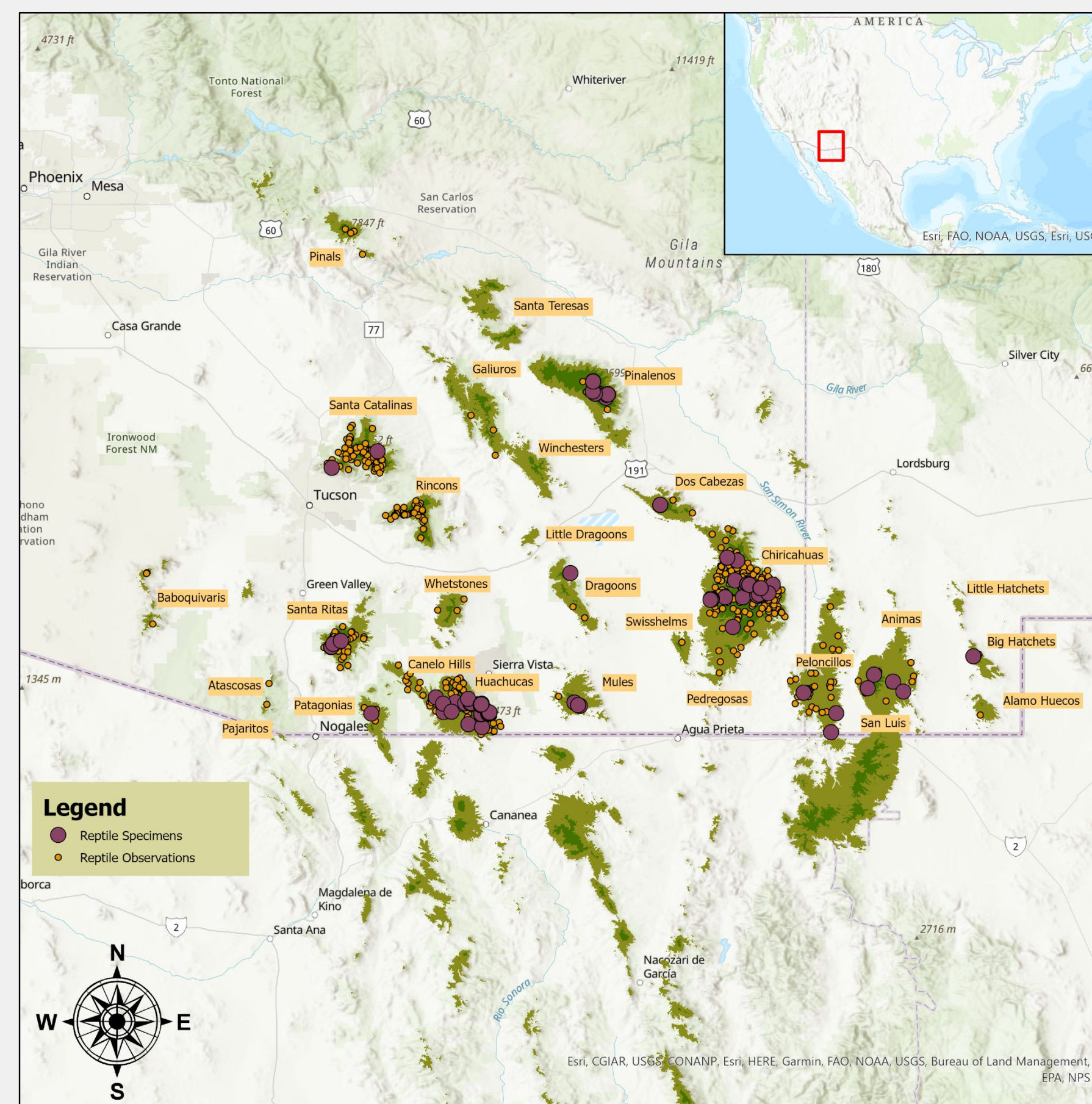
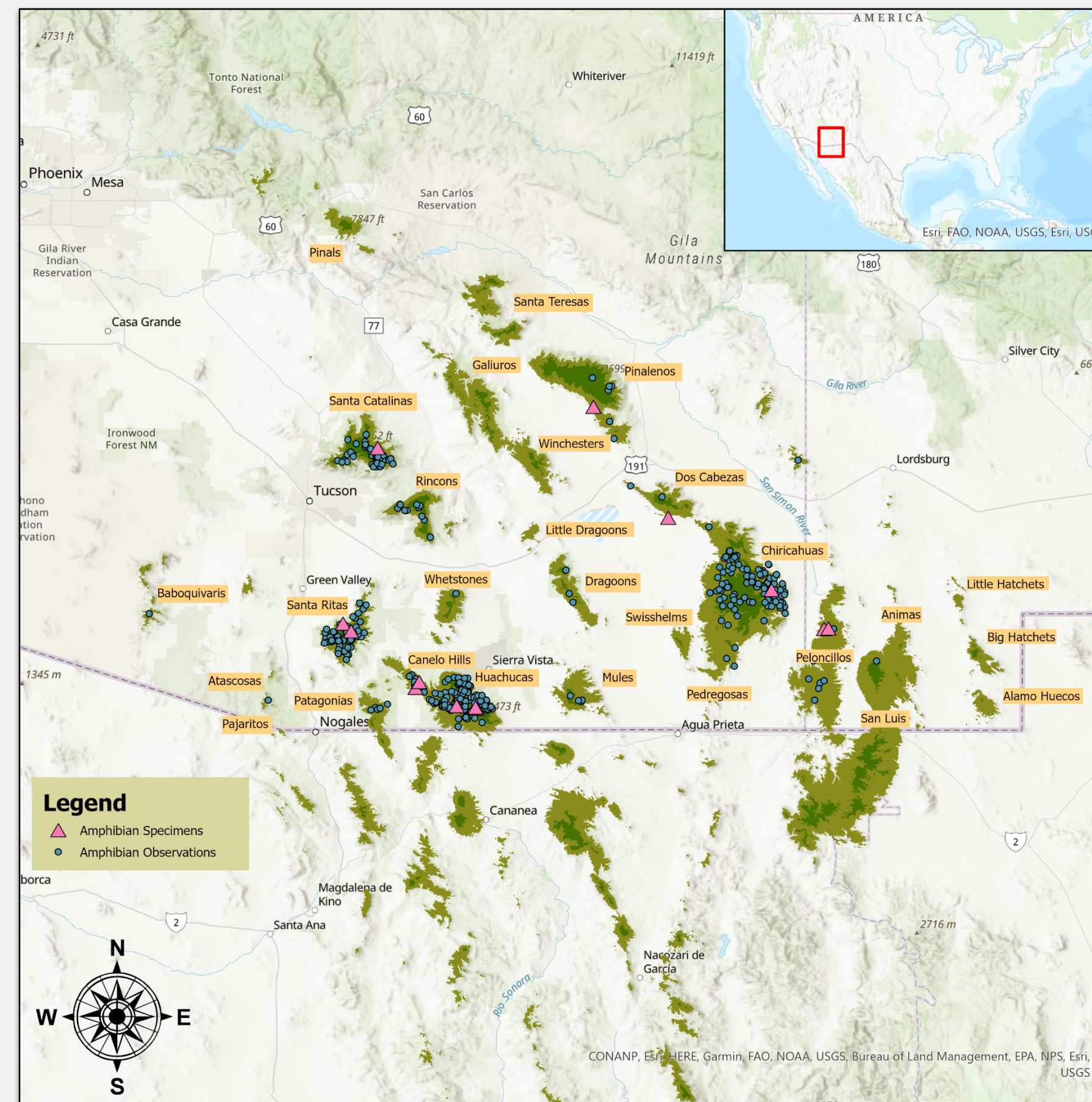
Objectives

- Compare two biodiversity sampling methods: voucher specimen collection and visual encounter observation
- Figure out how old the records from each sampling method are
- Explore which mountain ranges have the most specimen records

Methods

- Used GBIF to obtain:
 - Voucher specimen records from natural history collections/museums
 - Visual encounter records mostly from iNaturalist
- Used ArcGIS Pro to create maps and filter records by:
 - Elevation
 - Mountain range

Preliminary Results



Conclusions

- Very few voucher specimen records and most are much older than visual observation records
- Biases toward certain sky islands
 - The Baboquivaris, Atascosas, Pajaritos, Swisshelms, and Alamo Huecos have the lowest records (1) for both sampling methods
- Issues that might be deterring specimen collection:
 - High effort needed
 - Low accessibility to the more remote mountain ranges
 - Lack of funding
 - Lack of museum storage space

