

# Potential Hybridization Among Three Species of Colorado Cottontails



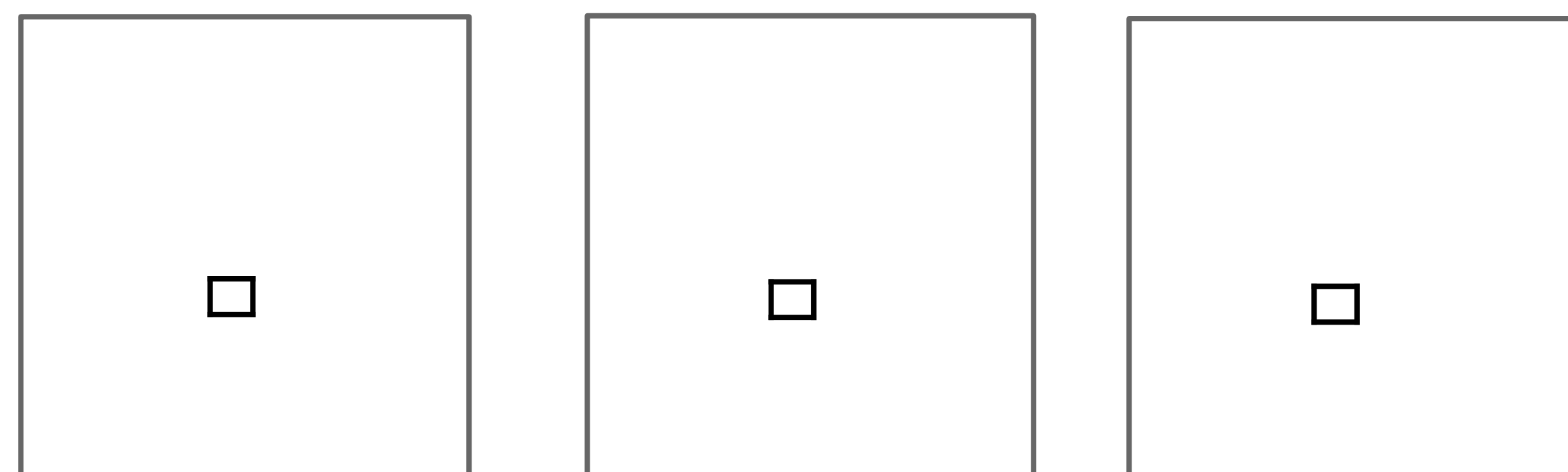
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## Main Question

- Humans are disrupting the ranges of species, providing new opportunities for hybridization.

- Are the three overlapping cottontail species hybridizing?

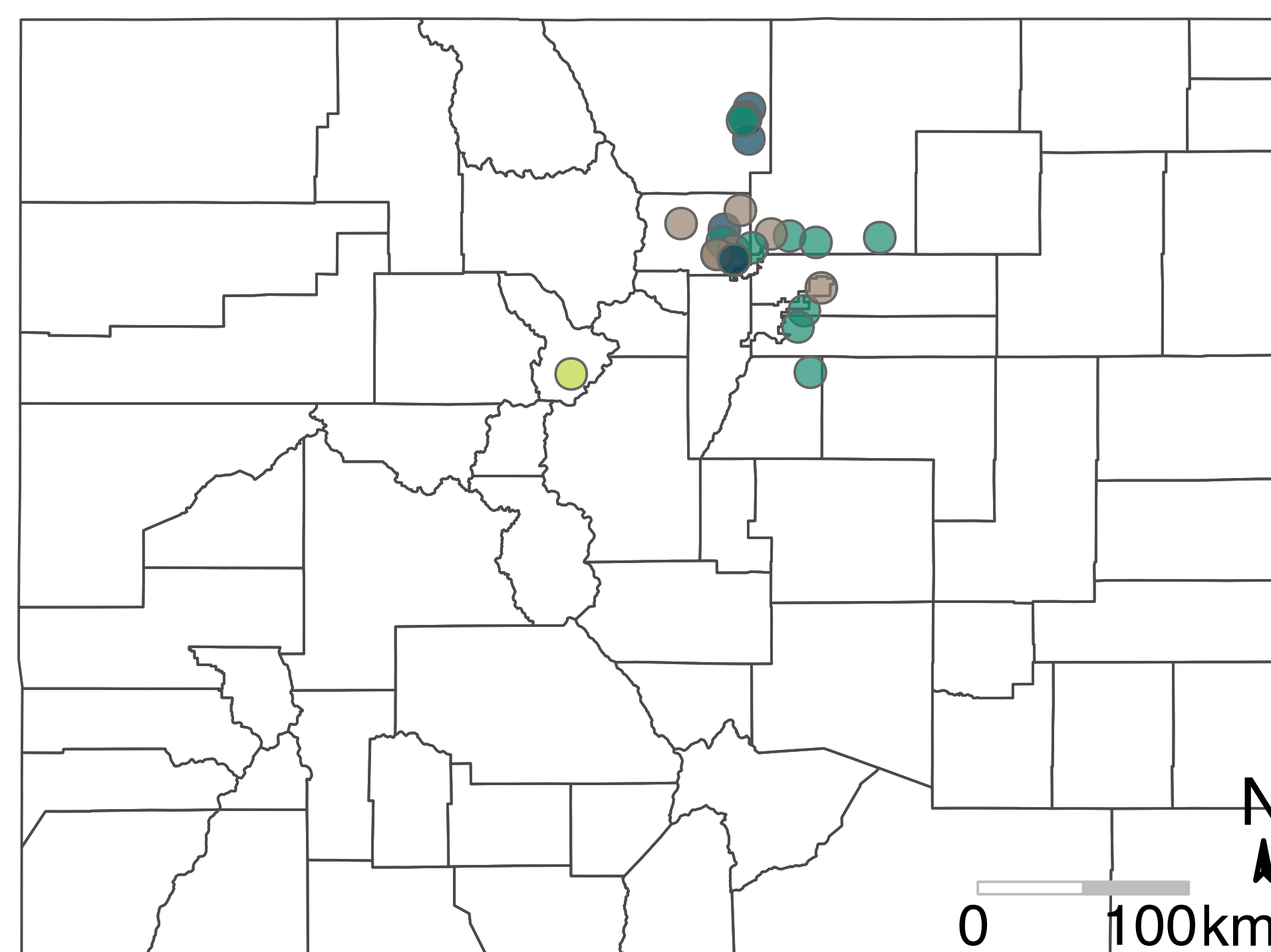
● Desert ● Mountain ● Eastern



## Results

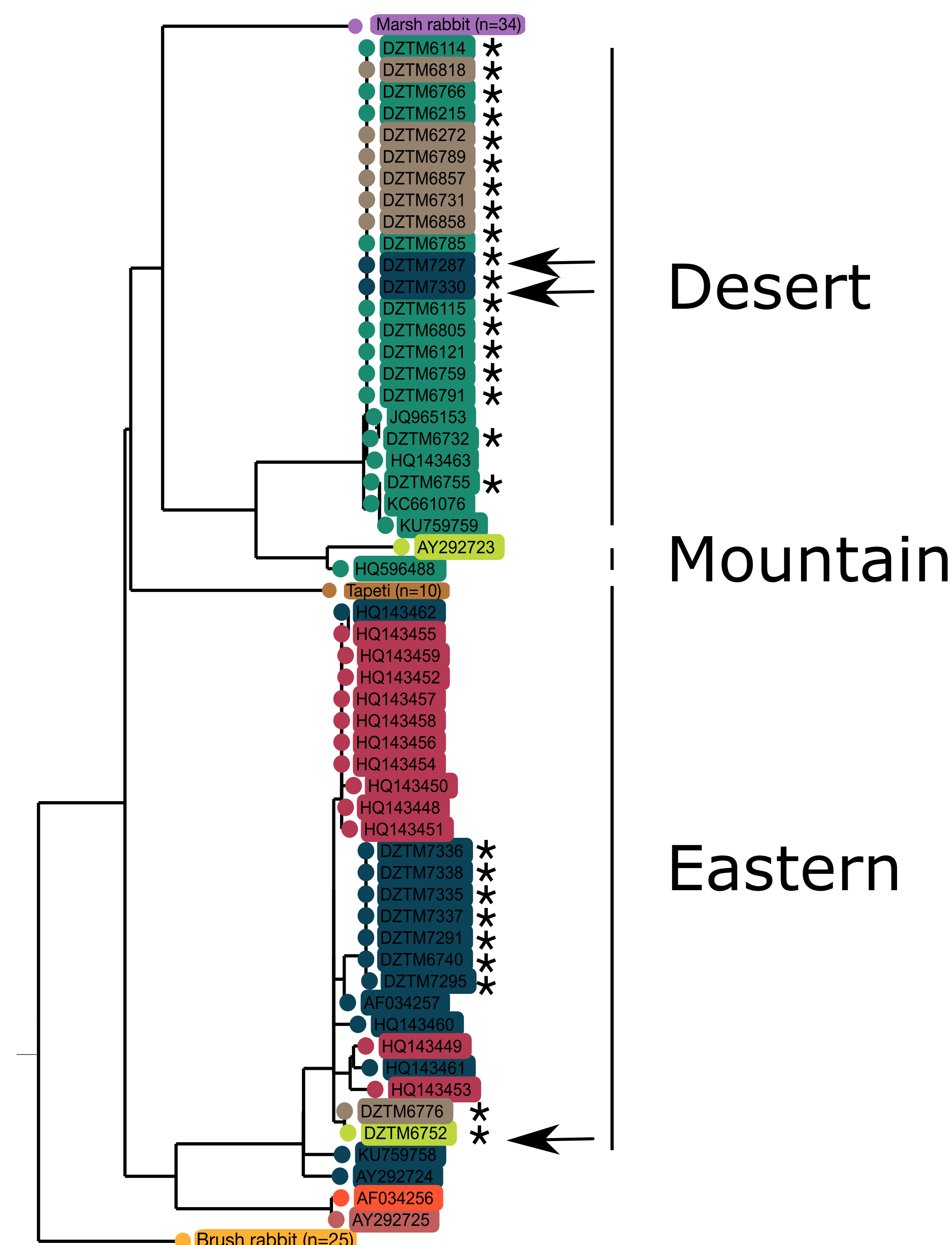
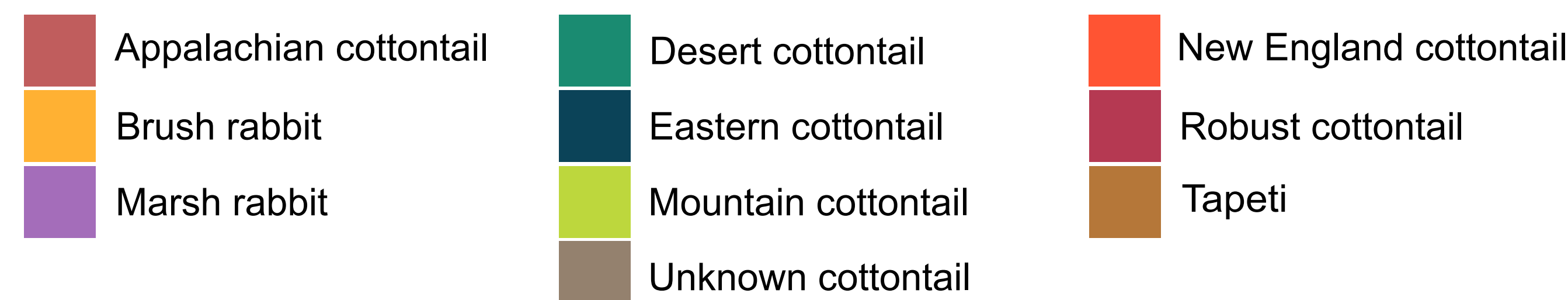
- The genetic species ID and the morphological species ID are consistent for most individuals.
- We were able to identify individuals that were morphologically ambiguous using mitochondrial sequencing.
- Potential hybrids: Two morphologically eastern cottontails sort with desert cottontails, and one mountain cottontail sorts with eastern cottontails.

**Fig 2:** Phylogenetic tree of *cytb* sequences from Colorado rabbits (\*) with reference sequences and rooted with pika sequences. Morphological species ID is noted with color, and genetic species ID is annotated on the right. Potential hybrids are indicated with arrows.



**Fig 1:** Cottontail contact zone in Colorado

### Morphological Species Identity



## Methods

- Morphological ID was determined by museum staff (DMNS)
- Sequenced *cytb* mitochondrial gene (n=28) and built phylogenetic tree to determine genetic ID
- Identified mismatches between morphological and genetic species ID to look for hybridization

## Future Directions

- Increase sequencing of mountain cottontails
- Expand sequencing to include more genes to confirm hybridization
- How are species barriers maintained if hybridization is not occurring?

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