

# Lies from the Pits of Hell? Examining Attitudes Toward and Knowledge of Evolution Across the United States

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# Continued Opposition to Evolution

**“All that stuff I was taught about evolution, embryology, Big Bang theory, all that is lies straight from the pit of hell”**

-Rep. Paul Broun (R-GA)  
September 27, 2012

House Committee on Science, Space and Technology member

- **Although extreme, Rep. Paul Broun’s opinion is not uncommon.**
  - » In attitudes toward evolution, the U.S. is ranked second to last, only surpassing Turkey, in an examination of 34 prominent countries (Miller et al., 2006)
  - » Decrease in public acceptance in past 20 years (Miller et al., 2006)
  - » 46% find creationist view closest to personal views (Newport, 2012)

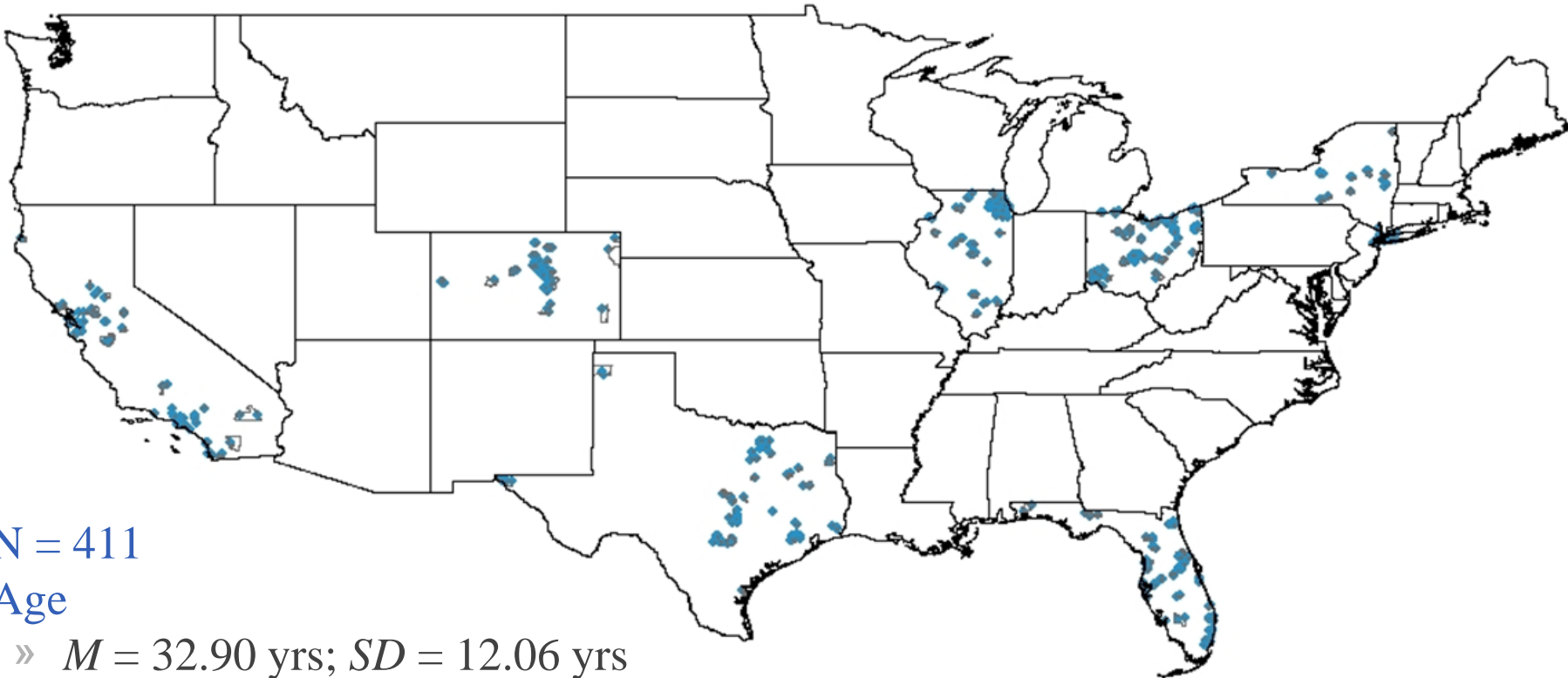
# Examining Attitudes Toward Evolution

- Past research with KU sample (Hawley et al. 2011):
  - » Demographic variables are **not** strong predictors
    - Gender, high school size, number of siblings, parents' education, rurality of hometown
  - » Openness to experience (personality) accounts for the most variability
    - Intellectual curiosity and preference for variety
- Current Study:
  - » How do attitudes toward evolution in each state vary across the U. S.?
  - » Examine U.S. residents responses to depict the landscape of attitudes toward evolutionary theory.

# Methods

- Procedure
  - » Collected 60 individuals per state for 7 states via Amazon Mturk
  - » Participants completed online survey (~20min) completed via Qualtrics
  - » Participants remunerated \$0.50
- Measures
  - » Demographic information, including state and zip codes
  - » Evolution Attitudes and Literacy Survey- Short Form (EALS-SF)
    - 1 (*Strongly Disagree*) – 7 (*Strongly Agree*) Likert scale
- Analyses
  - » ArcGIS used to create a layered thematic map for two EALS-SF constructs:
    - Creationist Reasoning
    - Knowledge/Relevance of Evolution
  - » Examined differences in attitudes between states via random effects ANOVA

# Participants



- **N = 411**

- **Age**

  - »  $M = 32.90$  yrs;  $SD = 12.06$  yrs

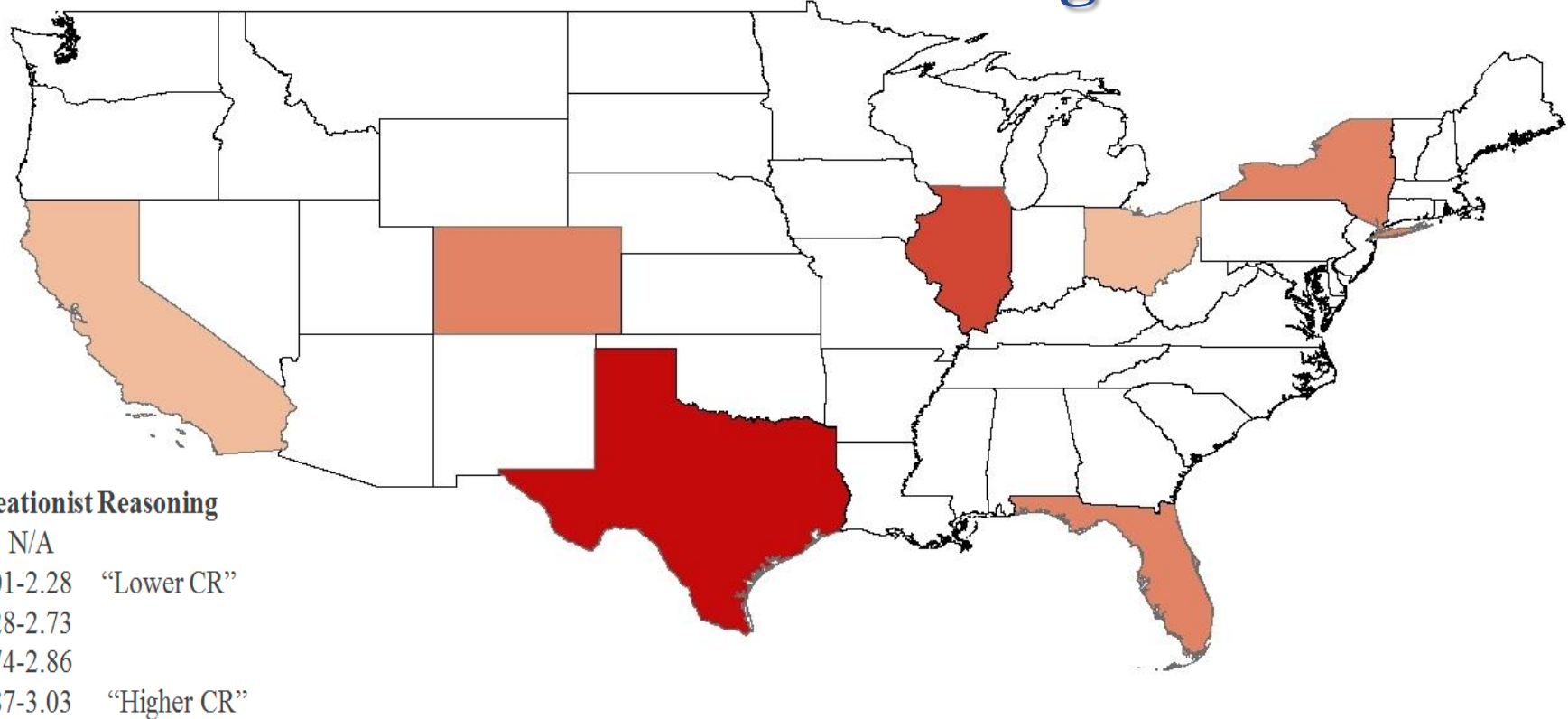
- **Gender**

  - »  $n = 207$  (51.11%) Men;  $n = 198$  (48.89%) Women

- **Education**

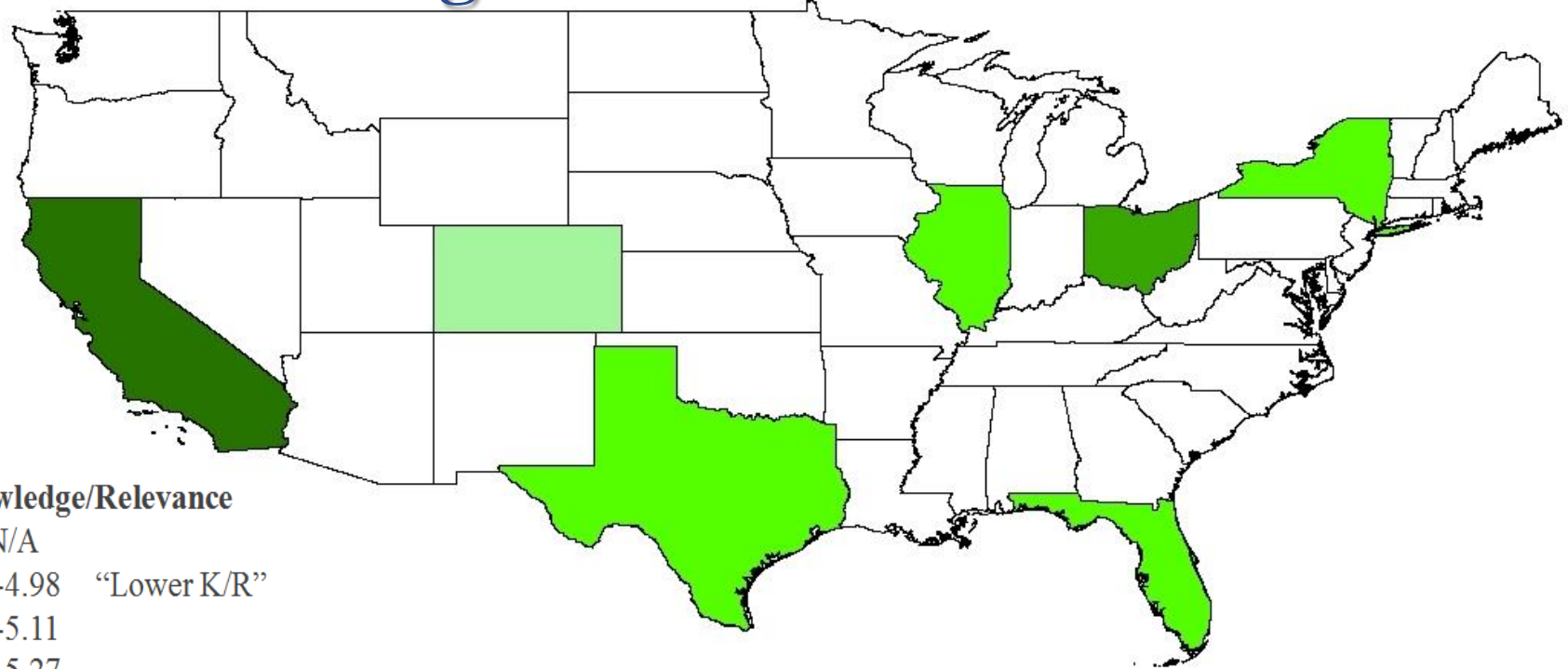
  - »  $n = 153$  (37.59%) 2 yr. college degree,  $n = 108$  (26.54%) H.S. Diploma/G.E.D.

# Creationist Reasoning

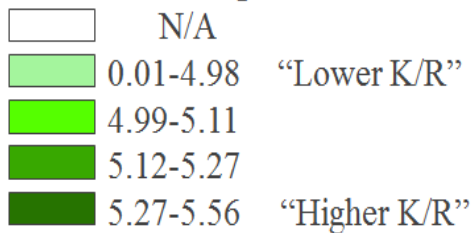


- Color coding via Jenks method with 5 breaks
- Significant differences between states,  $F(6,397) = 2.36, p < .05$
- Specifically, Tukey post-hoc tests reveal CA ( $M = 2.03$ ) significantly less creationist reasoning than TX ( $M = 2.83$ )

# Knowledge/Relevance of Evolution



## Knowledge/Relevance



- Color coding via Jenks method with 5 breaks
- Significant differences between states,  $F(6,397) = 2.36, p < .05$
- Specifically, Tukey post-hoc tests reveal CO ( $M = 4.99$ ) significantly knowledge/Relevance of evolution than CA ( $M = 5.58$ )

# Discussion

- Significant differences in both Creationist Reasoning and Knowledge/Relevance of Evolution between states.
  - » We hypothesize possibly greater differences as we continue collect data across the U.S.
- Future Research
  - » Continue sampling remaining states via Amazon Mturk & Qualtrics
  - » Use multilevel modeling to examine potential predictors of EALS constructs
    - Individual Level: demographic and personality (e.g., Openness to Experience) variables
    - State level: Science education funding, ratings of state science curriculum, state voting trends, & Google search histories (via Google Trends)
  - » Use ArcGIS to produce depict the U.S. landscape of attitudes toward evolution