

# Environmental and morphological differences within Icteridae: *Icterus*

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# Family: Icteridae

## Genus: *Icterus*

- Why the genus *Icterus*?
  - New World bird
  - 27 species of *Icterus*
- 
- Distribute from N. Alaska to S. Chile



# GIS Methods

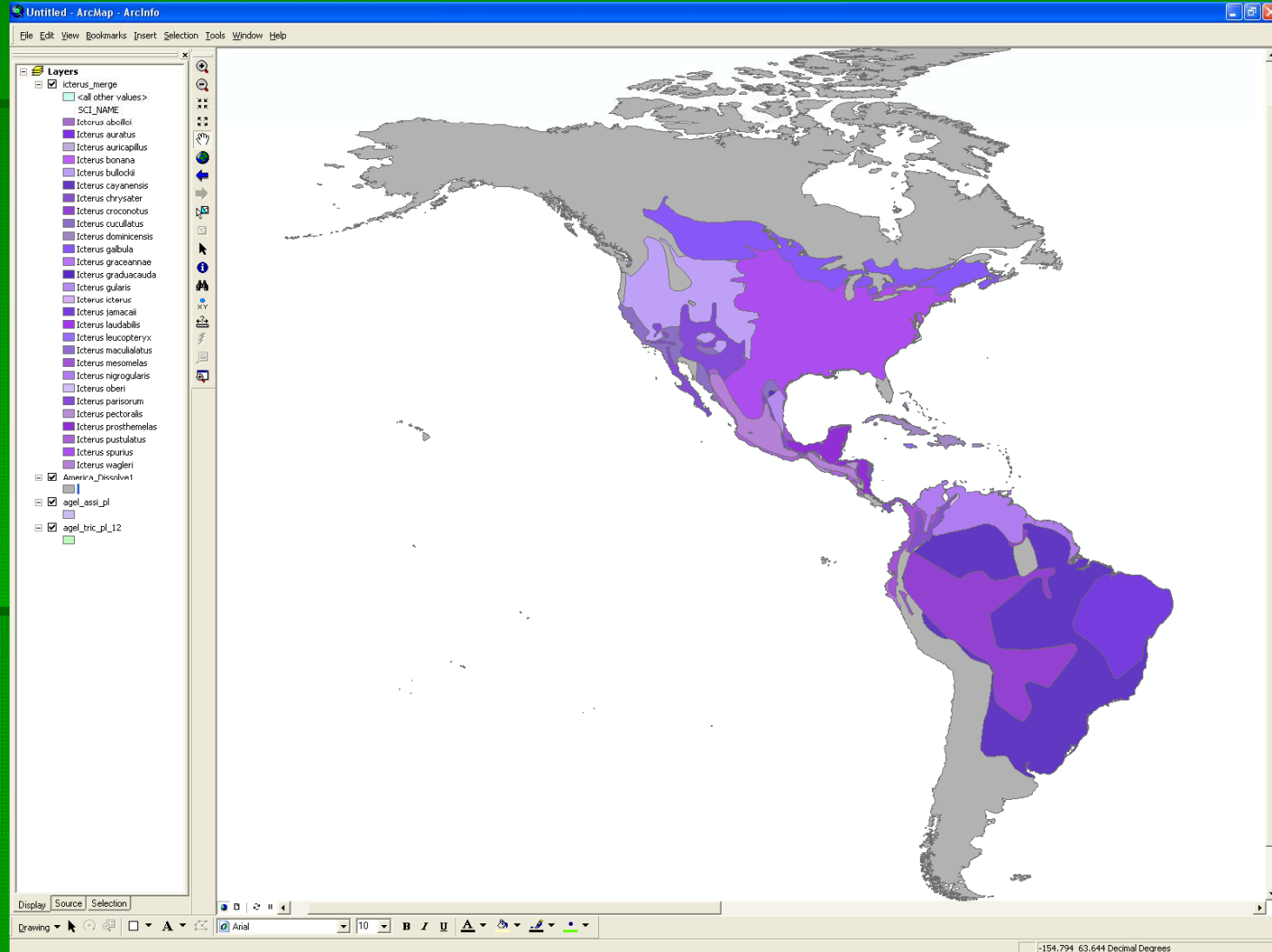
1. Imported breeding areas from NatureServe
  2. Determined Species Richness
  3. Imported data from WorldClim – Global Climate Data
    - Temperature
    - Precipitation
    - Altitude
- Converted to raster of one degree



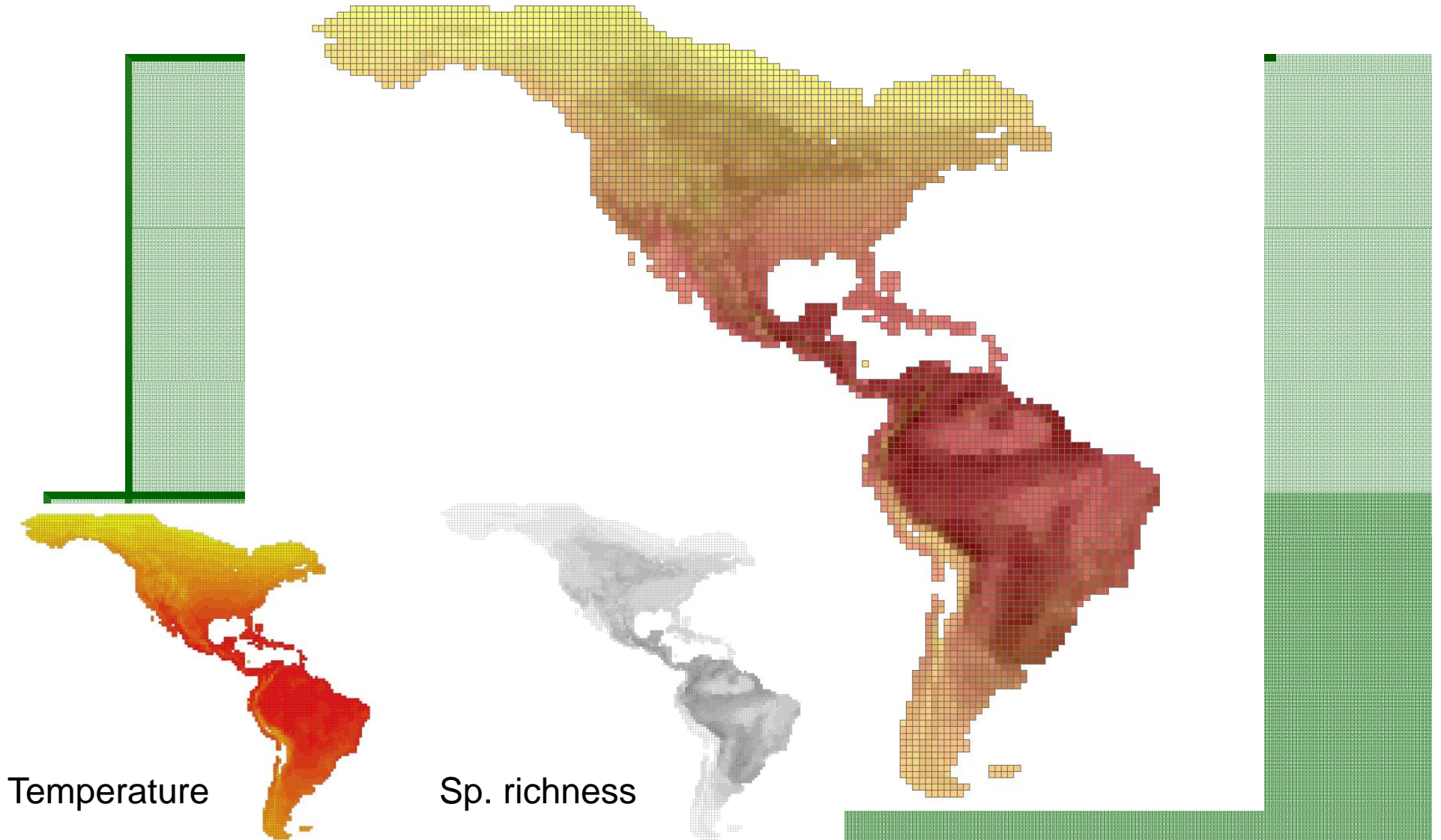
A Network Connecting Science with Conservation

Providing the scientific basis for effective conservation, NatureServe and its network of natural heritage programs are the trusted source for information about rare and endangered species and threatened ecosystems

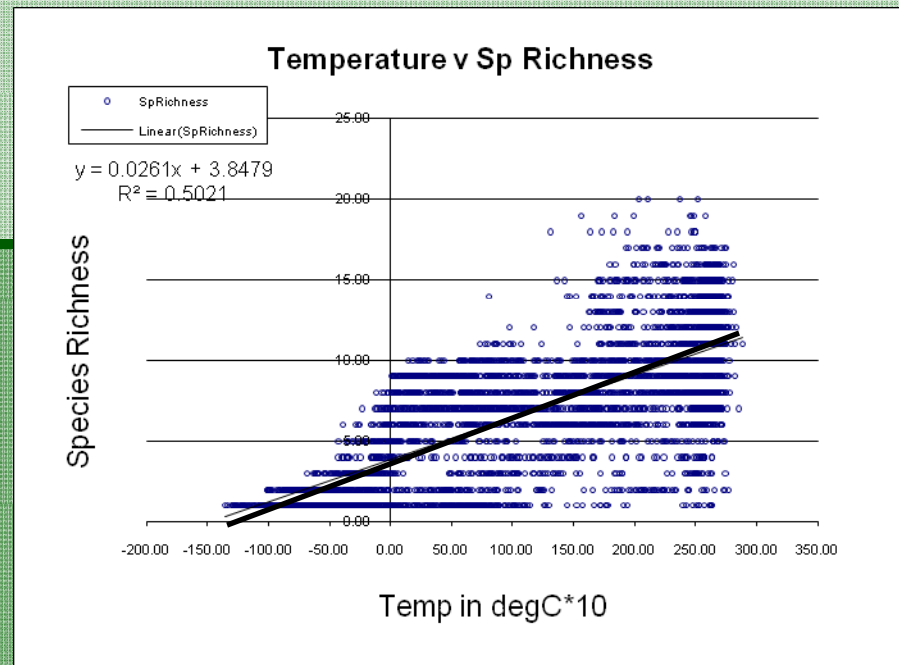
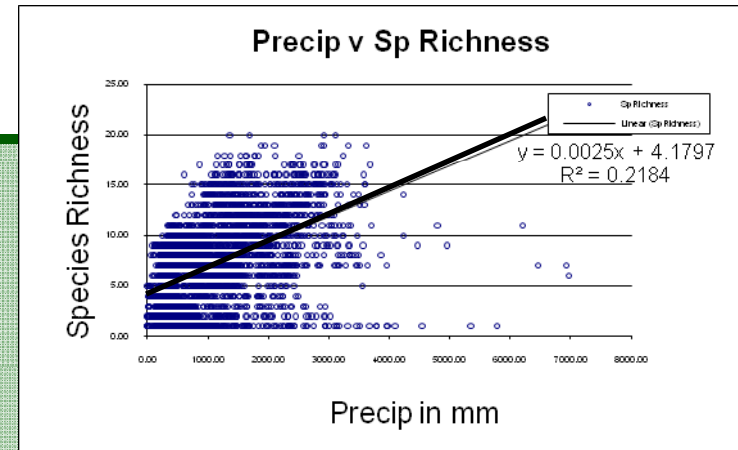
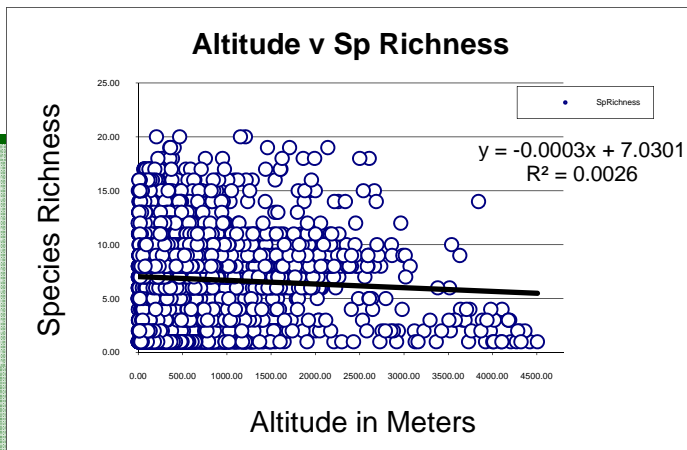
# GIS Methods



# SR layered upon Temp

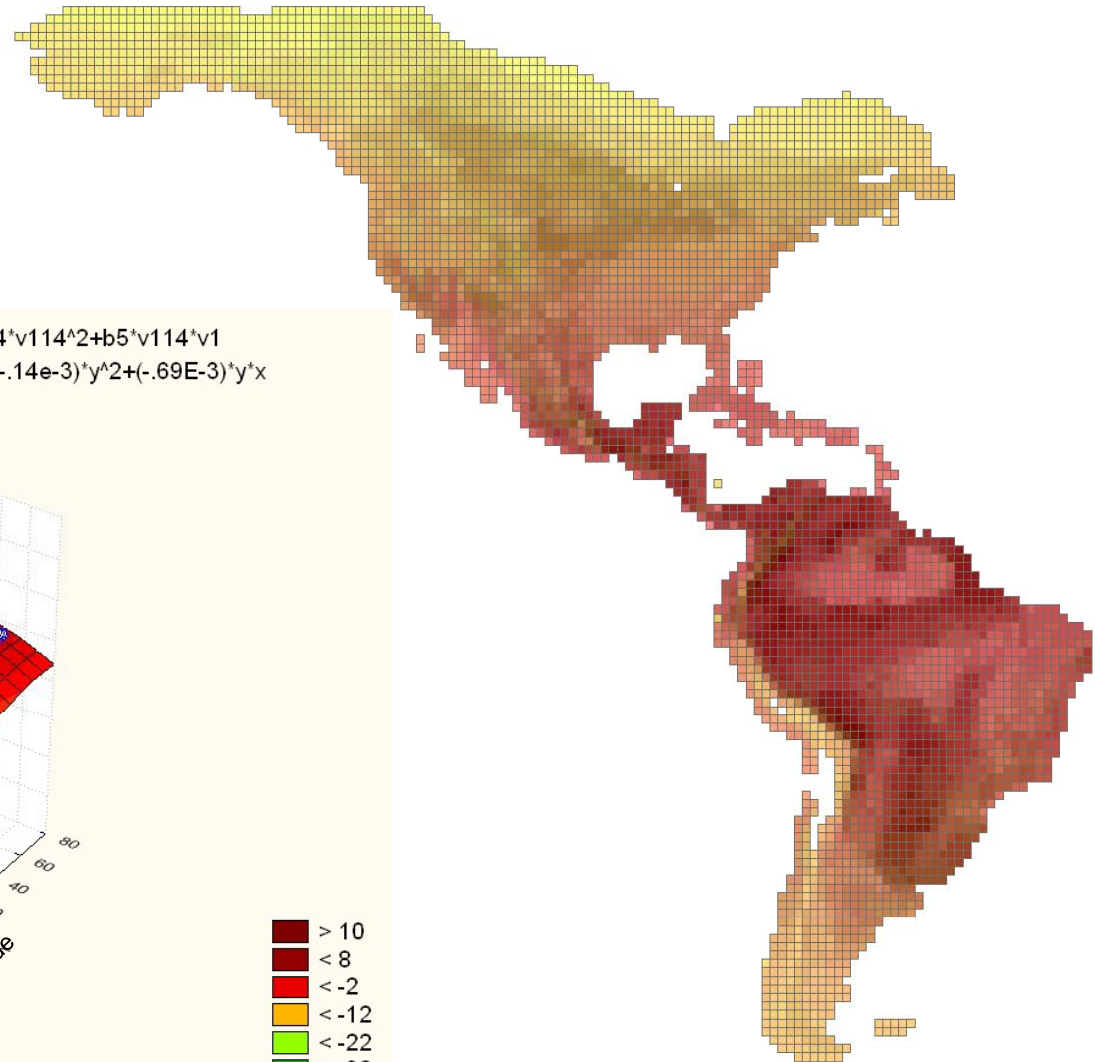
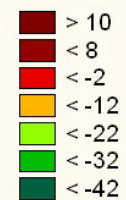
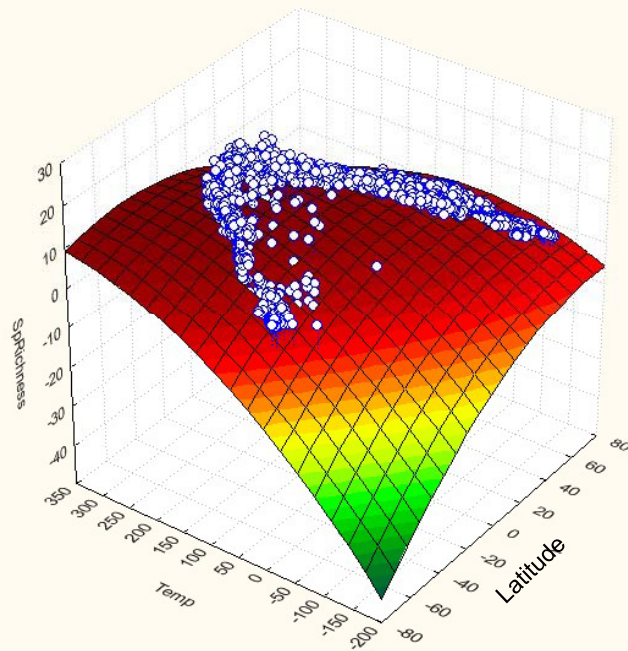


# Significant?



# SR layered upon Temp

Model:  $v_{108} = b_0 + b_1 \cdot v_{120} + b_2 \cdot v_{120}^2 + b_3 \cdot v_{114} + b_4 \cdot v_{114}^2 + b_5 \cdot v_{114} \cdot v_{120}$   
 $z = (3.67951) + (1.01679) \cdot x + (-0.00164) \cdot x^2 + (0.062022) \cdot y + (-0.14 \cdot 10^{-3}) \cdot y^2 + (-0.69 \cdot 10^{-3}) \cdot y \cdot x$



# Hypothesis and Further Study

- Is there a correlation between morphological and phylogenetic differences of the bird genus *Icterus* with the environment in which they live?
  - Example:



- Are wing lengths of the driest species longer/shorter?
- Are the beak lengths of the wettest species longer/shorter