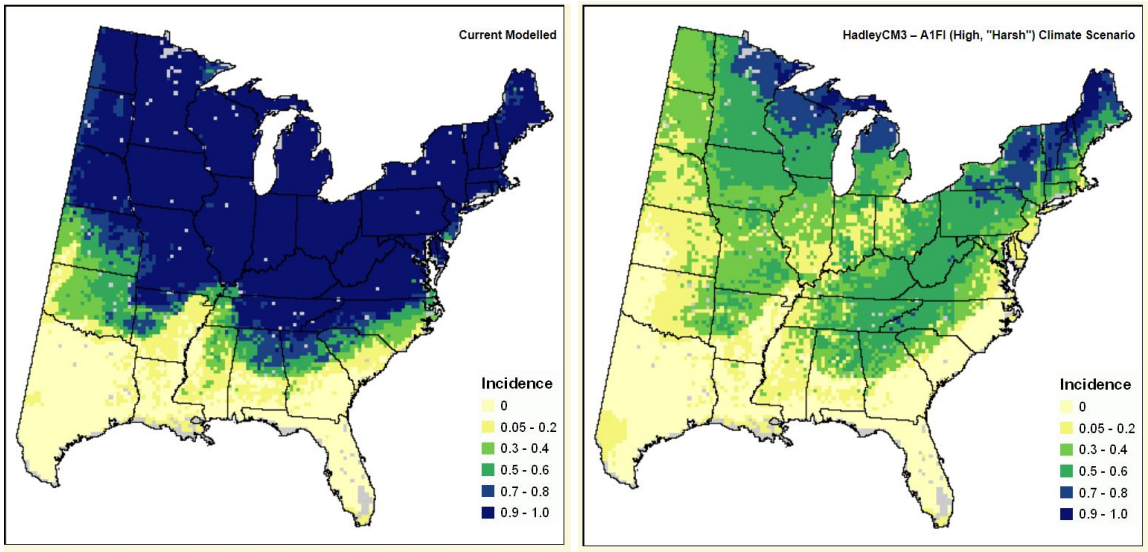
Constructing an Evidence -Based Explanation

Question: (Select a cause or effect of climate change)
"Why are populations of American Goldfinches decreasing in the state of Pennsylvania?"

Explanation of Phenomenon (What is your answer to the question?)
The American Goldfinch relies on plants like the Black-Eyed Susan, Coneflower, and Thistle as food resources and trees overlooking meadow areas as nesting habitat. As temperature increases, the flowers that they use as food no longer overlaps with their migration time in Pennsylvania. This, combined with human impacts (such as overdevelopment from clear cutting for agricultural or residential purposes) has caused the American Goldfinch to move their range farther north in order to have the right amount of food and nesting sites.

Evidence (What data supports your claim?)

Maps from the USDA's Forest Service Climate Change and Bird Atlas



Climate Report on 588 North American Birds - National Audubon
(https://climate.audubon.org/article/audubon-report-glance)
Models show that roughly 314 birds will be impacted by Climate Change and that 126 birds will lose their range by 50% by 2050. Goldfinches are one of these birds considered "Climate Endangered".

Observations & Counts made at the Bucks County Audubon Society
Weekly bird counts and field observations made by students show a small population decrease every year.

eBird Reports on the American Goldfinch
https://ebird.org/species/amegfi

Reasoning (How does your evidence support your claim? You should provide reasoning for all evidence. Use your final model to help you select the scientific reasoning that best connects your evidence to your claim.)

Based on the evidence shown by the National Audubon Climate Report, USDA Forest Service's Climate & Bird Atlas, and citizen science projects such as eBird and local bird counts, roughly 314 birds will be impacted by Climate Change and that 126 birds will lose their range by 50% by 2050. Goldfinches are one of these birds considered "Climate Endangered". Maps from the Climate & Bird Atlas show that the range of the American Goldfinch is projected to move north, and local field data (gleaned from local bird counts and citizen science projects such as eBird) show a decrease in local goldfinch population as well as a disconnect between their food source and local breeding time-period. As shown in my climate model, an increase in overdevelopment due to increased agricultural property and residential development, causes extra Carbon Dioxide to remain in the atmosphere instead of being sequestered in the trees. As more Carbon Dioxide is released into the atmosphere, the temperature will increase, which is causing the disconnect between bloom time of the Black-Eyed Susan/Coneflower/Thistle and American Goldfinch migration through Pennsylvania. The cooler temperatures in northern states such as Maine, Connecticut, Vermont and others, have become more conducive to creating ideal habitat for the American Goldfinch.