# Item 8: Future Direction

**8.1. User Stories**

1. As an ecologist, I want more visualizations of generated growth/feeding rate equations to be able to evaluate and compare them better which will help me understand what they reflect about population dynamics.
2. As a data analyst, I want intermediate equations produced during symbolic regression so I can further understand the behavior of symbolic regression and to make my analysis more efficient.
3. As a student, I want to be able to learn and work with a real world application of concepts that I had mainly only utilized in a learning environment.

**8.2. Future Directions**

1. Using a different regressor
    a. We only experimented with GPLearn's symbolic regressor. It was effective but also had its limitations. Using a different regressor might provide features that are more effective for the purposes of this project.

2. Using a different machine
    a. We also experimented only on Google Colab servers for convenience of sharing data and running tests. Another machine might provide more capabilities that would better support a symbolic regression analysis.

3. Trying to extract intermediate equations
    a. One of the limitations of GPLearn was that it only outputted equations after it reached the stopping criteria. Being able to see intermediate results would be very helpful and provide new insight into the regressor's behavior.

4. Producing more graphs/visuals
    a. Our project unintentionally revealed more about the behavior of symbolic regression than the data and equations itself. Equations can be explored further by producing a variety of graphs and visualizations. For example, graphs that compare how the predicted growth rate values change based on manipulating one variable and keeping the rest constant.