

What has changed?:

- Made lions have a food preference, and therefore will eat sheep below a certain energy level
- Added numerous sliders for most of the important variables.
- Made lions have their own movement cost
- Found settings that have led to long lasting equilibrium, however the ecosystem still normally collapses. As the amplitude of oscillations increases, wolves usually will die out, leading to lions dying and only leaving the antelopes.

- **Agent behavior:**How do the agents behave/work?

Agents move randomly, eat, and reproduce. Now lions will eat sheep if they have low enough energy.

- **System behavior:**How does the overall system behave/work?

Lions eat hyenas, hyenas, eat antelopes. The populations will oscillate based on the set parameters.

- **Rationale for agent rules:**Why did you give the agents these rules?

It follows the basic rules of most environments in nature.

- **Model output:**Have you developed new measures for the output? Do you think your model currently provides a good description of the system's behavior? Why or why not?

Right now, I think my model does output the necessary information. However, I hope I can add more features that will deliver more interesting data about an ecosystem.

- **Questions:**What questions do you have about your model?

I am a little stumped on where to go with the model. I do want to add in another species and try to simulate an invasive species. However, after I do that I am not sure if I will get interesting results.

- **Next steps:**Briefly list your next steps for improving the model.

I am going to add in one other species that the lions have less of a preference for and see how that messes with the populations. I am going to change reproduction to scale with energy.

- **Model Analysis:**What conclusions can you draw from the model's output?

Creating an equilibrium state is extremely challenging and is very sensitive to minute changes.