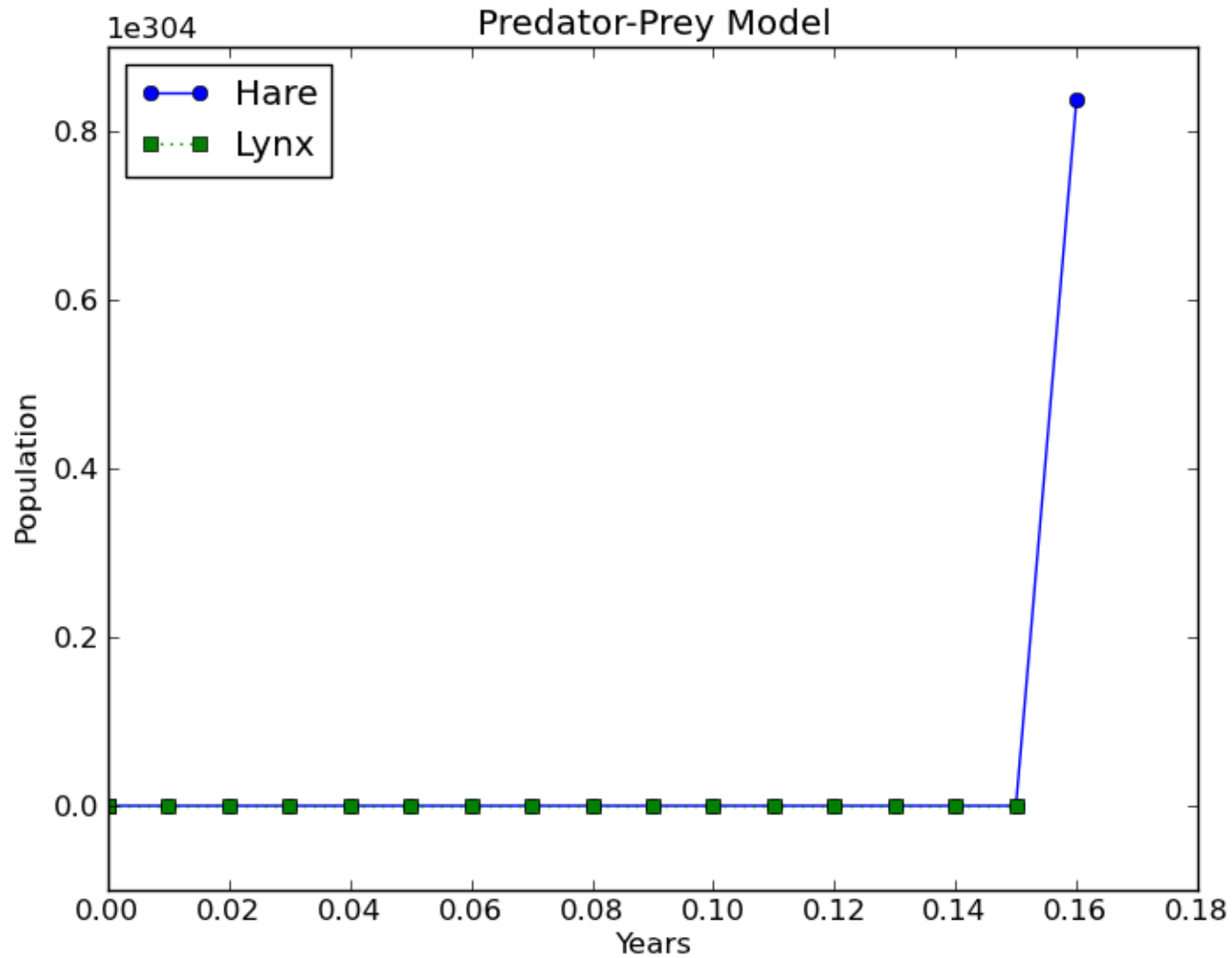




Overgrazing



Wild Approximations



Use Python Conditional

```
if condition:  
    statements
```

```
if condition:  
    statements  
else:  
    statements
```

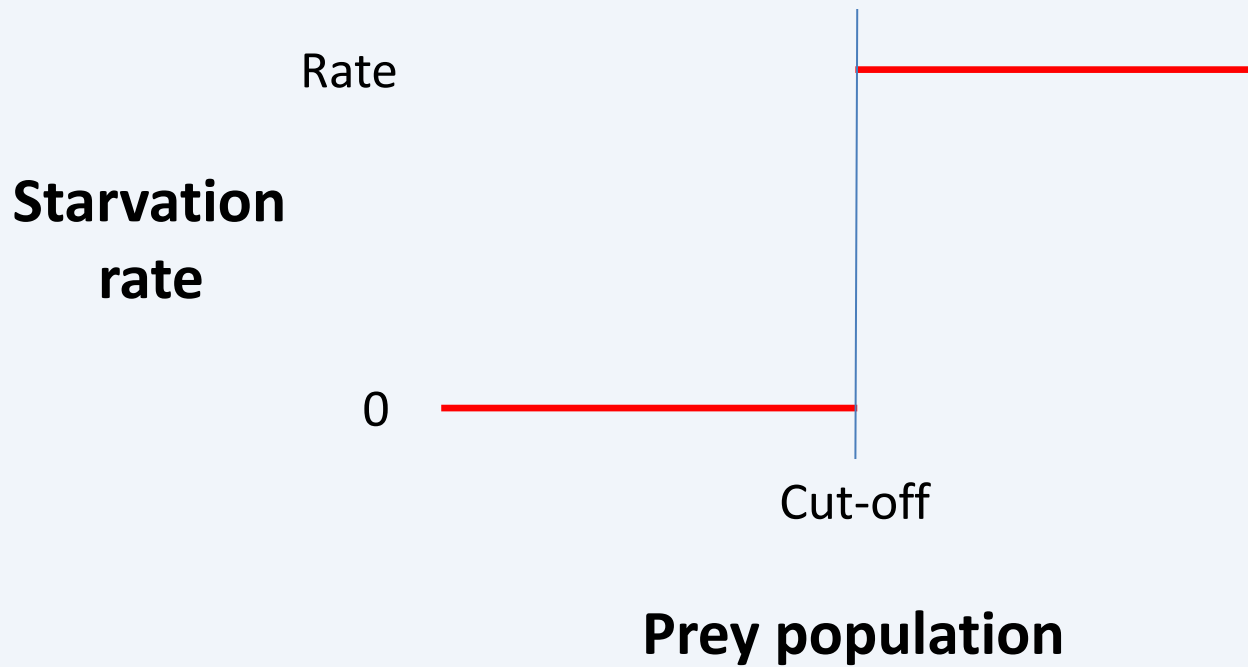
```
if condition:  
    statements  
elif condition:  
    statements  
else:  
    statements
```

Overgrazing



How to model population effects?
If prey population is “too large”, then what?

One Possible Modification

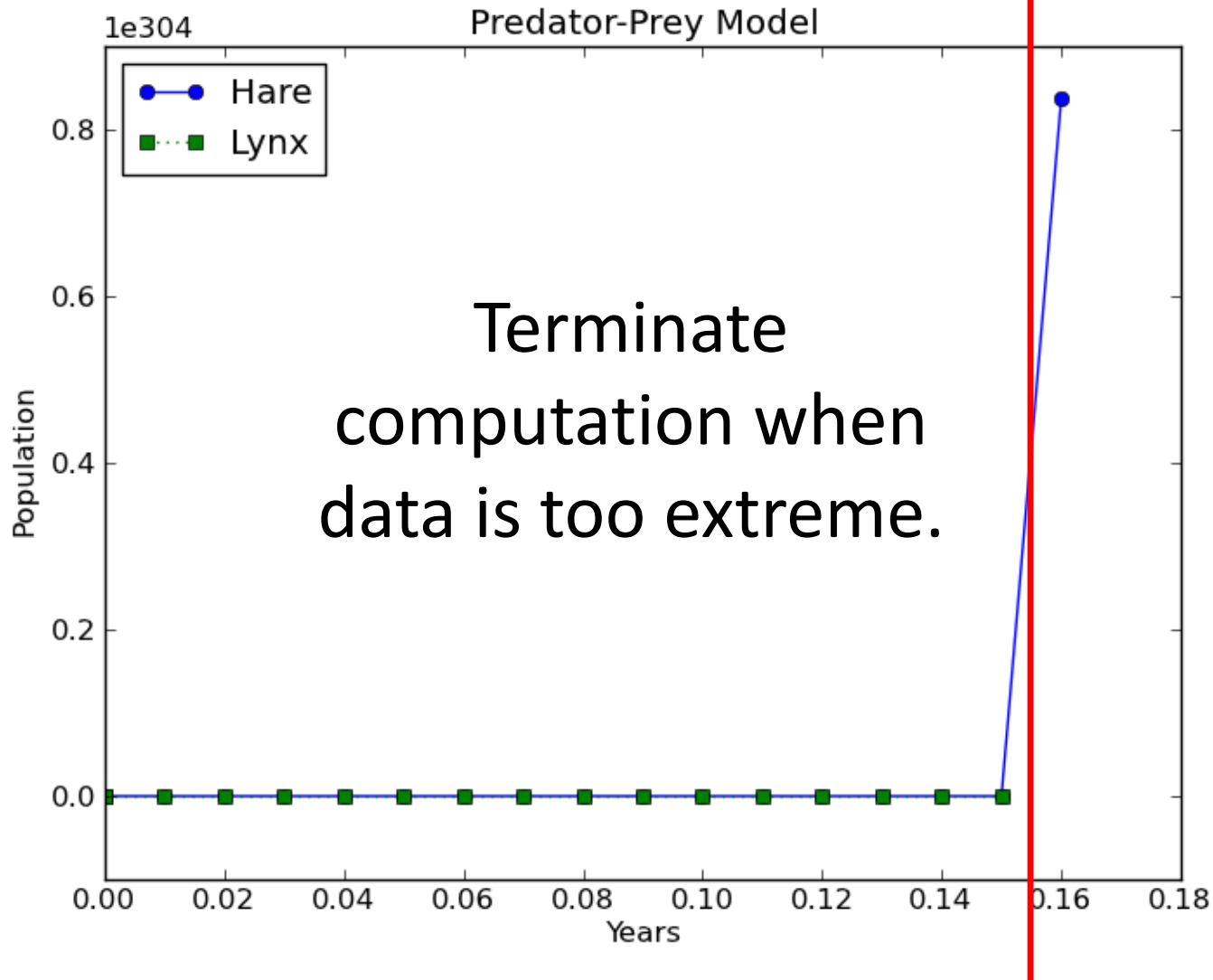


One Simple Modeling Approach

```
prey.append(pre[y] + prey[y] * (growth-predation*pred[y]-  
starvation(pre[y],starveCutoff,starveRate))/stepsPerYear)
```

```
def starvation(prey,cutoff,rate):  
    if prey < cutoff:  
        return 0  
    else:  
        return rate
```

Terminating Wild Approximations



Terminating Wild Approximations

```
for y in range(years*stepsPerYear):  
    times.append(...)  
    prey.append(...)  
    pred.append(...)
```

```
for y in range(years*stepsPerYear):  
    newPrey = ...  
    newPred = ...  
    if abs(newPrey) > popMax or abs(newPred) > popMax:  
        break  
    times.append(...)  
    prey.append(newPrey)  
    pred.append(newPred)
```

Suggested Readings

- [Carrying capacity](#) and the [standard way to adding it to Lotka-Volterra](#).