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ICB 3

STUDIO 6: NORTHERN SPOTTED OWLS

What happens to a group of adults when they populate a new area?

Hypothesis: there is a point at which the environment can no longer sustain all the incoming owls, and owls begin to die.

Real answer: 105 owls is maximum capacity.

When a group of adults migrate to a new area, they will have to rebuild the whole population. There are no sub adults or juveniles in this new family. It would be useful to know the size of an initial adult population needed to create a sizeable new population of spotted owls. We decided to find out at what initial number of adults would you end up with a greater population after 50 years. We used the data from “the article” to model the changes in the population as shown below.

Births = 0.18%

Growth = 71%

Death

Juveniles

Growth = 18%

Subadult

Adults

Death = 6%

Death = 82%

Death = 82%

We found out by varying the initial number of adult owls that the total number of owls left in the ecosystem would decrease if the initial number was 105. If the initial number is less than 105, the total population would stabilize at a number less than 105. This means that the habitat can sustain an owl population of 105. If any more owls move into this environment, they or their offspring will die out.



*Figure 1. In this graph, the lines denoted with numbers mean that in the program, the initial number of adults was set to that number (for example, 50). The y-values for these lines are of the total population of the system as time progresses. As can be seen, they all level off.*