

Handout E11-1. From cone to forest

Name: _____

Use the class's data to estimate how many baby lodgepole pine trees you might find in a forest the summer after a crown fire²:

Suppose we have a small lodgepole pine forest near our school. It is about as big as a football field. It contains 500 trees, and most of the trees produce serotinous cones.



1. Suppose the **median number of filled seeds per cone** in our forest is the same as what we observed in class: _____ **seeds/cone**.
2. Suppose each of the trees in our forest produces about 800 cones in a typical year. **How many filled seeds is it likely to produce in 1 year?**
3. Suppose most of the cones and their seeds stay healthy for at least 20 years.³ This means that they contain embryos that can grow into healthy trees. The stored seeds are called a seed bank. **How many seeds are in an average tree's seed bank?**
4. Recall that our small forest has 500 lodgepole pines in it. **How many seeds are in the seed bank for the whole forest?**
5. Suppose a crown fire burns through our little forest, releasing about half of the seeds in its seed bank. **How many seeds fall to the ground?**
6. Suppose about 1/3 of the seeds that fall to the ground produce baby lodgepole pines the next spring. **How many baby trees will be in our football-field-sized forest?**



² The numbers in this handout (cones/tree, trees/unit area, etc.) are not just made up; they came from a literature review of fire effects on Rocky Mountain lodgepole pine (www.fs.fed.us/database/feis/plants/tree/pinconl/all.html).

³ Once a serotinous cone produces seeds, it will not produce any more seeds in future years, but the tree can produce more cones in future years.