1. You are studying a two subspecies of camincules (species A and B). In your region, previous studies have shown that 82% of the individuals collected are the common species A. The beetles have two color patterns shown in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | | Frequency in species A | Frequency in species B |
| Pattern 1 | /Users/hblackmon/Desktop/camintree.jpg | .95 | .65 |
| Pattern 2 | /Users/hblackmon/Desktop/camintree1.jpg | .05 | .35 |

How many pattern 2 individuals do you need to collect to have a greater than 90% chance of sampling at least one species B.

1. In class we worked through this problem using simulations from the rbinom function.

*Sometimes you will have an experiment where your results don’t follow a clear expected distribution. One way we can test for significance in these situations is to simulate observations under our null model and then compare our observation to that simulated distribution. Let’s use an example from sexual selection. Some beetles fight with each other to decide who gets to mate. You are interested in finding out whether some of your beetles have higher fitness and win more fights. Let’s imagine an experiment where you take 10 beetles and let each beetle fight 6 times. Using the rbinom function calculate the probability that at least one of your beetles would win all 6 fights even if the beetles have equal fitness with regard to fighting.*

We determined that the answer was 14.5%. Use the binom.test function to arrive at the correct answer instead.