Quiz 6

Name:

Remember to state the logic behind your answers. If you use any variables, please state what the variables represent.

In species sampling experiments, the number of capture species is thought to be Poisson distributed with pmf $f(x|\lambda) = \lambda^x e^{-\lambda}/x!$. Unfortunately, captured species are not observed. In this case, the observed species follow a zero-truncated distribution with pmf $f(x) = \Pr(X = x|X > 0)$. Suppose we observe n species with counts $s_1, \ldots, s_n$.

1. Write out the log likelihood function.

2. Set up the maximum likelihood equations for λ.

3. What is the expected number of captures for an observation, conditional upon it being observed?

4. Set up the method of moments equations for λ.