

Sampling Animal Populations
Homework Set 2
Due Thursday Sept 11, 2008.

1. In the Table below, I present results of a set of 4 models starting with the uniform key function, and adding simple polynomial adjustment terms for the duck nest data truncated at 7 ft.

Model	#pars	AIC	\hat{D}	SE(\hat{D})	χ^2 pvalue
Uniform	0	1868.07	113.14	5.16	0.16
Uniform +1	1	1863.53	128.14	8.08	0.67
Uniform +2	2	1864.84	123.53	10.24	0.66
Uniform +3	3	1866.84	123.63	12.26	0.49

Explain clearly and in detail all terms and concepts used and then please indicate what model should be used and what the density estimate and its 95% confidence interval would be.

2. When one is interested in conducting an aerial survey of a population of objects (say eagle nests to make it simple) there are several approaches available for accounting for visibility bias (i.e., non-detection of all animals from the air). Discuss the advantages and disadvantages of the following methods:
 - a) Aerial count plus complete ground counts on a sub-sample of plots
 - b) Ground and air counts by two observers with mapping objects seen in common.
 - c) Two (independent) observers in the same plane with mapping of objects seen in common, and
 - d) Line transects (distance sampling).**Note: Give about 1/2-1 page or so on each one. Note a-c were done in Q5 of Hwk 1 so you only have to do part d here