DIGITAL SUPPLEMENT B[†]

Power vs. sample size curves for hotspot/coldspot tests of occurrence probability.

Figure B1. Power vs. sample size curves for hotspot/coldspot tests of occurrence probability (i.e., case 2 described in section 1.2). Curves are presented based on the binomial distribution, assuming that the probability of occurrence remains constant for a given species in a given place over the study period, and that the statistical test used is Fisher's Two-Proportion Exact Test (one-tailed, α=0.05). Points show where tests were evaluated; curves are linearly interpolated in between points. Each panel shows curves for a different value of the reference (e.g., regional) prevalence. Each color represents a different multiplicative effect size. For example, the red curve in the lower left panel is for the test of the alternative hypothesis (Ha): probability of occurrence = 0.6 versus the null hypothesis (Ho): probability of occurrence = 0.2, i.e. a 300% higher prevalence than the reference value.

Figure B2. Relationship of sampling effort to expected number of presences observed for different prevalence values. Curves show number of surveys (y axis) need to have a specified probability (color), of observing at least k presences (x axis) under a binomial distribution Binomial(N,p), where N is the total number of surveys and p is the species' prevalence (probability of occurrence). For example, the red curve in the lower left panel shows that when a species' prevalence is 33%, one would have to conduct 44 surveys to have a 95% chance of observing 10 presences. Analysis assumes surveys are independent and prevalences do not change over the time period studied. Each panel shows curves for a different value of prevalence.

[†]A digital file supporting OCS Study BOEM 2012-101 / NOAA Technical Memorandum NOS NCCOS 158

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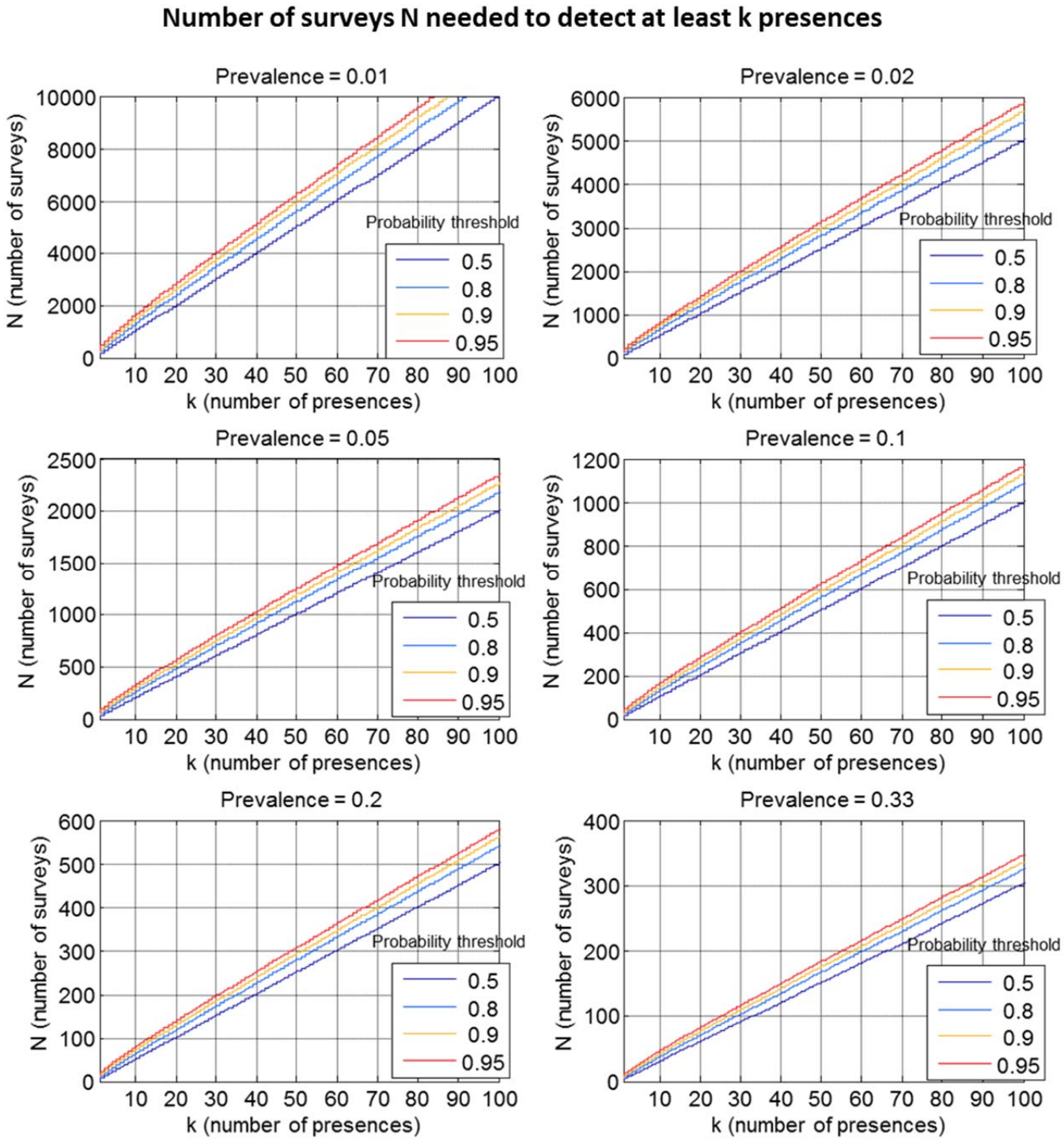
Number of surveys N needed to detect at least k presences
Prevalence = 0.01
Prevalence = 0.02
Prevalence = 0.05
Prevalence = 0.1
Prevalence = 0.2
Prevalence = 0.33
N (number of surveys)
k (number of presences)
Probability threshold
0.5
0.8
0.9
0.95

Figure B2.