

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, $\alpha=0.05$). 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 (H_a): probability of occurrence = 0.6 versus the null hypothesis (H_0): probability of occurrence = 0.2, i.e. a 300% higher prevalence than the reference value. [Page 2]

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 $\text{Binomial}(N,p)$, 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. [Page 3]

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

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**Power to detect differences from reference prevalence
(Binomial Distribution, Fisher's Two-Proportion Exact Test; one-tailed, $\alpha=0.05$)**

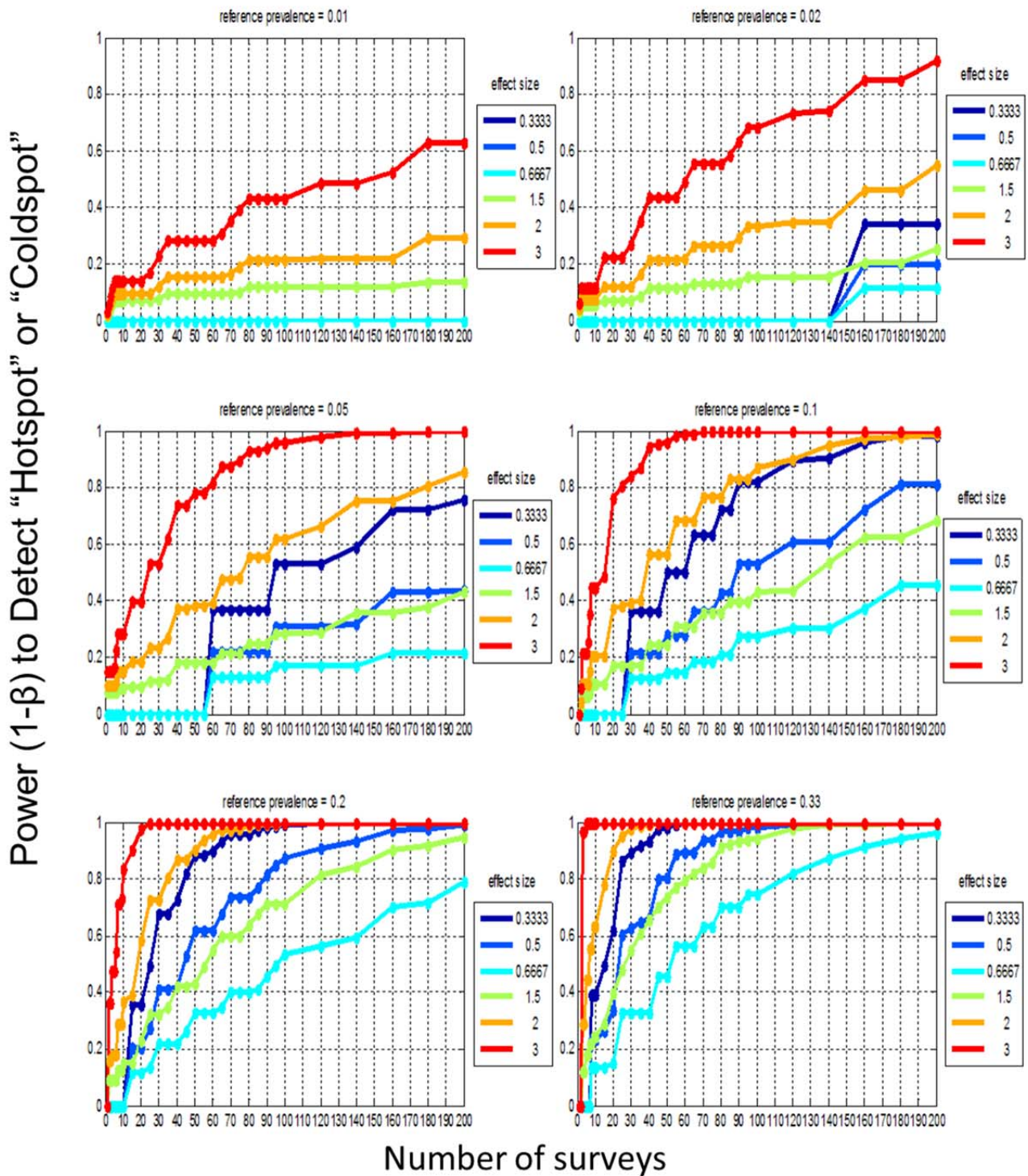


Figure B1.

Number of surveys N needed to detect at least k presences

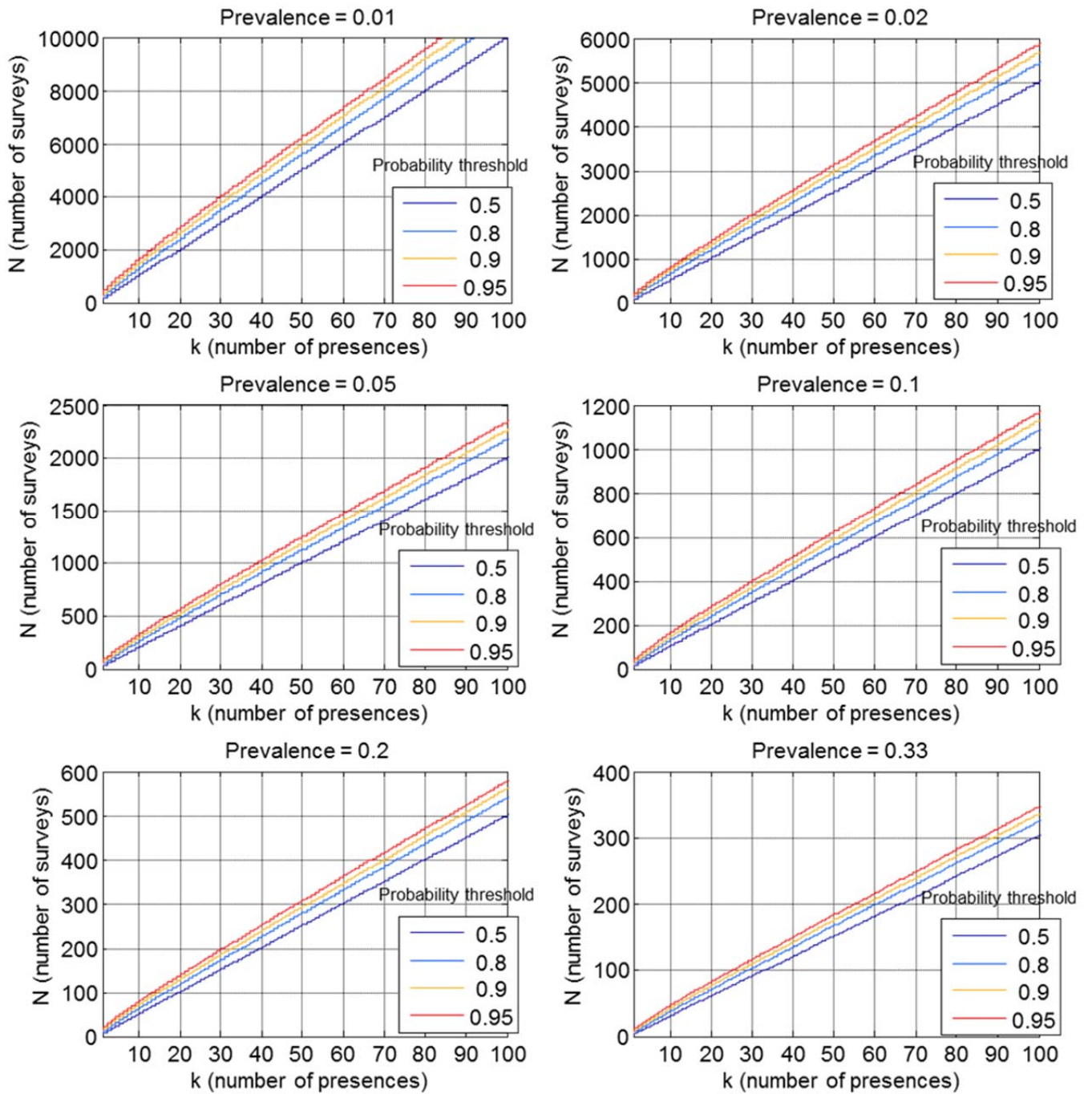


Figure B2.