



Spatially Balanced Sampling

An important consideration in a composite viewshed analysis is how to best perform a systematic sampling of observation points (with the associated viewsheds) across the defined *development area of interest*. A development area of interest is the area which is being evaluated to determine the potential viewshed effect that development (solar energy projects in this case) within may have. Development areas in the context of the BLM Solar PEIS will be areas identified as suitable for Solar PEIS classification. A well designed observation point sampling design is essential for a robust viewshed analysis when the development area of interest has a large spatial extent and project specific development locations are undefined.

Area weighted Spatially Balanced Sampling (Theobald et al. 2007) was used to derived a systematic and efficient sample for viewshed analysis across the proposed Solar PEIS lands within the 25 mile radius of park service buffers. Sampling density was a function of spatial area within the development area of interest (Table 1). For the first 10,000 acres a sample size density of 1 point per 1,000 acres was employed, followed by a point density of 1 per 2,000 acres for the next 40,000 acres (i.e. between 10,000 - 50,000), and so forth.

Table 1. Sample point density by area

Size (Acres)	Point Density (Pts per Acre)
0 - 10,000	1 per 1,000
10,000 - 50,000	1 per 2,000
50,000 - 500,000	1 per 10,000
> 500,000	1 per 20,000

Works Cited

Theobald, D.M., D.L. Stevens, Jr., D. White, N.S. Urquhart, A.R. Olsen, and J.B. Norman. 2007. "Using GIS to Generate Spatially Balanced Random Survey Designs for Natural Resource Applications." *Environmental Management* 40: 134–146.