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White-headed woodpeckers (*Picoides albivartus*) specialize on disturbance-maintained dry conifer forest habitats, making them a focal species for informing forest management. Insufficient information on population trends, however, challenges conservation and funding prioritization for this species. We employed population simulations to inform regional occupancy monitoring of this species by comparing statistical power and trend estimation error for alternative sampling and trend scenarios. Adequate power ( $\geq 80\%$ ) to observe a long-term trend (2% yearly decline over 20 years) required monitoring  $\geq 120$  or  $\geq 90$  transects with single or repeat surveys, respectively. Employing occupancy as an index of abundance with single surveys provided the most power for a given level of sampling effort. We were also able to improve power and reduce estimation error by surveying a subset (33%) of transects each year (i.e., a panel design) and surveying fewer points per transect in exchange for a larger spatial sample. Single-survey methods with auxiliary sampling for detectability, panel designs, and aligning sampling resolution with home range size could generally benefit occupancy monitoring of sparsely distributed and territorial species. (Received February 23, 2017)