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The use of indicator species has been controversial, as frequently they are defined *a priori*, with untested assumptions about their role in the ecosystem. The concept of indicator species is of difficult application in practice, due to the scant information available on the relationship of the indicator species and the parameter it is meant to indicate, and the unsolved issues of theoretic origin. In this study, indicator species, alternatively, were defined by their loss of historical distribution, for being currently 'geographically restricted', and easily detected when present, enabling use of the method in a wide range of context and scales. It was assumed that these currently geographically restricted species have survived because the habitat they persisted most closely resembled the original, more preserved habitat, than where species have been extinct. The research was conducted in the highlands of southern Brazil, limited by the water basins of Rivers Rio Canoas and Pelotas. Araucaria (Coniferous) Forest covered \approx 10% of two sample plots, and 38% in another. The presence-absence of forest mammals (>1kg) was recorded with camera-traps, tracks, opportunistic observations, line transects, and species richness was estimated using a removal method in the application CAPTURE. Patch Analyst, an extension of ArcView (ESRI) GIS was used to describe spatial structure of forest extent. The loss of environmental integrity, in all plots, was characterized by the absence of giant otter *Pteronura brasiliensis*, giant ant-eater *Myrmecophaga tridactyla*, jaguar *Panthera onca*, and tapir *Tapirus terrestris*. There was differential loss of environmental integrity between plots, inferred from the presence, in only one plot, of species that historically inhabited all of them. These species were the collared-pecary *Pecari tajacu* and the white-lipped pecary *Tayassu pecari*, persistent in the most forested plot. There was coherence between the indicator species approach and the expected importance of the extent of forest cover for the species considered, highlighting the role of the forest in the reduction of border effects (including human disturbance). In spite of the fact that the study areas consisted of non-urbanized rural landscapes, with private properties averaging 600 ha, the modification of the original fauna of mammals revealed the incompatibility between the current rural land tenure system with the conservation of species, indicating that it is time for a change.