Indicator 9. Population Levels of Representative Species from Diverse Habitats Monitored Across Their Range

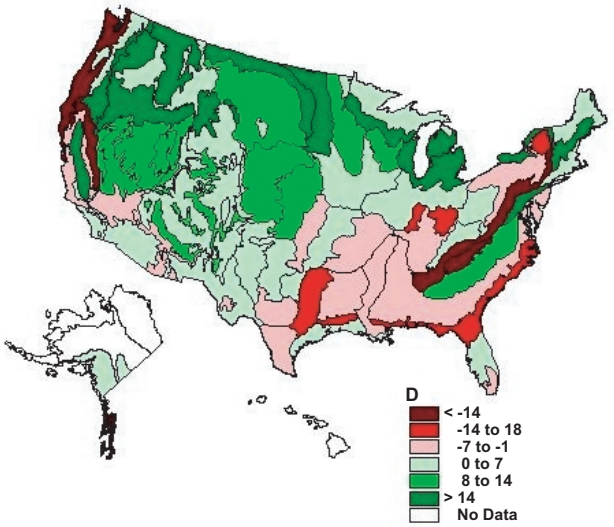

Figure 9-1. Difference (D) between the number of forest birds with significantly (P< 0.1) increasing and decreasing population trends, by physiographic region, between 1966 and 2000, calculated from the Breeding Bird Survey (BBS) database.

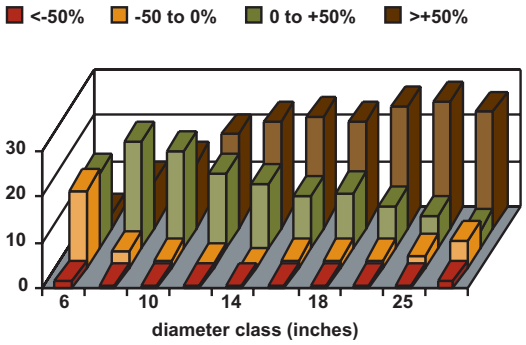

Figure 9-2. Number of tree species or groups of species in the Forest Inventory and Analysis database with decreasing and increasing stem numbers (a measure of tree population size), by diameter class, for trees >5 inches diameter breast height, between 1970 and 2002.

What Is the Indicator and Why Is It Important?

This indicator estimates population trends of selected species as a surrogate measure of genetic diversity. Decreases in genetic diversity as populations decline, particularly if associated with small populations, contribute to increased risk of extinction. This indicator also provides an important measure of general biodiversity, since changes in species abundance are a more sensitive measure of environmental stress than are species richness alone.

What Does the Indicator Show?

Between 1966 and 2000, about 26 percent of bird species associated with forests increased and 27 percent decreased; for nearly half the species, no strong evidence existed for an increasing or decreasing trend. Physiographic regions with higher numbers of bird species with significantly decreasing trends compared to bird species with significantly increasing trends are clustered on the coastal regions and eastern third of the United States (figure 9-1). Most tree species or groups of species tracked by the Forest Inventory and Analysis program show increases of >50 percent in numbers of stems > 12 inches in diameter between 1970 and 2002 (figure 9-2). State agency data indicate that populations of many big-game species increased in the last 25 years, but forest-dependent small-game species showed mixed trends.

Why Can't the Entire Indicator Be Reported at This Time?

Although it is not surprising that systematic inventories of obscure taxa (e.g., nonvascular plants, fungi, bacteria, nematodes, and arachnids) that would permit estimates of population trends over time are lacking, it is surprising that spatially and temporally extensive data for most other taxa are generally lacking as well. The paucity of population data for taxa other than bird species and a small subset of mostly big-game species points out the need to develop systematic strategies for monitoring population levels of other vertebrate, invertebrate, and plant taxa.