



## Landbirds Monitoring in 2009

### Importance

Landbirds are a conspicuous component of many ecosystems. They have high body temperatures, rapid metabolisms, and occupy high trophic levels. Because they can respond quickly to changes in resource conditions, landbirds are considered good indicators of ecosystem health. In other words, changes in landbird populations may indicate changes in the biotic or abiotic components of the environment upon which they depend. Relative to other vertebrates, landbirds are also highly detectable and can be efficiently surveyed with the use of numerous standardized methods.

### Long-term Monitoring

The overall goal of the Sonoran Desert Network (SODN) landbird monitoring program is to detect biologically significant changes in population parameters over time. SODN began monitoring birds in spring 2007; this effort is now part of a collaboration among the Southern Plains, Sonoran Desert, and Chihuahuan Desert networks, with data management provided by the Rocky Mountain Bird Observatory.

Specific, measurable objectives for landbirds monitoring in the Sonoran Desert Network are to estimate:

1. The proportion of points occupied for most species in most parks;
2. Parameters related to community dynamics, particularly species richness and species composition; and
3. Density of the most-common species.

### Status and Trends

SODN landbird monitoring focuses on long-term changes and trends, and monitoring must be conducted for a number of years before meaningful estimates related to trends are feasible.

In 2009, landbirds were surveyed within all 11 SODN parks. Sample points were located along a total of 40 transects (for linear features, e.g., riparian habitats) or grids (for area features). Survey efforts were focused on the breeding season, April through June, with adjustments for latitude and elevation. Point-transect surveys were used to estimate and monitor landbird population parameters. Surveys were conducted twice for each transect or grid.



Gambel's quails (*Callipepla gambelii*).

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In all, 280 points were sampled: 189 points in upland habitats and 91 in riparian habitats. A total of 11,576 birds of 163 species were recorded on survey points, with an additional 496 birds detected as flyovers. Saguaro National Park (SAGU) had the highest number of birds detected ( $n = 3,661$ ), but also had the highest number of survey points. Casa Grande Ruins National Monument (CAGR) had the lowest number of birds detected ( $n = 198$ ). Similarly, we observed the greatest number of species at SAGU ( $n = 120$ ) and the fewest at CAGR ( $n = 25$ ). Species richness and community composition varied widely among the parks surveyed. Gila woodpeckers were the most commonly detected species ( $n = 677$ ), followed closely by white-winged doves ( $n = 626$ ). Seventeen species were detected only once during surveys, and several others were detected only a few times. Five species (ash-throated flycatcher, Bewick's wren, black-chinned hummingbird, common raven, and mourning dove) were detected at all 11 parks, whereas numerous species were detected at one or very few parks. New species were recorded for seven parks, with as many as five new species recorded for Gila Cliff Dwellings National Monument.

Based on this year's effort, a few minor changes will be made to next season's field approach: an additional revisit to each transect or grid may be incorporated; the crew's approach to recording detections while walking from one sample point to the next will be modified; and survey time at each sample point will be reduced from eight to six minutes.

### Contact

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