



2013

Landbirds Monitoring

Importance

By occupying various levels in the food web, birds play an important role in the flow of energy through ecosystems. As nestlings, they consume insects. As adults, birds eat insects and plants and are, in turn, eaten by birds and mammals higher up the food chain. Because they can be sensitive to habitat change, birds are good indicators of ecosystem integrity. They also have strong public appeal; unlike many other animals on the xeric Colorado Plateau, birds are diurnal and, thus, commonly visible to park visitors. Data from the relatively natural habitats of Northern Colorado Plateau Network (NCPN) national parks will provide status and trend information useful in comparisons with more-impacted areas.

Long-term Monitoring

The Northern Colorado Plateau Network (NCPN) is partnering with the Rocky Mountain Bird Observatory (RMBO) to assess breeding-bird species trends in three different habitats: low-elevation riparian, pinyon-juniper, and sagebrush-shrubland. NCPN survey plots will contribute to the RMBO's broader, landscape-scale breeding-bird monitoring program, which includes more than 1,000 plots in 13 states in the Rocky Mountains and Colorado Plateau. Twice during each breeding season, RMBO surveys 15 transects in each of the three habitats of interest across 11 NCPN parks. Point counts and area searches are also conducted as part of a modified monitoring design at Pipe Spring National Monument.



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Northern pintail.

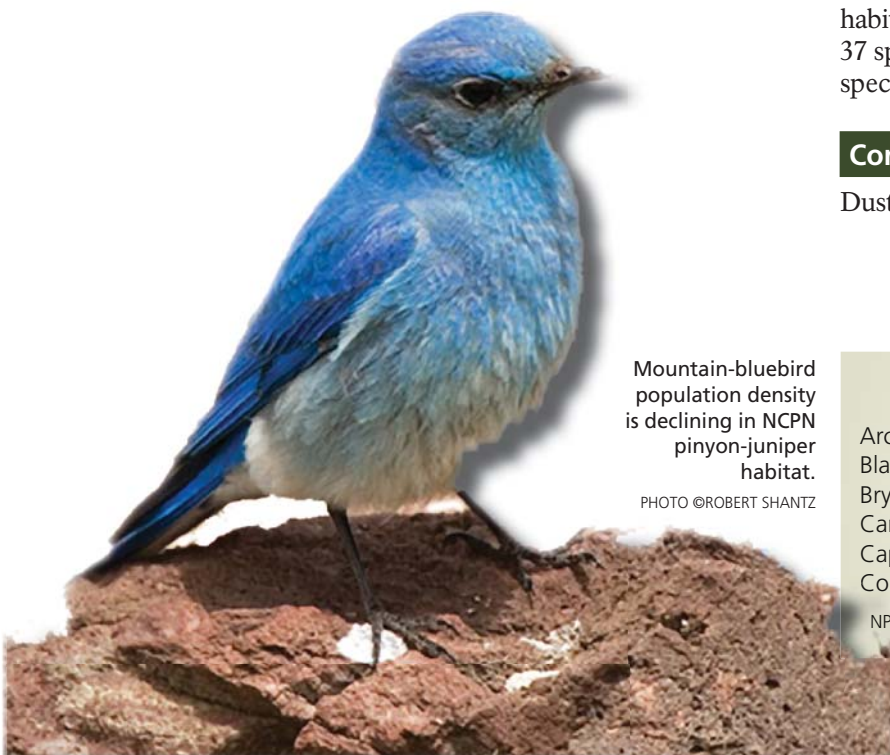
Status and Trends

In 2012, the eighth year of NCPN landbirds monitoring, 100% of the assigned transects were surveyed. Not counting birds detected between points, a total of 9,411 birds of 124 species were recorded: 3,021 birds of 82 species in low-elevation riparian, 2,862 birds of 76 species in pinyon-juniper, and 3,528 birds of 94 species in sage shrubland habitat. Two new species, American wigeon and northern pintail, were recorded at Fossil Butte National Monument. At Pipe Spring National Monument, 328 birds of 31 species were detected.

Density estimates were calculated for 58 species in at least one habitat. Those calculations yielded robust density estimates for 37 species. Significant population trends were detected for 10 species in 2012 (see page 2).

Contact

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Mountain-bluebird population density is declining in NCPN pinyon-juniper habitat.

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Network park units where landbirds are monitored

Arches NP
Black Canyon of the Gunnison NP
Bryce Canyon NP
Canyonlands NP
Capitol Reef NP
Colorado NM

Curecanti NRA
Dinosaur NM
Fossil Butte NM
Natural Bridges NM
Pipe Spring NM
Zion NP

NP = National Park; NM = National Monument; NRA = National Recreation Area

Landbirds Trend Results

In 2012, RMBO recorded 42 bird species that are of conservation and management concern throughout the NCPN. The number of detections allowed us to estimate densities and calculate trend analyses for 24 of those 42 species. Separate analyses were performed for each habitat.

Significant trends were detected for 10 species. Seven species exhibited declines in population density, one species showed an increase, and two species showed a quadratic trend (increased in population density in early years, then decreased in later years). Canyon wren declined in two different habitats.

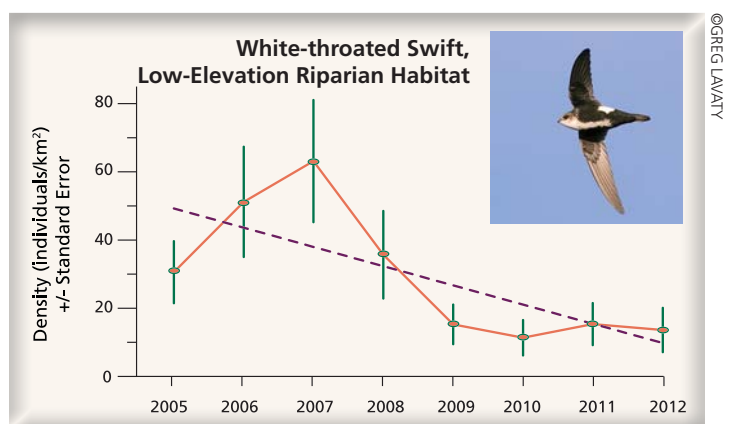
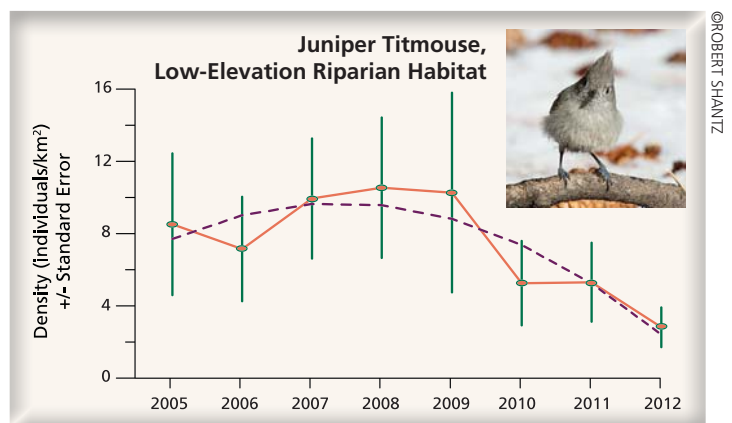
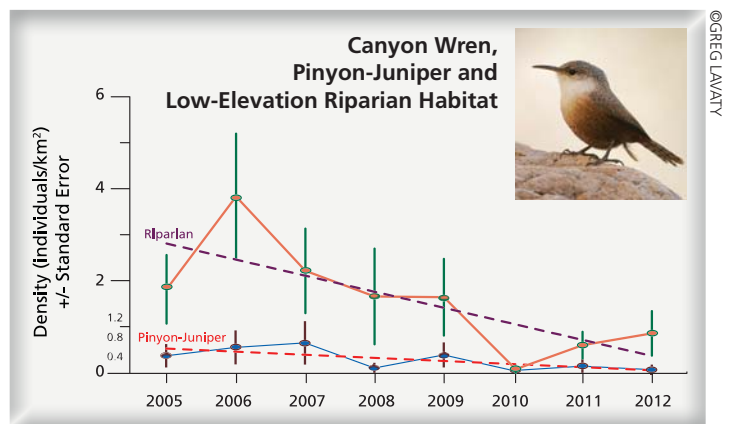
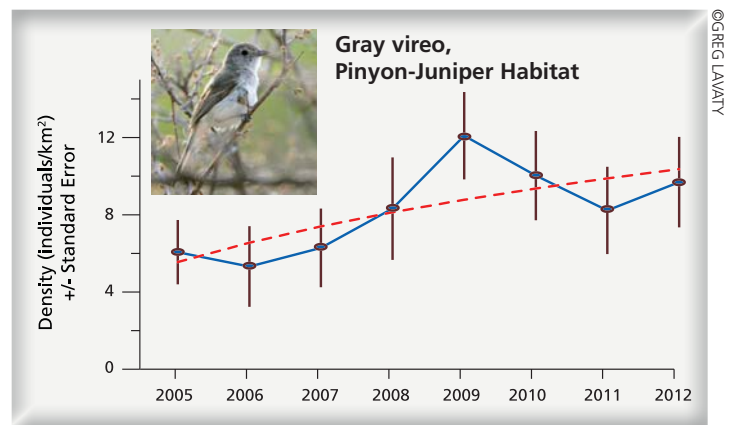
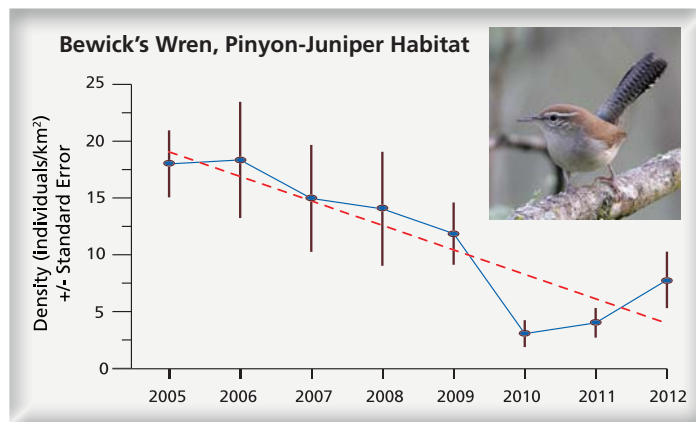
Trends in NCPN landbird populations.

Species	Habitat	Trend		
		↑	↓	↗↘
Canyon wren	LR		X	
Juniper titmouse	LR			X
White-throated swift	LR		X	
Bewick's wren	PJ		X	
Black-throated gray warbler	PJ		X	
Canyon wren	PJ		X	
Gray vireo	PJ	X		
Mountain bluebird	PJ		X	
Black-billed magpie	SA		X	
Dusky flycatcher	SA			X
Sage sparrow	SA		X	

LR = low-elevation riparian, PJ = pinyon-juniper, SA = sage shrubland
 ↑ = increasing, ↓ = decreasing, ↗↘ = quadratic

Six species that exhibited trends in 2005–2011 no longer showed trends with an additional year of data (2005–2012). Six others did still show trends, and four species that did not show trends through 2011 exhibited trends through 2012. Unidirectional trends for 7 of 8 species indicated that sensitive species declined from 2005 through 2012. Only gray vireo, in pinyon-juniper habitat, showed a steady increase.

As additional years of data accumulate, trend analysis will become less sensitive to short-term fluctuations in population density and long-term trends underlying annual fluctuations will be revealed. Long-term monitoring will continue to be necessary for interpreting population status and trends for avian species of the NCPN.



Bewick's wren, in pinyon-juniper habitat, continued to experience significant declines in NCPN parks. Of 10 species with significant trends, gray vireo, in pinyon-juniper habitat, was the only species to show an increase. Canyon wren declined in two habitats. Juniper titmouse, in low-elevation riparian habitat, showed a quadratic trend of fluctuation.