Trinity River Restoration Program Performance Measure 2011:

Abundance Patterns Over Time for Riparian Birds

Hypothesis: We hypothesize that the increase in aquatic and riparian habitat complexity predicted to result from implementation of localized site rehabilitation efforts, cumulative alluvial effects, and the flows specified in the Trinity River Record of Decision (ROD) will benefit riparian bird communities within the program area.

Importance: Riparian birds depend on both riverine and riparian habitats in the Program area for foraging and breeding. Some species are resident year-round on the Trinity River, while a few migrate to warmer climates during winter months. Riparian bird abundances are good indicators of the health of a river ecosystem, and monitoring trends in these species on the Trinity River will help to assess Program success.

Targets, Predicted or Desired Response: The transformation from current extensive fixed riparian-berm habitat to a dynamic, species-diverse, structurally and spatially complex riparian habitat should benefit the riparian bird community in the long-term.

Technical Approach: A set of "target" riparian bird species were selected for monitoring because (1) they are strongly associated with riparian habitat, (2) they are present in sufficient numbers to allow us to detect changes in abundance, or (3) their population status in California is of special concern. We then estimated (1) temporal trends in abundance and (2) baseline bird-habitat associations that can be used to predict the response of target riparian species to restoration.

Results: We completed 8 years of riparian bird monitoring at the 40-mile (63-km) Program area scale (see Miller et al. 2010) and found significant, positive trends in abundance for four of five target riparian bird species: black-headed grosbeak, song sparrow, yellow-breasted chat, and yellow warbler. Tree swallow abundance fluctuated over the 8 years, and we did not detect a trend for this target species. Results from our analysis of baseline bird-habitat relationships indicate that the Program should strive for large riparian habitat patches that include a variety of willow species, alders, cottonwoods (including young trees), shrubs, and herbs of different ages. The presence and amount of shrub and herb cover such as berries and ground covers were important for most of the species. A diversity of plant species and structure provide the cover and food resources needed by riparian birds to breed successfully and survive the demands of migration and winter seasons. If, over 5 to 10 years, the amount of riparian habitat present in the Program area is equal to or exceeds the amount before restoration began, and is diverse in species and structure, our data suggest the riparian bird populations will be maintained.

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