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 = Pictures in WBBA's Photo Gallery

PRBO Conservation Science – Phelan Island

In 1989 Congress established the Sacramento River National Wildlife Refuge. The Sacramento River—California's largest river—has been impacted severely by a wide variety of human activities including habitat conversion, water diversion, mining, pollution, and the introduction of non-indigenous invasive species. It is estimated that 2% of the native forest remains intact. Despite these challenges, the act targeted 18,000 acres of riparian habitat along the Sacramento River between the towns of Red Bluff and Colusa, in northern California. There were no contiguous tracts of intact forest of that size left in the area, nor were there enough patchy remnants that the budding Refuge could buy. So they did the next best thing – acquired land adjacent to the river, targeting flood prone land adjacent to intact riparian forest. Combining parcels of old riparian habitat with orchards and fallow fields, the refuge began to grow. Then, in partnership with The Nature Conservancy (TNC) and River Partners, they set out to restore the land to something approaching its native state.

Our study in the Sacramento Valley began in 1993, and two years later PRBO Conservation Science began monitoring a revegetation plot at Phelan Island, using nest monitoring, point counts, territory mapping, and a MAPS station. We employ these methods at several revegetated and remnant riparian forest sites throughout the Sacramento Valley. Our goal is to use birds to evaluate restoration activities and simultaneously provide land managers with specific biological information from which

to inform restoration plans. The unit containing the banding station was planted in 1991-1992, with adjacent acreage planted in later years, totaling 180 acres. The site also contains 128 acres of intact riparian habitat, adjacent to the revegetated plot. Today the planted unit consists of mixed riparian forest dominated by Fremont cottonwood, several willow species, box elder, California sycamore, and blue elderberry. Frequent floods have deposited much woody debris and understory, dominated by Himalayan blackberry, mugwort, Santa Barbara sedge, and several species of non-native weeds and grasses.

Using our mist-net data, we have recently calculated site-specific adult annual survival estimates of Black-headed Grosbeaks and Spotted Towhees at Phelan Island and compared them to Sul Norte, a nearby banding station situated in a 164-acre remnant of old growth riparian forest. We are particularly interested in comparing annual survival on revegetated and remnant plots due to the implications of source/sink dynamics. Survival for grosbeaks, a mid-canopy nester, was high at both Sul Norte (77%) and Phelan Island (66%). But Spotted Towhees, which nest on or near the ground, showed substantial differences (63% at Sul Norte vs 24% at Phelan Island). One possible explanation is that the forb and shrub density is much higher in the remnant riparian area, which provides better nest and foraging cover. In our time working with the refuge, TNC and the River Partners, we have been able to provide feedback in their adaptive management of the revegetation process. One recommendation was to plant understory species, which they did not do in the early-to-mid 1990s. Today however, it is a key component to all plantings, and further years of study will determine if these adaptive strategies help close the gap between the survival rates in remnant and restored forests.

For more information about PRBO, visit the website at: <http://www.prbo.org/>

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