

# **Report of 2003 Brown-headed Cowbird Trapping Program For Mission Trails Regional Park - Year 3**



**Biologist Thomas Myers Checking Cowbird Trap**

**Prepared for:  
City of San Diego  
Department of Parks and Recreation  
San Diego, CA**

**Prepared by:  
Varanus Biological Services, Inc.  
7920 Silverton Avenue, Suite D  
San Diego, CA 92126**

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## INTRODUCTION

The City of San Diego (City) is required to implement a brown-headed cowbird (*Molothrus ater*, Cowbird) trapping program at Kumeyaay Lake as required by the Biological Opinion issued for construction of the Kumeyaay Campground. The focus trapping area for the program in 2003 was Kumeyaay Lake, Santee, San Diego County, California. Varanus Biological Services (Varanus) placed traps adjacent to native riparian habitats (Southern Willow Riparian Forest and Southern Cottonwood-willow Riparian Forest) in the vicinity of the lake.

Since the early 1980's, Cowbird trapping has been an important component of recovery measures in support of recovery of the federally endangered least Bell's vireo (see Morrison *et al.* 1999), which is a small, insectivorous migratory songbird. The breeding range of the least Bell's vireo is southern California including portions of the California deserts. Least Bell's vireos winter in Baja California, Mexico and typically migrate northward to their breeding grounds in southern California between mid-March and mid-April and occasionally as late as early May. During the breeding season the least Bell's vireo inhabits an assortment of riparian habitats. Dense low growing thickets of willows (*Salix* spp.), mule fat (*Baccharis salicifolia*), California blackberry (*Rubus ursinus*), Douglas' mugwort (*Artemisia douglasiana*) or other similar species are essential components of the habitat. An overstory composed of willows, cottonwoods (*Populus fremontii*), and/or sycamores (*Platanus racemosa*) is often present. Other nesting habitats are dense patches of herbaceous understory in Coast Live Oak Riparian Forest and Coast Live Oak Woodland (W. Haas pers. obs), and occasionally patches of non-native habitat (P. Famolaro pers. com.) that now commonly form intricate mosaics with native habitats throughout the current breeding range of this species.

Once widespread through much of California, the breeding range of the Least Bell's Vireo extended from the northern edge of the Sacramento Valley of California to northern Baja California. Least Bell's vireo population numbers declined dramatically between the 1940's and mid-1980's (Franzreb 1989). Two factors are primarily responsible for the decline and hence the endangered status of the Least Bell's Vireo: habitat loss resulting from eradication, fragmentation, and degradation of riparian habitats; and brood parasitism by Cowbirds (U. S. Fish and Wildlife Service 1986). Cowbirds in the U.S. were historically associated with bison (*Bison bison*), pronghorn antelope (*Antilocapra* sp.), and other ungulate herds including livestock on the Great Plains. It is hypothesized that brood parasitism in the Cowbird genome was pre-adaptive or evolved to facilitate their relationship with herds of nomadic hooved mammals

(Weidensaul 1991). For instance, when nomadic herds of bison moved, Cowbirds followed suit. Female Cowbirds, having deposited their eggs in other species' nests, could achieve the equivalent of "nest success" at the expense of parasitized hosts while allowing them to move with the herds. By limiting the expenditure of energy needed to forage independently and raise their own young, female Cowbirds could produce large numbers of eggs with minimal parental investment while exploiting readily available food resources (e.g., seeds and larvae concentrated in ungulate feces).

The explosive increase in Cowbird populations outside the species' historic range has accompanied the decline of riparian habitat in California (Laymon 1987). The increase in Cowbird population has also paralleled the decline in numerous other songbird populations including the yellow warbler (*Dendroica petechia*) and the warbling vireo (*Vireo gilvus*) (Unitt 1984). Cowbirds have been documented using more than 200 species as hosts (Friedmann *et al.* 1977). Brood parasitism of least Bell's vireo by the Cowbird has been well documented; the history of Cowbird/least Bell's vireo interaction is summarized in Franzreb (1989). Trapping of Cowbirds using modified Australian Crow Traps is an accepted method of reducing brood parasitism in least Bell's vireo (Franzreb 1989) and other riparian as well as some non-riparian species (for example, the southwestern willow flycatcher, *Empidonax traillii extimus* (e.g., Whitfield and Strong 1995) and the California gnatcatcher, *Polioptila californica*) (Braden *et al.* 1997). Cowbird trapping (and removal) and habitat restoration and preservation have contributed to recent population recovery in parts of the least Bell's vireo historic range. It is probable that Cowbird trapping has likewise brought about recent increases in populations of other riparian species such as the yellow warbler (Philip Unitt, San Diego County Bird Atlas personal communication).

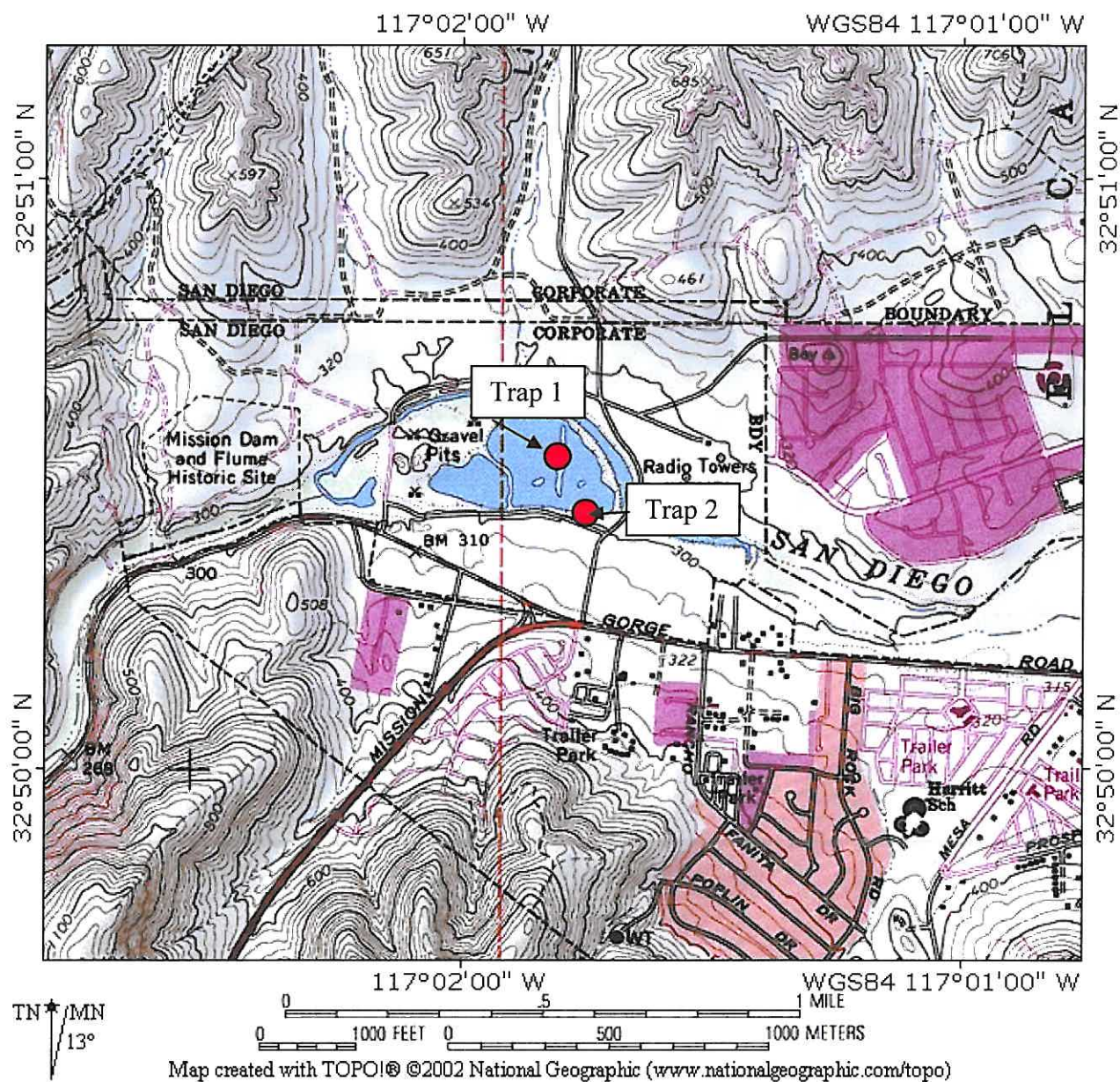
## **Project Area**

Mission Trails Regional Park is located south of State Route 52, west of Mast Boulevard in San Diego County, California (Figure 1). The specific trapping area is located around Kumeyaay Lake in the eastern portion of the Park (Figure 2).









**Figure 2:** Approximate Trap Locations at Kumeyaay Lake, Mission Trails Regional Park

## METHODS

Varanus conducts all Cowbird trapping programs under authorization issued by the FWS and California Department of Fish & Game (DFG). In 2003, Varanus was responsible for undertaking the City's Cowbird trapping program at Mission Trails Regional Park. Two traps were required by this contract (PO 5054987). Prior to initiating the trapping effort, two Cowbird traps were established at a local dairy to capture "bait" birds for the two traps. Activity and song of Cowbirds placed in a trap attract the target free-flying Cowbirds. Dairies, feedlots, livestock pastures, and horse stables are all excellent sources of Cowbirds if trapping is done prior to Cowbird dispersal into breeding habitat. The traps established at the dairy captured Cowbirds throughout the trapping period and allowed for the replacement of bait birds lost to depredation or vandalism at the trapping sites.

Two traps were deployed in the vicinity of Kumeyaay Lake on 18 March 2003. Activation of Cowbird traps required baiting them with a minimum of five Cowbirds, and supplying each trap with fresh water and seed (Griffith Wildlife Biology 1994). Laminated signs were posted on each trap that described, in English and Spanish, the purpose and techniques of Cowbird trapping as well as a contact number in case of problems or questions. Following activation, traps were checked daily to wing clip and/or remove (especially female) newly captured Cowbirds and to release non-target species. Wing-clipping helps identify new captures and reduces the flight capability of Cowbirds should they escape. During each daily visit, seed pans and water dispensers were cleaned and fresh seed and water added if required. White millet (*Panicum miliaceum*) was used to minimize entry by non-target species. Although relatively expensive, white millet does not contain an assortment of other seed types, such as sunflower seeds, that are attractive to many potential non-target species (e.g., house finches, *Carpodacus mexicanus*) (Rosenberg and Bonney 1994).

In order to minimize algal growth in guzzlers, and to discourage small mammals from accessing the seed cache, a simple platform made of a 1/2-inch plywood square (2-foot by 2-foot) fastened to four 1-foot tall (1-inch by 2-inch) posts was placed in both traps. The seed pan was placed atop the platform, and the guzzler was positioned underneath, affording it protection from direct sunlight. The position of seed pans and guzzlers was reversed when rain was forecast. This provided a level of protection that minimized seed wastage that typically accompanies even light rainfall. This system works well except during extremely heavy rainfall,

or when moderate to heavy winds accompany the rainfall.

## RESULTS

In total, the two traps captured twenty-two Cowbirds. Of the 22 captures, eleven were males, four were females, and seven were juveniles (Table 1). On 14 July 2003 we detected a juvenile Cowbird that was caught in Trap #2 that appeared to be interacting with a female least Bell's vireo, which perched with a food item at the edge of the riparian habitat adjacent to the trap at the time the trap was tended. One male cowbird was banded (right leg: silver USGS band number 1631-08623).

We recorded a total of 186 captures of non-target avian species, primarily California towhees (*Pipilo crissalis*). One fatality (0.5% of the total number of captures) was recorded; a towhee was found dead in Trap #2 (Table 2).

<b>TABLE 1 BROWN-HEADED COWBIRD TRAPPING RESULTS KUMEYAAY LAKE, SANTEE, CALIFORNIA MARCH – JULY 2003</b>		
<b>Age and Sex of BHCO Captured</b>	<b>Total Number Trapped</b>	
	<b>Trap 1</b>	<b>Trap 2</b>
BHCO, Captured – Adult Female	0	4
BHCO, Captured - Adult Male	5	6
BHCO, Captured – Juvenile	1	6
<b>Total BHCO Captured per trap</b>	<b>6</b>	<b>16</b>
<b>NET CAPTURE OF BHCO</b>	<b>22</b>	



**TABLE 2**  
**NON-TARGET SPECIES CAPTURED DURING COWBIRD TRAPPING**  
**KUMEYAA Y LAKE, SANTEE, CALIFORNIA**  
**MARCH – JULY 2003**

Non-target Species (Scientific Name)	Total Number Trapped (Deceased)	
	Trap 1	Trap 2
California towhee ( <i>Pipilo crissalis</i> )	0	180 (1)
Spotted towhee ( <i>Pipilo maculatus</i> )	5	0
Red-winged blackbird ( <i>Agelaius phoeniceus</i> )	0	1
<b>Non-target Captures (Total)</b>	<b>5</b>	<b>181 (1)</b>
<b>Percent Non-target Mortality (Total)</b>	<b>0.00%</b>	<b>0.5%</b>

## DISCUSSION

During the 2003 trapping season we captured 22 Cowbirds, equal to the number captured in 2002 and more than were captured in 2001 (n=14). The first juvenile cowbird captured in three years of trapping at the lake occurred in 2003, when a total of 7 juveniles were trapped. The number of non-target captures (n=186) in 2003 was lower than the number captured in 2002 (n=443) and higher than the number of 2001 captures (n=65). In all years the primary non-target species captured was the California towhee.

In most Cowbird trapping programs, seed-eaters dominate the array of captures, and the number of seed-eaters captured is biased by the fact that often the same individual(s) return repeatedly to the Cowbird traps in order to secure food (P. Famolaro pers. com., Varanus field notes). These individuals may be recognized by plumage, scars and other identifying characteristics. This repetitious use of the cowbird trap may contribute to the mortality rate as “trap happy” non-targets (that is, individuals of non-target species that repeatedly choose to exploit the readily available food source within a trap) may quickly return to a trap after release, may spend longer time within a trap, may be subjected to aggressive behaviors of Cowbirds. Those non-targets that regularly exploit the seed placed within Cowbird traps may thus have an increased potential to succumb within a trap; it is therefore necessary to minimize the attractiveness of each Cowbird trap, which we choose to do by making the food source less



attractive overall.

Our exclusive use of white millet as a food source is intended to reduce the number of non-targets entering our traps, thus reducing the number of non-targets that may fare poorly during the time they are captive. Although the number of non-targets captured appears to be relatively high in view of the previous statements, we suspect that of the 181 California towhee captures, there were only four or five individuals, each of which was captured repeatedly. One of the captured California towhees died within the Cowbird traps; however, overall mortality was extremely low because few other non-targets found the traps attractive.

## **GENERAL RECOMMENDATIONS FOR TRAPPING REGIMES**

### **Bait Birds**

To effectively trap Cowbirds, we strongly recommend the capture of bait birds prior to inception of every trapping program. Adequately supplying bait birds at trapping onset results in more rapid onset of target capture. Our traps minimally supported five Cowbirds from the onset of the program. Our bait bird trapping is typically conducted at a dairy or ranch where Cowbirds congregate in fall and winter.

### **Vandalism**

In all trapping regimes, traps should be placed in area of relatively high security and low visibility to the general public. Careful attention needs to be paid to this when trapping in a park or near a trail that people regularly use for recreational activity. Many people do not understand the reasons for trapping Cowbirds and are distressed by any wild bird existing in a cage. These well-meaning people can cause considerable damage when trying to free the birds from the trap.

Signage in both English and Spanish may additionally reduce loss or damage to traps and birds from vandalism. Information posted visibly on each trap describing the purpose of and authority by which trapping activity is carried out further explains the need and legal authority by which trapping is carried out.

### **Seed Pans and White Millet**

We strongly suggest the practice of placing seed for trapped birds in a tray or other receptacle making for more sanitary trap conditions and reducing the impetus for ground squirrels (*Spermophilus* sp.) and other rodents (e.g., deer mice (*Peromyscus* spp.) and exotic rats

(*Rattus* spp.)) to enter traps. This practice also helps reduce seed germination (weed growth) in the vicinity of traps. We galvanized aluminum, zinc, or plastic pans (4" high X 14" diameter) in all of our traps to minimize access to the seed cache.

We recommend the use of white millet as the food source for Cowbird trapping programs. The number of non-targets captured during a season can be lowered considerably when using white millet instead of typical wild bird seed mixes. California towhees do not seem to shy away from traps offering white millet but the number of house finches captured, for example, may be greatly reduced by its use.

### **Wooden Platforms**

The use of a simple platform that separates the seed pan from the trap floor reduces the potential for rodents to access the food that sustains captive birds in traps. Our platforms are simply made by attaching four 12" by 1" by 1" legs to a 12" by 12" piece of plywood. We place the seed pan atop the platform, and the guzzler directly underneath. This system provides an additional benefit by minimizing the amount of algal growth within guzzlers, thus reducing guzzler maintenance. When rainfall is imminent, the positions of the seed pans and guzzlers can be reversed, affording the seed a measure of protection rather than allowing it to become quickly saturated and unappealing to entrapped birds.

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