1998 USFS Upper San Luis Rey River Brown-headed Cowbird Trapping Program

Cleveland National Forest, Palomar Ranger District, San Diego County, California.

Contract Order No. 40-91U4-7-7039

Prepared for:
USDA – Forest Service
Cleveland National Forest
10845 Rancho Bernardo Road
San Diego, CA. 92127

Prepared by:
J. Wells and J. Turnbull
TW Biological Services
2415 29th Street
San Diego, CA. 92104

November 1, 1998

Introduction

In an effort to both protect nesting Southwestern Willow Flycatchers as well as mitigate for potential indirect impacts from off-site grazing on Forest Service lands, the U.S. Forest Service has funded a yearly Brown-headed Cowbird trapping program along the upper San Luis Rey River since 1992. The purpose of this trapping program is to reduce the threat and impact of brood parasitism to the endangered Southwestern Willow Flycatcher (*Empidonax trailli extimus*).

The Brown-headed Cowbird (*Molothrus ater*) is an obligate brood parasite which lays its eggs in the nests of other bird species and is dependent upon the host to incubate their eggs and rear their young. Averaging 6"-7" in length, the Brown-headed Cowbird is a medium sized songbird with sexually dimorphic plumage. Adult males are dark brown to gloss black with a brown head and neck. Females are slightly smaller than males and dull tan to light brown with indistinct streaking on the breast. Originally restricted to the midwest region of North America, the Brown-headed Cowbird expanded in both range and abundance following the settlement and alteration of natural habitats, particularly with the increase in agriculture and livestock production. Reaching California in the late 1800's, this species was first documented breeding in San Diego County in 1915 (Unit 1984), and had become well established within southern California by the 1930's (Rothstein 1994, Willett 1933). Songbird species or populations which had not evolved with the cowbird and have no experience with parasitism may be subject to significantly reduced reproductive success. Brood parasitism combined with other impacts, such as habitat loss and fragmentation can lead to declines in songbird species, especially those with an already limited population and distribution.

Cowbird trapping has proven to be an effective method in the conservation efforts of sensitive songbird populations throughout the United States, and was initially utilized in the recovery efforts of the Kirtland's Warbler in Michigan (Mayfield 1977). Subsequently, cowbird trapping has become an important tool in the management of several other sensitive songbird species, including the Black-capped Vireo, Least Bell's Vireo, and Southwestern Willow Flycatcher.

Project Area

Located in the northcentral section of San Diego County, the project area extends along approximately 2.5 miles of the San Luis Rey River from the Lake Henshaw Dam downstream to the Forest Service picnic grounds (Figure 1). Restricted to a relatively narrow floodplain, habitat within the project area includes mature mixed willow riparian and coast live oak woodland. Dominant vegetation includes California Live Oak (*Quercus agrifolia*), Willow (*Salix* spp.), Sycamore (*Platanus racemosa*), White Alder (*Alnus rhombifolia*), and Ash (*Fraxinus velutina*). Understory vegetation includes Wild rose (*Rosa californica*), Poison oak (*Toxicodendron diversilobum*), and open areas dominated by annual grasses. Located on both U.S. Forest Service lands and Vista Irrigation District property, disturbance within the project area is minimal and consists of hiking, fishing, and day use recreational activities.

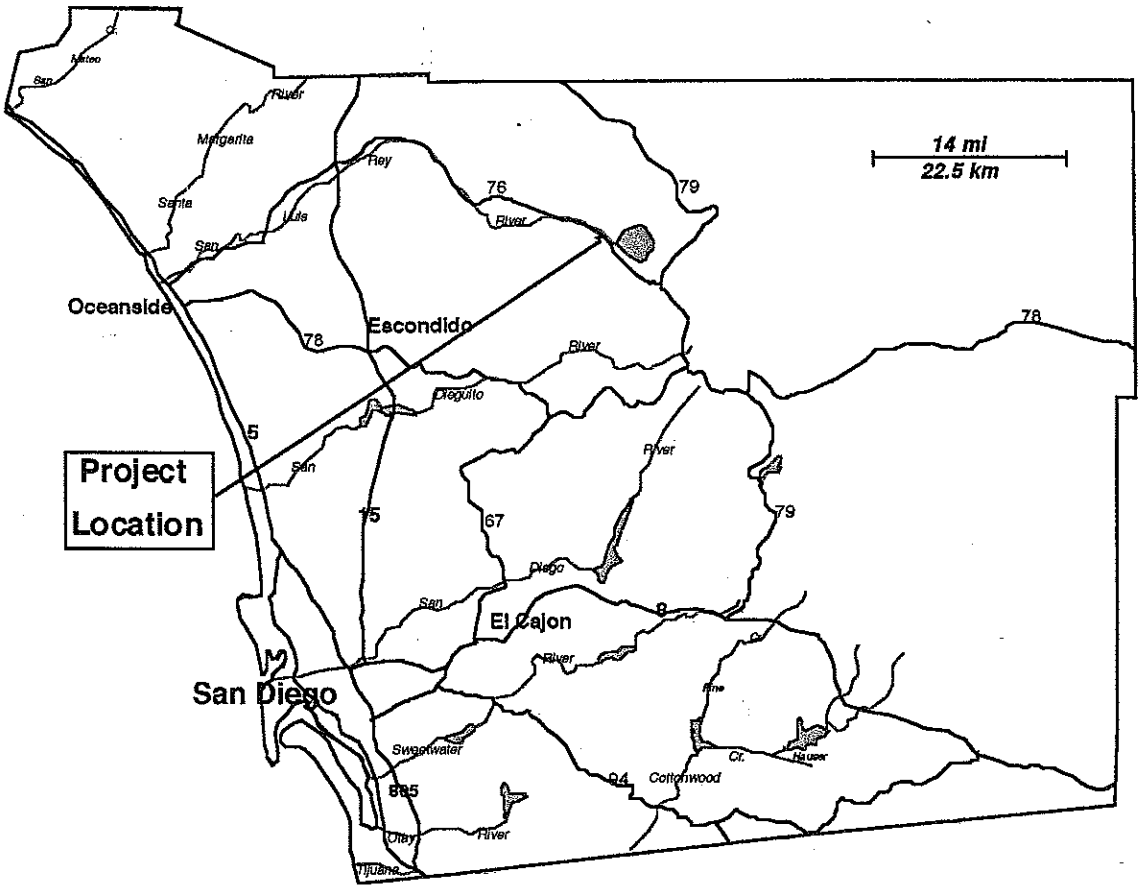


Figure 1. Project location, San Luis Rey River, San Diego County, California.

Methods—

In coordination with known Southwestern Willow Flycatcher territory locations as well as historic trap locations, 4 cowbird traps were placed within or adjacent to riparian habitat to facilitate the best possible protection for nesting flycatchers (Figure 3). Traps were set up and activated on April 30th and operated daily through July 5th 1998. All traps were furnished with adequate freshwater, seed, perches, and shade, and checked on a daily basis to record trap capture events, release non-target species incidentally captured, and perform any necessary trap maintenance. All traps contained 2 male and 3 female decoy cowbirds during the entire project period. Female decoy cowbirds were wing-clipped to prevent the accidental escape or release back into the wild and male decoy cowbirds were marked by clipping the outer 2 primary feathers, which enabled their identification from captured individuals. Newly captured cowbirds which were not utilized as decoys, were removed on a regular basis. Cowbird traps were supplied by the U.S. Forest Service, and trapping operations were performed by Joe Karcavich, Jennifer Turnbull, and Jeff Wells of TW Biological Services.

Results

A total of 52 cowbirds were captured within the project area between May 1st and July 5th 1998, including 31 males, 19 females, and 2 juveniles (Table 1). Of the 52 total captures, one male had been previously banded at another location and was subsequently released, and TW Biological Services banded and released 30 male cowbirds, resulting in the removal of 21 cowbirds from the project area during 1998. Over 50% (27) of the captures occurred during the first 3 weeks of the trapping period (Figure 2), and trap number 4 accounted for 32 or 61% of the total captures. Capture events within the remaining traps ranged from 5 to 10 captures. The first juvenile capture event occurred on June 21st. There were 0.20 captures per trap day and the ratio of male to female captures during 1998 was 1.63 : 1.0 (Table 2).

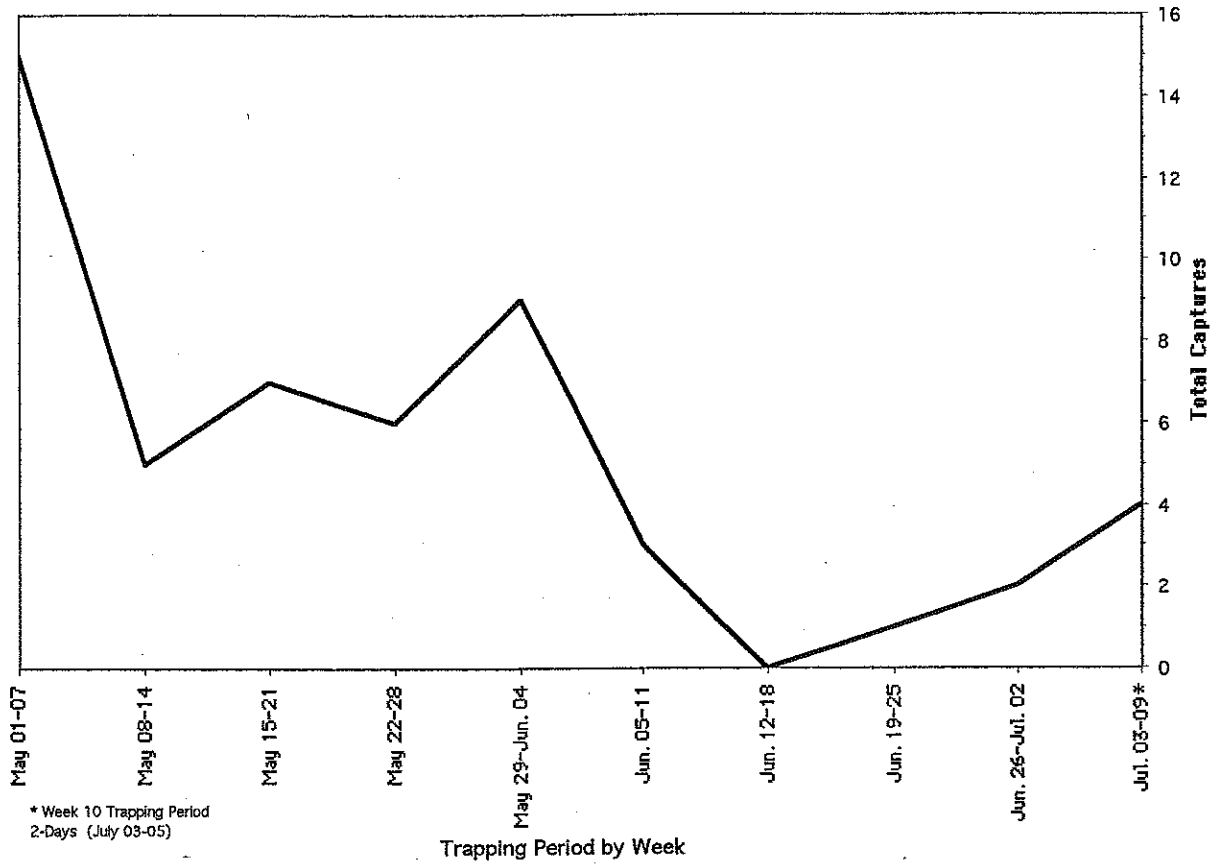
Table 1. Weekly Cowbird Captures by Trap from 01-May to 05-July 1998.

WEEK No.	DATES	TRAP-1			TRAP-2			TRAP-3			TRAP-4			WEEKLY TOTAL
		Male	Female	Juvenile	Male	Female	Juvenile	Male	Female	Juvenile	Male	Female	Juvenile	
1	*May 01-07*	2	1					2	3		4	3		15
2	*May 08-14*					1					2	2		5
3	*May 15-21*	2	1		1						1	2		7
4	*May 22-28*	1	2		1						2			6
5	*May 29-Jun. 04*	1			1						6	1		9
6	*Jun. 05-11*										3			3
7	*Jun. 12-18*													0
8	*Jun. 19-25*												1	1
9	*Jun. 26-Jul. 02*					1					1			2
10	*Jul. 03-09**										1	2	1	4
CAPTURE TOTALS		6	4	0	3	2	0	2	3	0	20	10	2	52
TRAP TOTALS		10			5			5			32			52

Table 2. Cowbird capture data for USFS San Luis Rey River programs from 1992 to 1998.

YEAR	Male	Female	Juvenile	Total Captures	Male: Female Ratio	No. Traps	Operational Dates	No. Trap Days	Captures Per Trap Day	Source
1992	12	4	4	20	3.0 : 1.0	1	Jun. 23 - Aug. 03	42	0.48	USFS 1997
1993	68	27	1	96	2.5 : 1.0	2	Apr. 01 - Aug. 01	244	0.39	USFS 1997
1994	134	54	8	196	2.5 : 1.0	5	Mar. 29 - Jul. 01	470	0.42	USFS 1997
1995	33	34	0	67	1.0 : 1.0	4	Apr. 18 - Aug.15	352	0.19	USFS 1997
1996	38	16	1	55	2.4 : 1.0	5	Apr. 04 - Jul. 15	458	0.12	USFS 1997
1997	25	12	1	38	2.1 : 1.0	3	Apr. 01 - Jul. 02	276	0.14	USFS 1997
1998	31	19	2	52	1.6 : 1.0	4	May 01 - Jul. 05	264	0.20	TWB 1998

Figure 2. Total Cowbird captures per week from May 1st thru July 9th 1998.



Non –target Species

There were 28 capture events of non-target species, including 21 House Finches (*Carpodacus mexicanus*), 2 California Thrashers (*Toxostoma redivivum*), 2 Black-headed Grosbeaks (*Pheucticus melanocephalus*), 1 Scrub Jay (*Aphelocoma coerulescens*), 1 Song Sparrow (*Melospiza melodia*), and 1 European Starling (*Sturnus vulgaris*). There were no non-target mortaities or trap vandalism during the project period.

Banded Cowbirds

In an effort to identify possible foraging area use locations and seasonal movements of cowbirds within the project area, 30 of the 31 males captured during the project period were banded and released, including 8 individuals which were color banded. Nineteen males were banded at trap number 4, seven males at trap 1, three at trap 2, and one male at trap 3.

Twenty-four of the 30 banded males were recaptured at least once during the project period including 16 or 53% which were captured 3 or more times and were considered breeding residents. Banded males which were considered to be breeding residents consisted of individuals which were captured 3 or more times (including original capture) over a 14 day or more period

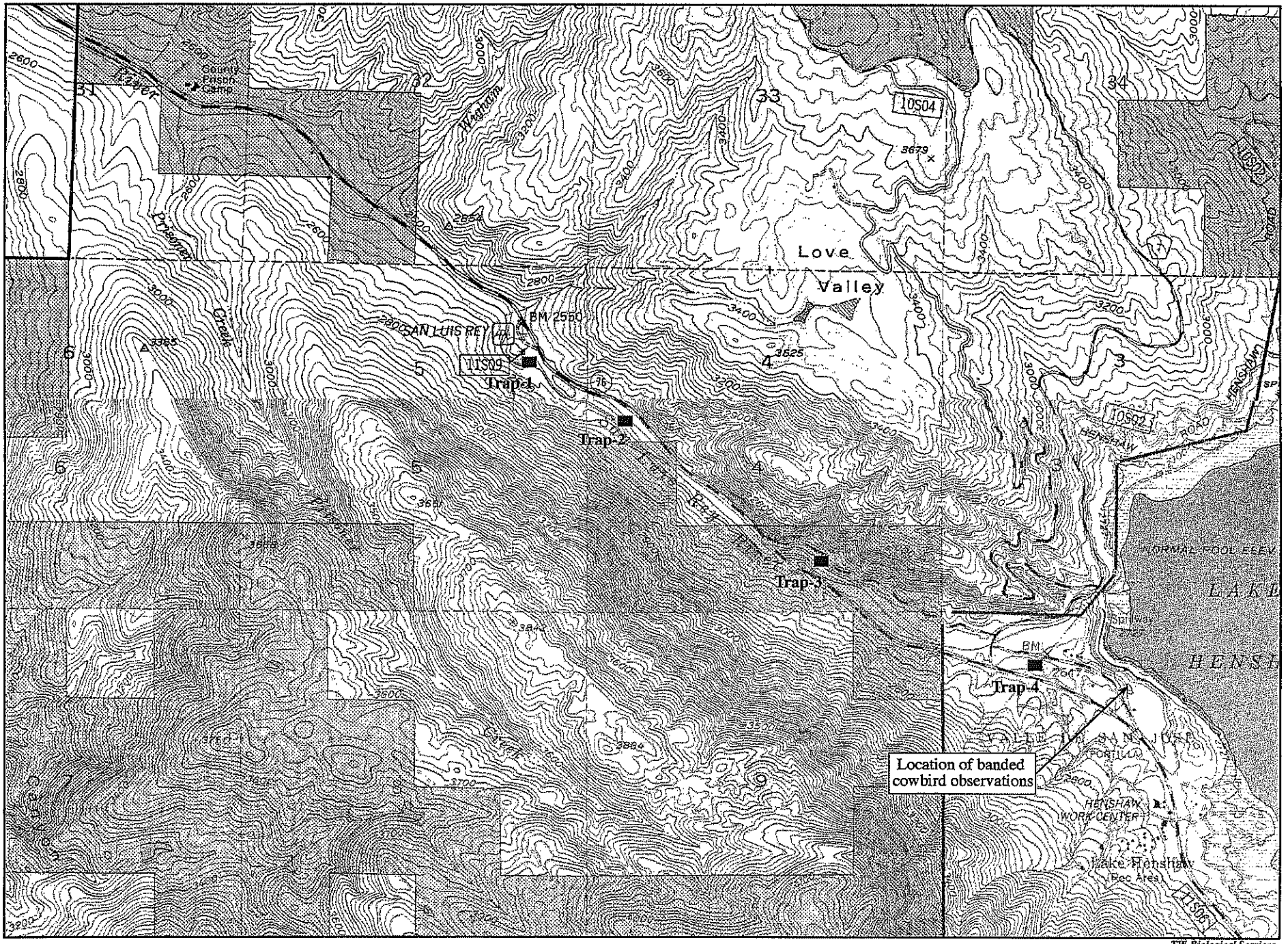


Figure 3. 1998 Cowbird Trap Locations, U.S. Forest Service Trapping Program, San Luis Rey River, San Diego County, CA.
Adapted from USGS -Mesa Grande and Palomar Observatory Topographical Maps. Scale 1:24,000.

between April 15th and July 15th of the same year. The 14 remaining males were of unknown status and consisted of 7 individuals captured from 2 to 5 times in less than a 14 day period, 6 individuals which were only captured once, and 1 male which was lost to predation shortly after banding. The remaining male captured during the project period was previously banded on June 5th 1998 at a dairy located east of Lakeside, San Diego County. A summary of banded males and their capture status is located in table 3.

Table 3. Male Brown-headed Cowbirds captured and banded during project period.

Band Number	Sex	Age	USFS Project Capture Date(s) Range	No. of Captures	Traps Captured In	Banding location	Status	Comments
1631-08666	M	SY	05/11/98	1	FS-4	FS-4	U	
1631-08740	M	SY	05/01/98 - 06/21/98	25	FS-1,2,4	FS-1	B	
1631-08746	M	SY	05/03/98 - 05/17/98	4	FS-1,2	FS-1	B	
1631-08747	M	SY	05/03/98 - 07/05/98	25	FS-1,2,3,4	FS-1	B	
1631-08748	M	SY	05/04/98 - 06/04/98	26	FS-2,3,4	FS-3	B	
1631-08752	M	ASY	05/07/98 - 07/05/98	9	FS-4	FS-4	B	
1631-08753	M	SY	05/07/98 - 07/05/98	46	FS-4	FS-4	B	
1631-08754	M	SY	05/07/98	1	FS-4	FS-4	U	
1631-08755	M	ASY	05/07/98 - 07/05/98	42	FS-4	FS-4	B	
1631-08757	M	AHY	05/08/98 - 05/11/98	3	FS-4	FS-4	K	Killed by predation
1631-08787	M	SY	05/17/98 - 05/22/98	5	FS-1,2,4	FS-2	U	
1631-08788	M	ASY	05/17/98 - 05/21/98	3	FS-1,4	FS-4	U	SLR: VB-1 (8/12/98)
1631-08801	M	SY	05/20/98 - 05/31/98	4	FS-1,4	FS-1	U	
1631-08802	M	ASY	05/20/98 - 07/05/98	22	FS-1	FS-1	B	
1631-08828	M	ASY	05/31/98	1	FS-1	FS-1	U	
1631-08829	M	SY	05/31/98 - 07/03/98	31	FS-1,4	FS-1	B	
1631-08830	M	ASY	05/31/98 - 07/05/98	26	FS-2,3,	FS-2	B	SLR: VB-1 (7/18/98)
1631-08831	M	ASY	05/31/98 - 06/01/98	2	FS-2,4	FS-2	U	
1631-08832	M	SY	05/31/98 - 06/26/98	26	FS-4	FS-4	B	
1631-08833	M	ASY	05/31/98 - 07/05/98	4	FS-3,4	FS-4	B	
1631-08834	M	SY	05/31/98 - 07/05/98	8	FS-1,3,4	FS-4	B	
1631-08835	M	ASY	05/31/98	1	FS-4	FS-4	U	
1631-08836	M	ASY	05/31/98 - 07/05/98	28	FS-4	FS-4	B	
1631-08848	M	ASY	06/07/98 - 06/11/98	2	FS-4	FS-4	U	
1631-08849	M	ASY	06/07/98 - 07/05/98	20	FS-4	FS-4	B	
1631-08850	M	AHY	06/07/98 - 06/19/98	3	FS-4	FS-4	U	SDR: LSD-1 (7/19/98)
1631-08866	M	AHY	06/14/98 - 07/05/98	9	FS-4	FS-4	B	
1631-08867	M	AHY	06/14/98 - 06/25/98	4	FS-4	FS-4	U	
1631-08894	M	ASY	07/05/98	1	FS-4	FS-4	U	
1631-08895	M	ASY	07/05/98	1	FS-4	FS-4	U	
1631-08845	M	SY	06/15/98	1	FS-4	SDR	U	SDR: LSD-1 (6/5/98)

Age legend: **ASY**= After second year, **SY**= Second year, **AHY**= After hatch year.
Banding and recovery locations: **FS**= Forest Service traps 1 thru 4, **SLR-VB** = San Luis Rey River-Verboom Dairy (Approx. 2.5 mi. east of I-15). **SDR-LSD**= San Diego River-Lakeside Dairy (Approx. 4 mi. east of Lakeside).

Twenty-one of the 24 recaptured males were caught in trap number 4, including 13 of the 16 males which were classified as breeding residents. Breeding male captures within the remaining traps included six males in trap number –1, and five males in both traps –2 and 3 (Table 4).

Table 4. Total banded male and breeding male recapture numbers and location.

TRAP No.	Total Number Males Banded	Total Number Male Recaptured	Number Breeding Males Banded	Number Breeding Males Recaptured
1	7	9	5	6
2	3	7	1	5
3	1	5	1	5
4	19	21	9	13
Totals	30		16	

Recapture locations within the project area for banded males which were classified as breeding residents included 1 male which was recaptured in all 4 of the traps, 3 males which were recaptured in 3 of 4 traps, 4 males in 2 of 4 traps, and 8 males which were recaptured in only 1 trap. Four of the sixteen breeding resident males were captured in both traps 1 and 4, which indicated minimum breeding season movement within the project area of 1.8 miles (2.9 km).

Banding and recapture locations outside of the project area included 4 of 31 or 13% of the total males captured during the 1998 season. Three males which were banded within the project area were later recaptured at cowbird traps located at 2 different locations within San Diego County, including 2 males at the Verboom Dairy which is located along the San Luis Rey River approximately 2.5 miles east of Interstate 15, and 1 male at a dairy which is located approximately 4 miles east of Lakeside, San Diego County. The fourth male was a bird which was originally banded at the Lakeside dairy trap on June 5th and subsequently recaptured at trap-4 on June 15th. Breeding status of these males within the project area included 1 male which was classified as a breeding resident and 3 males with undertermined breeding status. Distance from the project area to the Lakeside dairy trap is 27 miles (43 km), and to the Verboom Dairy is 21 miles (34 km).

Discussion

The total number of cowbirds captured during the 1998 season remained relatively stable in comparison with the past 2 years, however because of inconsistent trapping periods and the number of traps operated from year to year, it is not possible to determine any cowbird population trends within the project area from trapping project results. Trap number 4 was the most successful trap and accounted for over 60 percent of the total captures. Located at the eastern end of the project area, immediatedly downstream of the Lake Henshaw dam, this trap may have been successful due to its interception of cowbirds as they travelled from foraging locations to breeding areas along the river. Cowbirds typically forage and breed in separate areas, Preferring to feed in open grasslands or disturbed areas, particularly where livestock are located such as dairies, feedlots, pastures, livestock pens, and horse stables. They will then disperse to

surrounding habitat areas which provide suitable host species to parasitize. Restricted to a narrow river valley and surrounded by relatively undisturbed chapparal and oak woodland habitat, cowbird foraging locations appear to be highly limited within the immediate project area. In contrast, the areas surrounding Henshaw Reservoir, particularly to the east, are well suited for cowbird occupation due to habitat conditions and intensive cattle grazing. In addition to the high percentage of captures in trap-4, both banded and unbanded cowbirds were observed at 3 different locations near the reservoir dam and along highway 76 between the reservoir and highway 79. On 5 different occasions cowbirds (including banded individuals) were observed foraging at a small livestock corral located just southeast of the reservoir dam. Cowbirds were also observed foraging among cattle which were grazing along highway 76 approximately 1.0 mile east of the boat launch area, and a limited number of cowbirds were observed perched on powerlines across the street from the Henshaw Restaurant.

Acknowledgements

In appreciation of their help on the project, we would like to thank USFS Palomar District Biologist Sharon McKelvey for her assistance in project logistics, and Forest Service personnel Stan Calhoun and Jose Cervantes for their assistance in transporting traps.

References Cited

Mayfield, H.F. 1977. Brown-headed Cowbird: agent of extermination? Am. Birds 31:107-113.

Rothstein, R.I. 1994. The Cowbirds Invasion of the Far West: History, Causes and Consequences Experienced by Host Species. Studies in Avian Biology, No. 15. Cooper Ornithological Society 1994.

Unitt, Philip. 1984. The birds of San Diego County. Memoir 13. San Diego Society of Natural History, San Diego, California. 231 pp.

USFS 1997. Cowbird trapping results for the San Luis Rey River from 1992 to 1997. Cleveland National Forest , San Diego, CA.

Willett, G. 1933. A revised list of the birds of southwestern California. Pacific Coast Avifauna No. 21.