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MEMORANDUM

Submitted To: Humboldt County Resource Conservation District

Submitted By: Sean E. McAllister

Date: September 3, 2013

RE: Avian Point Count Survey for Salt River Ecosystem Restoration

Project – Phase 2

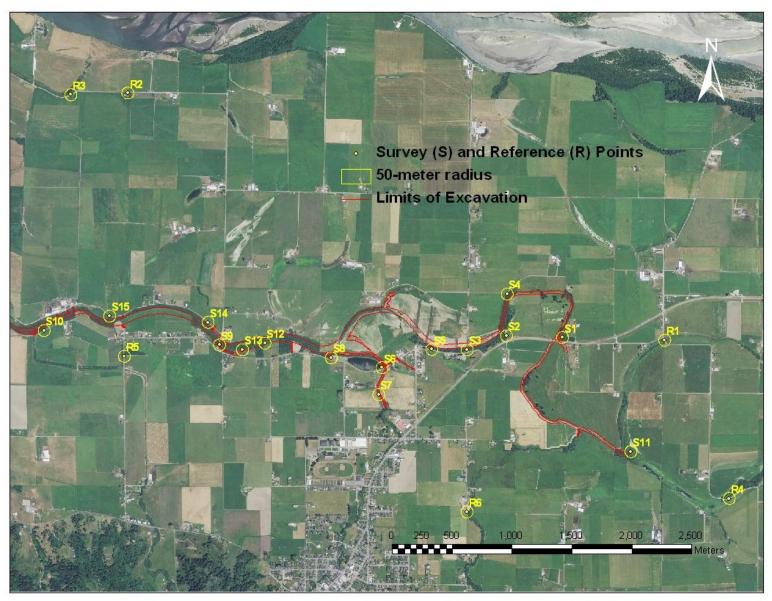
INTRODUCTION

Pre-construction avian point count surveys designed to document baseline conditions were outlined in the Salt River Ecosystem Restoration Project Habitat Mitigation and Monitoring Plan completed by H.T. Harvey & Associates and Winzler & Kelly in 2011, for Humboldt County Resource Conservation District. The restoration project is divided into two phases. Avian surveys associated with Phase-I of the project were completed in 2011 and 2012 and construction activities associated with that phase are currently underway. The survey effort reported herein is associated with Phase-II of the project which has construction activities scheduled for 2013-2014. All surveys were performed by Sean E. McAllister who has more than twenty years of experience with bird studies in the region, especially the Eel River delta.

SURVEY AREA

The survey area is primarily involved with a 6-km stretch of riparian habitat along the Salt River and associated tributaries, which lie within the greater Eel River delta, near the town of Ferndale, California. The habitat during the survey period was primarily composed of willow (*Salix sp.*) and red alder (*Alnus rubra*) with a suite of mostly native shrubs and forbs, with intermittent exposed water in the stream channels, and is surrounded by actively managed agricultural grasslands and associated rural residential homes. The majority of the survey points are located along Port Kenyon Road, which runs parallel to the Salt River from its intersection with Highway 211, downstream (west) to its confluence with Reas Creek. Additional survey points are located along Camp Weott Road and Morgan Slough, Riverside Road, Coffee Creek, Francis Creek and Williams Creek.

Map 1. Survey (S) and reference (R) point locations shown with 50m radius buffers and outline of planned excavation.



METHODS

Fifteen survey points were placed in areas that are involved with planned construction activities (riparian habitat removal, stream channel excavation) during the Phase II construction activities, and six additional reference/control points were located in nearby similar habitats but are outside of the project area (see map). Each of the 21 points was surveyed three times -- once in May, once in June, and once in July, 2013, for a total of 63 point counts. All counts occurred within 4 hours after sunrise and each of the three surveys required 3 days to complete. Following the same protocol that was implemented during Phase I, each point count was 15 minutes in duration, during which time all birds seen and heard were identified, counted and recorded as either (1) within 50 meters, (2) outside 50 meters, or (3) fly-over. An effort was made to not double count any birds. In other words, given a reasonable level of certainty, when the same bird or birds were detected at different points on the same survey day they were only recorded on the first point from which they were detected.

Data was primarily analyzed by looking at three factors:

- 1. Species Richness: Total number of species detected over the three surveys
- 2. Relative Abundance: Combined count of all birds detected over the three surveys
- 3. Prevalence: Percentage of all point counts (n=63) for which each species was detected

RESULTS

A combined total of 2,104 individual bird detections were made over the three surveys and were represented by at least 779 individuals of at least 69 different species. Two species, Song Sparrow (*Melospiza melodia*) and American Goldfinch (*Spinus tristis*) were detected at all points during at least one of the three surveys. The most prevalent species overall was the Song Sparrow, detected during 60 of the 63 point counts. The most abundant species was the European Starling (*Sturnus vulgaris*), with 203 combined detections, followed by American Goldfinch (199) and Barn Swallow (*Hirundo rustica*) (182). Ten species were represented by single birds detected only once (Table 1).

Species richness averaged 23.8 (+/- 2.75) species per survey point across all points (range 19-30, Fig. 1) and was nearly the same at survey points as at control points (Fig. 3).

Relative abundance averaged 100 (+/- 21) birds per point across all points (Fig. 2) and was slightly higher at reference points than at survey points (Fig. 3). More birds were detected in May (741) and June (779) than in July (583) (Table 2).

Of the 69 species detected, four (4) are listed as *Species of Special Concern* (SSC) by the California Department of Fish and Wildlife and three (3) are listed as *Threatened* (T) or *Endangered* (E) under the California Endangered Species Act. These seven species are <u>underscored</u> in Table 1, below. Five (5) of the species detected are thought to not associate with the habitats being surveyed, and these are denoted with an asterisk (*).

Table 1. All species detected, listed taxonomically, with relative abundance (total count) and prevalence (percentage of the 63 point counts in which species was detected).

Common Name	Scientific Name	Relative Abundance	Prevalence
1. Canada Goose*	Branta canadensis	18	3%
2. Wood Duck	Aix sponsa	2	2%
3. Mallard	Anas platyrhynchos	26	10%
4. Cinnamon Teal*	Anas cyanoptera	1	2%
5. California Quail	Callipepla californica	2	3%
6. Double-crested Cormorant*	Phalacrocorax auritus	1	2%
7. Great Blue Heron	Ardea herodias	1	2%
8. Great Egret	Ardea alba	7	11%
9. Green Heron	Butorides virescens	4	5%
10. Black-crowned Night-Heron	Nycticorax nycticorax	14	10%
11. Turkey Vulture	Cathartes aura	61	40%
12. White-tailed Kite	Elanus leucurus	2	3%
13. Cooper's Hawk	Accipiter cooperii	2	3%
14. Red-shouldered Hawk	Buteo lineatus	3	5%
15. Red-tailed Hawk	Buteo jamaicensis	7	8%
16. Virginia Rail	Rallus limicola	1	2%
17. American Coot*	Fulica americana	2	3%
18. Killdeer	Charadrius vociferus	1	2%
19. Marbled Murrelet* (E)	Brachyramphus marmoratus	3	2%
20. Band-tailed Pigeon	Patagioenas fasciata	12	2%
21. Eurasian Collared-Dove	Streptopelia decaocto	102	67%
22. Mourning Dove	Zenaida macroura	14	13%
23. Western Yellow-billed Cuckoo (E)	<u>Coccyzus americanus</u> <u>occidentalis</u>	4	6%
24. Anna's Hummingbird	Calypte anna	14	21%
25. Allen's Hummingbird	Selasphorus sasin	5	8%
26. Downy Woodpecker	Picoides pubescens	16	22%
27. Northern Flicker	Colaptes auratus	13	17%
28. Peregrine Falcon	Falco peregrinus	1	2%
29. Western Wood-Pewee	Contopus sordidulus	9	13%
30. Pacific-slope Flycatcher	Empidonax difficilis	32	43%
31. Black Phoebe	Sayornis nigricans	58	67%
32. Ash-throated Flycatcher	Myiarchus cinerascens	3	5%
33. Steller's Jay	Cyanocitta stelleri	1	2%
34. American Crow	Corvus brachyrhynchos	17	17%
35. Common Raven	Corvus corax	52	51%
36. Purple Martin (SSC)	<u>Progne subis</u>	1	2%
37. Tree Swallow	Tachycineta bicolor	84	44%

38. Violet-green Swallow	Tachycineta thalassina	19	11%
39. Northern Rough-winged	Stelgidopteryx serripennis	3	2%
Swallow	n'		
40. Bank Swallow (T)	<u>Riparia riparia</u>	1	2%
41. Cliff Swallow	Petrochelidon pyrrhonota	4	2%
42. Barn Swallow	Hirundo rustica	182	70%
43. Black-capped Chickadee	Poecile atricapillus	68	43%
44. Chestnut-backed Chickadee	Poecile rufescens	21	14%
45. Marsh Wren	Cistothorus palustris	23	16%
46. Wrentit	Chamaea fasciata	9	10%
47. Swainson's Thrush	Catharus ustulatus	61	63%
48. American Robin	Turdus migratorius	25	29%
49. European Starling	Sturnus vulgaris	203	62%
50. Cedar Waxwing	Bombycilla cedrorum	17	3%
51. Orange-crowned Warbler	Oreothlypis celata	2	3%
52. Common Yellowthroat	Geothlypis trichas	5	6%
53. American Redstart	Setophaga ruticilla	1	2%
54. Yellow Warbler (SSC)	<u>Setophaga petechia</u>	49	43%
55. Wilson's Warbler	Cardellina pusilla	5	8%
56. Yellow-breasted Chat (SSC)	<u>Icteria virens</u>	3	3%
57. Bryant's Savannah Sparrow	Passerculus sandwichensis	48	32%
(SSC)	<u>alaudinus</u>	40	32/0
58. Song Sparrow	Melospiza melodia	165	95%
59. White-crowned Sparrow	Zonotrichia leucophrys	42	43%
60. Black-headed Grosbeak	Pheucticus melanocephalus	19	21%
61. Lazuli Bunting	Passerina amoena	2	3%
62. Red-winged Blackbird	Agelaius phoeniceus	22	16%
63. Brewer's Blackbird	Euphagus cyanocephalus	136	51%
64. Brown-headed Cowbird	Molothrus ater	68	59%
65. Bullock's Oriole	Icterus bullockii	11	10%
66. House Finch	Haemorhous mexicanus	38	27%
67. Lesser Goldfinch	Spinus psaltria	19	11%
68. American Goldfinch	Spinus tristis	199	84%
69. House Sparrow	Passer domesticus	30	16%
1			

Figure 1. Species Richness at all Points

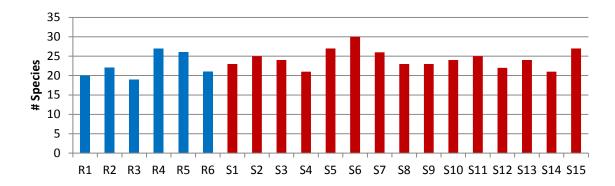


Figure 2. Relative Abundance at all Points

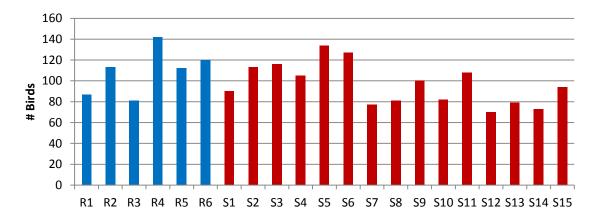


Figure 3. Comparison of Species Richness and Relative Abundance at Reference and Survey Points

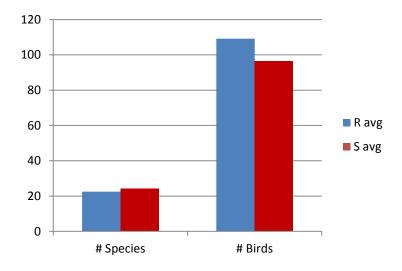


Table 2. Bird abundance by month at all points (shaded cells indicate high counts).

	May	June	July
R1	30	41	16
R2	26	27	60
R3	28	31	22
R4	30	62	50
R5	46	40	26
R6	40	44	35
S1	31	37	22
S2	34	47	32
S3	54	33	29
S4	24	38	43
S5	64	32	38
S6	35	59	33
S7	35	33	10
S8	34	29	18
S9	44	35	21
S10	39	26	17
S11	44	34	30
S13	24	22	24
S14	28	23	28
S15	17	35	21
S16	34	51	9
Totals	741	779	584
# High Counts	10	9	4

DISCUSSION

These data indicate a high level of consistency (low variance) in terms of species richness and relative abundance across all 21 points and between survey points and reference points. A notable decrease in abundance that occurred during the July survey is likely due to many species having completed or nearly completed their breeding activities and consequently departing the area or becoming less conspicuous (i.e., no longer singing or exhibiting other territorial behaviors).

These findings as reported above do not take into consideration variation of detectability among species, nor do they exclude flyovers. If comparison of absolute abundance between species (not the goal of this study) is of interest, then only those detections made within 50m from the observer should be considered, and flyovers should generally be excluded.

Although the focus of these surveys was largely to gather baseline data that characterizes the habitats prior to the onset of construction, one other valuable element of the acquired data is documentation of the distribution of 'sensitive' species, which may require special protection measures if present (nesting) during construction. Special protection measures may also be

required for any nesting raptors. Although nest searches were not conducted as part of this effort, it can be reasonably assumed that certain sensitive species were engaged in breeding activities in close proximity to the survey points at the time of detection. Most notable among these are Yellow Warbler, Yellow-breasted Chat, Yellow-billed Cuckoo and Bryant's Savannah Sparrow. All four of the raptor species detected (Red-tailed Hawk, Red-shouldered Hawk, Cooper's Hawk and White-tailed Kite), were likely breeding somewhere in the general area. Having some knowledge of the abundance and distribution of these species in the study area may prove useful in preparation for construction. For quick reference, these species are highlighted (boldfaced) in Attachment 1, below. Other sensitive species were detected only as they flew overhead, in transit or while foraging, and are not expected to nest in the surveyed habitats.

REFERENCES

- Ralph, C. John; Sauer, John R.; Droege, Sam, technical editors. 1995. Monitoring Bird Populations by Point Counts. Gen. Tech. Rep. PSW-GTR-149. Albany, CA: Pacific Southwest Research Station, Forest Service, US. Department of Agriculture; 187 p
- Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- State of California, The Natural Resources Agency, Department of Fish and Game Biogeographic Data Branch, California Natural Diversity Database, SPECIAL ANIMALS (898 taxa) January 2011.
- Winzler and Kelly. 2011. Avian Protocol and Initial 2011 Survey Report to Support Pre and Post-Construction Monitoring. Submitted to Humboldt County Resource Conservation District. August 26, 2011.

Attachment 1. Individual Point Count Data – Phase II Salt River Restoration Project 2013.

In the following survey accounts, sensitive species that may reasonably be expected to nest within the project area and may therefore require special protection measures are highlighted in boldface font.

Nickname COFFEE CR. BRIDGE

Easting 395857 Northing 4494605

R1	SPECIES	28-May	26-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	Great Egret	1			1			1
2	Black-crowned Night-Heron		1		1			1
3	Turkey Vulture	1			1			1
4	Eurasian Collared-Dove	2	5		7	3	3	1
5	Black Phoebe	2	2	1	5	4	1	
6	Common Raven		1	1	2		1	1
7	Tree Swallow			1	1			1
8	Barn Swallow	4	3	3	10		2	8
9	Black-capped Chickadee		1		1	1		
10	Marsh Wren	1	3	1	5	4	1	
11	Swainson's Thrush		1		1		1	
12	American Robin	1			1	1		
13	European Starling	9	4	4	17	3	8	6
14	Wilson's Warbler			1	1	1		
15	Bryant's Savannah Sparrow		1		1	1		
16	Song Sparrow	3	6	3	12	8	4	
17	Red-winged Blackbird	4			4	4		
18	Brown-headed Cowbird	2	10	1	13	10		3
19	American Goldfinch		2		2	1	1	
20	House Sparrow		1		1		1	
	TOTALS	30	41	16	87	41	23	23

Nickname CAMP WEOTT SATELLITE PATCH

Easting 391374

Northing 4496668

D2	CDECIEC	20 May	27 1	17 1	TOTAL	4F0m	> F0:==	- Flyensen
R2	SPECIES	29-May	27-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	Canada Goose			17	17			17
2	Eurasian Collared-Dove			1	1		1	
3	Mourning Dove	2	1	4	7	2	0	5
4	Downy Woodpecker			1	1	1		
5	Black Phoebe			1	1		1	
6	Common Raven	1			1		1	
7	Bank Swallow			1	1			1
8	Cliff Swallow	4			4			4
9	Barn Swallow			4	4			4
10	Black-capped Chickadee	2	6	1	9	9		
11	Swainson's Thrush		2		2	1	1	
12	American Robin	2			2	1	1	
13	European Starling			21	21			21
14	Yellow Warbler	1		1	2	2		
15	Wilson's Warbler		1		1	1		
16	Yellow-breasted Chat		1		1	1		
17	Bryant's Savannah Sparrow	4	2		6	2	4	
18	Song Sparrow	2	3	3	8	5	3	
19	White-crowned Sparrow	1			1	1		
20	Brewer's Blackbird	3	4	4	11			11
21	House Finch		3		3	3		
22	American Goldfinch	4	4	1	9	6	1	2
	TOTALS	26	27	60	113	35	13	65

Nickname MORGAN SLOUGH

Easting 390900 Northing 4496654

R3	SPECIES	29-May	27-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	Double-crested Cormorant			1	1			1
2	Black-crowned Night-Heron		1		1			1
3	Marbled Murrelet			3	3			3
4	Eurasian Collared-Dove			1	1		1	
5	Mourning Dove	2	1		3		2	1
6	Anna's Hummingbird	1			1	1		
7	Allen's Hummingbird		1		1	1		
8	American Crow			3	3		3	
9	Tree Swallow		7		7			7
-	Unidentified Swallow			4	4			4
10	Marsh Wren	4	3	2	9	7	2	
11	Swainson's Thrush	1	1	1	3	2	1	
12	European Starling			1	1			1
13	Bryant's Savannah Sparrow	4	5	2	11	9	2	
14	Song Sparrow	2	2	2	6	5	1	
15	White-crowned Sparrow	3	1	1	5	2	3	
16	Brewer's Blackbird		8		8	1		7
17	Brown-headed Cowbird	2		1	3	1		2
18	House Finch	4			4		4	
19	American Goldfinch	5	1		6	3	2	1
	TOTALS	28	31	22	81	32	21	28

Nickname COFFEE CREEK

Easting 396396

Northing 4493284

R4	SPECIES	30-May	26-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	Mallard	1	8	6	15	9	5	1
2	Great Blue Heron	1			1		1	
3	Great Egret	1			1		1	
4	Green Heron	1			1	1		
5	Black-crowned Night-Heron	1	8	2	11	11		
6	Turkey Vulture	2		7	9		6	3
7	Red-shouldered Hawk	1		1	2	2		
8	Virginia Rail	1			1	1		
9	American Coot			1	1	1		
10	Eurasian Collared-Dove	3	3	5	11	2	7	2
11	Downy Woodpecker	1	2		3	2	1	
12	Pacific-slope Flycatcher			1	1	1		
13	Black Phoebe	1	1	1	3	1	2	
14	Common Raven	1	5	1	7	1	3	3
15	Tree Swallow	7	2	4	13	1	4	8
16	Barn Swallow	2	5	8	15			15
17	Black-capped Chickadee	1		2	3	3		
18	Chestnut-backed Chickadee		1		1	1		
19	Marsh Wren	3	2	2	7	6	1	
20	Swainson's Thrush		1		1		1	
21	American Robin		1		1		1	
22	European Starling		1	1	2	1	1	
23	Yellow Warbler		2		2	1	1	
24	Song Sparrow	1	6	4	11	7	4	
25	Brewer's Blackbird		14	1	15	1	9	5
26	Brown-headed Cowbird	1		1	2	2		
27	American Goldfinch			2	2		2	
	TOTALS	30	62	50	142	55	50	37

Nickname MERIDIAN Easting 391346 Northing 4494471

R5	SPECIES	30-May	27-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	California Quail		1		1		1	
2	Turkey Vulture	1			1			1
3	Eurasian Collared-Dove	2		1	3		3	
4	Anna's Hummingbird		1		1	1		
5	Allen's Hummingbird	1			1	1		
6	Western Wood-Pewee		1		1	1		
7	Pacific-slope Flycatcher	1	2	1	4	4		
8	Black Phoebe	1	1	1	3	3		
9	Common Raven	1			1			1
10	Tree Swallow	2		3	5	1		4
11	Barn Swallow	2	1	12	15		8	7
12	Black-capped Chickadee	1	8	2	11	9	2	
13	Chestnut-backed Chickadee		2		2	2		
14	Swainson's Thrush	1	2	1	4	3	1	
15	American Robin		1		1		1	
16	European Starling		6	1	7	1	5	1
17	Yellow Warbler	1	3		4	4		
18	Bryant's Savannah Sparrow	1		1	2		2	
19	Song Sparrow	2	1	1	4	3	1	
20	White-crowned Sparrow	4	3	2	9	5	4	
21	Black-headed Grosbeak		1		1	1		
22	Brewer's Blackbird	4	3		7	5	2	
23	Brown-headed Cowbird	2	3		5	2	3	
24	House Finch	1			1	1		
25	American Goldfinch	9	4	4	17	10	4	3
26	House Sparrow	1			1		1	
	TOTALS	38	44	30	112	57	38	17

Nickname AMBROSINI

Easting 394206

Northing 4493172

R6	SPECIES	30-May	27-Jun	18-Jul	TOTAL	<50m	>50m	Flyover
1	Turkey Vulture	1		1	2			2
2	Eurasian Collared-Dove	1		2	3		3	
3	Anna's Hummingbird	1		2	3	3		
4	Unidentified Selasphorus Hummingbird			1	1	1		
5	Downy Woodpecker			1	1	1		
6	Pacific-slope Flycatcher	1		1	2	2		
7	Black Phoebe	1	3	2	6	3	3	
8	American Crow	1		1	2		2	
9	Common Raven			1	1			1
10	Tree Swallow	3			3	1		2
11	Violet-green Swallow	3	2		5	1	2	2
12	Barn Swallow	1	5	5	11		5	6
13	Swainson's Thrush		1	1	2	1	1	
14	European Starling	4	14	3	21	7	12	2
15	Bryant's Savannah Sparrow	3	5		8	5	3	
16	Song Sparrow	2	4	2	8	3	5	
17	White-crowned Sparrow	1	1		2		2	
18	Brewer's Blackbird	2		9	11	10		1
19	Lesser Goldfinch	1			1	1		
20	American Goldfinch	6	1	3	10	4	4	2
21	House Sparrow	9	8		17	9	8	
	TOTALS	41	44	35	120	52	50	18

Nickname BLUE WING Easting 395003 Northing 4494627

S1	SPECIES	28-May	26-Jun	16-Jul	TOTAL	<50m	>50m	Flyover
1	Turkey Vulture			1	1			1
2	Red-tailed Hawk		2	1	3		3	
3	Eurasian Collared-Dove	2	2	1	5		4	1
4	Anna's Hummingbird	1			1	1		
5	Allen's Hummingbird		1		1	1		
6	Northern Flicker	1		1	2	1	1	
7	Western Wood-Pewee	1	1	1	3	2	1	
8	Black Phoebe	2	3	1	6	4	2	
9	Common Raven	1	3	2	6	1	2	3
10	Tree Swallow	4	3	1	8	2		6
11	Black-capped Chickadee			1	1	1		
12	Chestnut-backed Chickadee	3			3	3		
13	Swainson's Thrush	2	1		3	2	1	
14	American Robin	2			2	1	1	
15	European Starling		2		2	2		
16	Yellow Warbler	3	2	2	7	6	1	
17	Bryant's Savannah Sparrow		2		2		2	
18	Song Sparrow	1	1	3	5	4	1	
19	Brewer's Blackbird	1	10	2	13	5	2	6
20	Brown-headed Cowbird	2		1	3	2	1	
21	Bullock's Oriole		1		1	1		
22	Lesser Goldfinch	4			4	4		
23	American Goldfinch	1	3	4	8	4		4
	TOTALS	31	37	22	90	47	22	21

Nickname SCALVINI Easting 394536 Northing 4494642

S2	SPECIES	28-May	26-Jun	16-Jul	TOTAL	<50m	>50m	Flyover
1	Turkey Vulture		1	1	2			2
2	Red-tailed Hawk		1		1		1	
3	Eurasian Collared-Dove	2	1	1	4		4	
4	Mourning Dove	1			1			1
5	Anna's Hummingbird	1		1	2	2		
6	Downy Woodpecker	1		1	2	2		
7	Northern Flicker	2			2	1	1	
8	Western Wood-Pewee			1	1		1	
9	Pacific-slope Flycatcher	1		1	2	1	1	
10	Black Phoebe			1	1		1	
11	Steller's Jay		1		1	1		
12	Common Raven	2			2		2	
13	Tree Swallow	1	8		9	1		8
14	Barn Swallow		3	5	8			8
15	Swainson's Thrush	2	1	1	4	4		
16	American Robin	1	1	1	3	3		
17	European Starling		1	1	2			2
18	Common Yellowthroat		1		1	1		
19	Yellow Warbler	4	2	2	8	5	2	1
20	Yellow-breasted Chat		2		2	2		
21	Song Sparrow	1		3	4	3	1	
22	Black-headed Grosbeak	2			2	2		
23	Brewer's Blackbird	2	19		21	2	19	
24	Brown-headed Cowbird	1	3	1	5	3	2	
25	American Goldfinch	10	2	11	23	13	3	7
	TOTALS	34	47	32	113	46	38	29

Nickname FULMOR BRIDGE

Easting 394208

Northing 4494526

S3	SPECIES	28-May	26-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	Turkey Vulture		1	1	2			2
2	White-tailed Kite		1		1		1	
3	Eurasian Collared-Dove	12	3	8	23	16	3	4
4	Downy Woodpecker		1		1	1		
5	Northern Flicker	1			1		1	
6	Black Phoebe	1	1	2	4	4		
7	Common Raven	5		3	8	3	3	2
8	Tree Swallow	1	2		3			3
9	Barn Swallow			6	6	3		3
10	Black-capped Chickadee		3		3	3		
11	Marsh Wren		2		2	2		
12	Swainson's Thrush	2		1	3	2	1	
13	American Robin			1	1	1		
14	European Starling	16			16	3	12	1
15	Common Yellowthroat		2	1	3	2	1	
16	Yellow Warbler	2	3		5	5		
17	Song Sparrow		3	2	5	4	1	
18	White-crowned Sparrow			1	1		1	
19	Black-headed Grosbeak	1	1		2		2	
20	Red-winged Blackbird	5	1		6	1	5	
21	Brewer's Blackbird	4	3		7	4	2	1
22	Brown-headed Cowbird		2		2	2		
23	House Finch	2	2	1	5	5		
24	American Goldfinch	2	2	2	6	6		
	TOTALS	54	33	29	116	67	33	16

Nickname AGGLER
Easting 394542
Northing 4494990

S4	SPECIES	28-May	26-Jun	16-Jul	TOTAL	<50m	>50m	Flyover
1	White-tailed Kite		1		1		1	
2	Red-tailed Hawk			2	2		1	1
3	Eurasian Collared-Dove	3		2	5	2	3	
4	Northern Flicker	2	1	1	4	2	2	
5	Western Wood-Pewee		1	2	3	1	2	
6	Pacific-slope Flycatcher	1			1	1		
7	Black Phoebe	1	2	3	6	4	2	
8	Common Raven	1	1		2		1	1
9	Tree Swallow	2	3	11	16		4	12
10	Violet-green Swallow		7	3	10	2		8
11	Barn Swallow		6	5	11			11
12	Black-capped Chickadee	1	1		2	1	1	
13	Swainson's Thrush		1	1	2	2		
14	European Starling	2	2	1	5			5
15	Yellow Warbler	3	2	1	6	4	2	
16	Song Sparrow	2	3	4	9	7	2	
17	Black-headed Grosbeak	2			2	1	1	
18	Red-winged Blackbird		1		1		1	
19	Brown-headed Cowbird	2		1	3	2	1	
20	American Goldfinch	2	6	5	13	7	2	4
21	House Sparrow			1	1		1	
	TOTALS	24	38	43	105	36	27	42

Nickname ARLYNDA BRIDGE

Easting 393913

Northing 4494528

S5	SPECIES	28-May	26-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	Turkey Vulture		1		1			1
2	Eurasian Collared-Dove	6	2	3	11	6	5	
3	Anna's Hummingbird			1	1	1		
4	Downy Woodpecker		1		1	1		
5	Northern Flicker			1	1	1		
6	Western Wood-Pewee			1	1		1	
7	Pacific-slope Flycatcher	1	1		2	2		
8	Black Phoebe	2	1	1	4	3	1	
9	Common Raven	1			1			1
10	Tree Swallow	2			2			2
11	Barn Swallow	12	2	8	22	6		16
12	Swainson's Thrush	1			1	1		
13	American Robin		1	2	3	2	1	
14	European Starling	5	2		7		1	6
15	Cedar Waxwing	16	1		17	1		16
16	Yellow Warbler	4	1		5	4	1	
17	Wilson's Warbler	1			1	1		
18	Song Sparrow	1	3	4	8	6	2	
19	Black-headed Grosbeak		1		1	1		
20	Red-winged Blackbird	2			2		2	
21	Brewer's Blackbird	1	9		10	1		9
22	Brown-headed Cowbird	2			2	1	1	
23	Bullock's Oriole			5	5	5		
24	House Finch	3	1	6	10	8	2	
25	Lesser Goldfinch		4		4	4		
26	American Goldfinch	4	1	1	6	2	1	3
27	House Sparrow			5	5	5		
	TOTALS	64	32	38	134	62	18	54

Nickname WASTE WATER EAST

Easting 393498

Northing 4494376

S6	SPECIES	28-May	27-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	Canada Goose	1			1		1	
2	Wood Duck	2			2		2	
3	Mallard			7	7		7	
4	Cinnamon Teal	1			1		1	
5	Great Egret		1	1	2	1		1
6	Green Heron		1		1	1		
7	Turkey Vulture		3	1	4			4
8	Eurasian Collared-Dove	2		1	3	1	2	
9	Black Phoebe	2	1	1	4	2	2	
10	Ash-throated Flycatcher	1			1		1	
11	Common Raven	1	1	1	3		2	1
12	Violet-green Swallow	1	1		2	2		
13	Northern Rough-winged Swallow			3	3	3		
14	Barn Swallow	2	23	4	29	3	3	23
15	Black-capped Chickadee			3	3	3		
16	Chestnut-backed Chickadee		3		3	3		
17	European Starling	3	10		13	10	1	2
18	Yellow Warbler	1			1		1	
19	Bryant's Savannah Sparrow		1		1		1	
20	Song Sparrow	3	3	4	10	6	4	
21	White-crowned Sparrow		3	3	6	5	1	
22	Black-headed Grosbeak		1		1	1		
23	Lazuli Bunting	1			1		1	
24	Red-winged Blackbird	2			2		2	
25	Brewer's Blackbird		1		1		1	
26	Brown-headed Cowbird	1	1	1	3	2	1	
27	House Finch	4	3	2	9	9		
28	Lesser Goldfinch			1	1	1		
29	American Goldfinch	5	1		6	4		2
30	House Sparrow	2	1		3	2	1	
	TOTALS	35	59	33	127	59	35	33

Nickname SOUSA Easting 393469 Northing 4494151

S7	SPECIES	28-May	27-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	Great Egret		1		1	1		
2	Turkey Vulture	1			1			1
3	Cooper's Hawk	1			1			1
4	Eurasian Collared-Dove	2	1	1	4		4	
5	Mourning Dove			1	1	1		
6	Northern Flicker	1			1		1	
7	Pacific-slope Flycatcher			1	1		1	
8	Black Phoebe		1	1	2		2	
9	Ash-throated Flycatcher		1		1		1	
10	American Crow		2		2		2	
11	Common Raven	1			1			1
12	Tree Swallow	2	2		4			4
13	Barn Swallow	2	4		6			6
14	Black-capped Chickadee		1		1		1	
15	Chestnut-backed Chickadee	2	2		4		4	
16	Swainson's Thrush	1	1		2		2	
17	European Starling		7		7		7	
18	Yellow Warbler		1		1		1	
19	Bryant's Savannah Sparrow	8	2	1	11	7	4	
20	Song Sparrow	3	3	2	8	6	2	
21	White-crowned Sparrow	1	1		2		2	
22	Black-headed Grosbeak		1		1		1	
23	Red-winged Blackbird	2			2		2	
24	Brown-headed Cowbird	2		1	3	1	2	
25	Lesser Goldfinch	4			4	2	2	
26	American Goldfinch	2	2	1	5	1		4
	TOTALS	35	33	9	77	19	41	17

Nickname WASTE WATER WEST

Easting 393073

Northing 4494458

S8	SPECIES	29-May	27-Jun	18-Jul	TOTAL	<50m	>50m	Flyover
1	Mallard	2			2		1	1
2	Green Heron	2			2	2		
3	Black-crowned Night-Heron	1			1			1
4	Eurasian Collared-Dove	1	2	4	7	3	4	
5	Western Yellow-billed Cuckoo			1	1		1	
6	Anna's Hummingbird		1		1	1		
7	Pacific-slope Flycatcher	1	1	1	3	3		
8	Black Phoebe	1	1		2	2		
9	American Crow	1			1		1	
10	Common Raven	1	1		2			2
11	Barn Swallow	2			2			2
12	Black-capped Chickadee	1			1	1		
13	Swainson's Thrush	1		1	2	2		
14	European Starling	4	1		5	1	2	2
15	Bryant's Savannah Sparrow	1			1		1	
16	Song Sparrow	2	4	2	8	5	3	
17	White-crowned Sparrow	1			1	1		
18	Red-winged Blackbird	2	2		4		4	
19	Brewer's Blackbird	2	11		13	12		1
20	Brown-headed Cowbird	2	1	1	4	4		
21	Bullock's Oriole		1	2	3	3		
22	Lesser Goldfinch	3			3		1	2
23	American Goldfinch	3	3	6	12	5	4	3
	TOTALS	34	29	18	81	45	22	14

Nickname DILLON BRIDGE

Easting 392140

Northing 4494565

		29-						
S9	SPECIES	May	27-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	California Quail	1			1		1	
2	Turkey Vulture	1			1			1
3	Eurasian Collared-Dove	1	1		2		2	
4	Western Yellow-billed Cuckoo			1	1		1	
5	Anna's Hummingbird	1			1	1		
6	Downy Woodpecker	2			2	2		
7	Pacific-slope Flycatcher	1	1		2	2		
8	Black Phoebe	3	1	1	5	3	2	
9	American Crow		1		1		1	
10	Tree Swallow	1	3		4	3		1
11	Barn Swallow		2	2	4		1	3
12	Black-capped Chickadee		2	1	3	2	1	
13	Wrentit		1		1	1		
14	Swainson's Thrush	1	3	1	5	4	1	
15	American Robin	1			1	1		
16	European Starling	18	6	1	25	3	8	14
17	Song Sparrow	2	3	3	8	5	3	
18	White-crowned Sparrow	2	2		4	2	2	
19	Brewer's Blackbird		3	1	4	2	2	
20	Brown-headed Cowbird	1			1	1		
21	House Finch		2		2	2		
22	American Goldfinch	8	4	9	21	12	1	8
23	House Sparrow			1	1		1	
	TOTALS	44	35	21	100	46	27	27

Nickname REAS CREEK Easting 390676 Northing 4494685

S10	SPECIES	30-May	27-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	Great Egret			1	1			1
2	Eurasian Collared-Dove	1			1		1	
3	Anna's Hummingbird	1			1	1		
4	Allen's Hummingbird	1			1	1		
5	Downy Woodpecker	1			1	1		
6	Pacific-slope Flycatcher		1	1	2	1	1	
7	Black Phoebe	1			1	1		
8	Common Raven	1		1	2		2	
9	Barn Swallow	2	2	1	5	1		4
10	Black-capped Chickadee	1	7		8	2	6	
11	Wrentit	3	2	1	6	3	3	
12	Swainson's Thrush	1	3	3	7	3	4	
13	American Robin	2			2	1	1	
14	American Redstart		1		1		1	
15	Yellow Warbler	1			1		1	
16	Bryant's Savannah Sparrow	1			1		1	
17	Song Sparrow	5	4	5	14	8	6	
18	White-crowned Sparrow		1	1	2		2	
19	Black-headed Grosbeak	2	1		3	2	1	
20	Brewer's Blackbird	2	2		4	2	2	
21	Brown-headed Cowbird	8	1		9	1	2	6
22	Bullock's Oriole	1			1	1		
23	American Goldfinch	4	1	2	7	3		4
24	House Sparrow			1	1	1		
	TOTALS	39	26	17	82	33	34	15

Map Label S11
Nickname KELLY
Easting 395575
Northing 4493676

S11	SPECIES	30-May	26-Jun	18-Jul	TOTAL	<50m	>50m	Flyover
1	Mallard	2			2		2	
2	Turkey Vulture	1	10	9	20	16	2	2
3	Red-tailed Hawk		1		1	1		
4	American Coot	1			1		1	
5	Killdeer			1	1		1	
6	Band-tailed Pigeon	12			12	10		2
7	Eurasian Collared-Dove	1		3	4		3	1
8	Peregrine Falcon	1			1	1		
9	Black Phoebe	1			1	1		
10	Ash-throated Flycatcher	1			1		1	
11	Common Raven		2	1	3		2	1
12	Tree Swallow	2			2			2
13	Barn Swallow	2	4	4	10		3	7
14	Black-capped Chickadee		3	2	5	3	2	
15	European Starling	5		2	7	5	2	
16	Orange-crowned Warbler			1	1	1		
17	Yellow Warbler	2			2	1	1	
18	Bryant's Savannah Sparrow	2			2	1	1	
19	Song Sparrow	3	4	2	9	6	3	
20	Black-headed Grosbeak			1	1	1		
21	Red-winged Blackbird	1			1		1	
22	Brewer's Blackbird	2	1	1	4	3		1
23	Brown-headed Cowbird	1	2		3	2	1	
24	Lesser Goldfinch		2		2		2	
25	American Goldfinch	4	5	3	12	4	2	6
	TOTALS	44	34	30	108	56	30	22

Map Label S12
Nickname MICHEL
Easting 392519
Northing 4494581

S12	SPECIES	30-May	27-Jun	18-Jul	TOTAL	<50m	>50m	Flyover
1	Turkey Vulture	1			1			1
2	Eurasian Collared-Dove		1	2	3		3	
3	Western Yellow-billed Cuckoo			1	1		1	
4	Downy Woodpecker			1	1	1		
5	Northern Flicker			1	1		1	
6	Pacific-slope Flycatcher	2			2	1	1	
7	Black Phoebe			1	1		1	
8	American Crow	1	3		4	2	2	
9	Common Raven	2		1	3		1	2
10	Tree Swallow	1			1		1	
11	Barn Swallow	2	2	1	5		1	4
12	Black-capped Chickadee	2	4	7	13	7	6	
13	Chestnut-backed Chickadee		2	4	6	2	4	
14	Swainson's Thrush	3	1		4	2	2	
15	European Starling	1			1		1	
16	Wilson's Warbler	1		1	2	2		
17	Song Sparrow	2	4	2	8	3	5	
18	White-crowned Sparrow	1	1		2		2	
19	Black-headed Grosbeak		3		3	2	1	
20	Brown-headed Cowbird	1		1	2		2	
21	House Finch		1	1	2		2	
22	American Goldfinch	4			4	2	2	
	TOTALS	24	22	24	70	24	39	7

Nickname LORENSEN Easting 392332 Northing 4494526

S13	SPECIES	30-May	27-Jun	18-Jul	TOTAL	<50m	>50m	Flyover
1	Turkey Vulture	1		3	4		1	3
2	Red-shouldered Hawk		1		1		1	
3	Anna's Hummingbird	1	1		2	1		1
4	Unidentified Selasphorus Hummingbird		2		2	2		
5	Downy Woodpecker	1		1	2		1	1
6	Pacific-slope Flycatcher	1	1	1	3	1	2	
7	Black Phoebe		1		1		1	
8	American Crow	1	2		3		3	
9	Common Raven	2			2			2
10	Purple Martin	1			1			1
11	Tree Swallow	1		4	5	1		4
12	Violet-green Swallow			2	2			2
13	Barn Swallow			9	9			9
14	Swainson's Thrush	1	1		2	1	1	
15	American Robin		1		1		1	
16	European Starling	2	2	1	5	1		4
17	Yellow Warbler	2			2	1	1	
18	Song Sparrow	5	4	2	11	7	4	
19	White-crowned Sparrow	1	1	1	3	1	2	
20	Brewer's Blackbird		2		2			2
21	Brown-headed Cowbird	1	1		2		1	1
22	Bullock's Oriole	1			1	1		
23	House Finch			1	1			1
24	American Goldfinch	6	3	3	12	6	2	4
	TOTALS	28	23	28	79	23	21	35

Nickname RIVERSIDE I
Easting 392046
Northing 4494754

S14	SPECIES	30-May	27-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	Turkey Vulture	1			1			1
2	Eurasian Collared-Dove			1	1		1	
3	Western Yellow-billed Cuckoo			1	1	1		
4	Unidentified Hummingbird	1			1			1
5	Downy Woodpecker			1	1	1		
6	Pacific-slope Flycatcher	1		1	2	2		
7	American Crow	1			1		1	
8	Common Raven			4	4	1		3
9	Tree Swallow		1		1			1
10	Barn Swallow	2	3		5			5
11	Black-capped Chickadee			2	2	2		
12	Wrentit	1			1	1		
13	Swainson's Thrush	3	4		7	3	4	
14	American Robin		1		1		1	
15	European Starling		15	4	19	1	1	17
16	Yellow Warbler	1			1	1		
17	Song Sparrow	1	1		2	1	1	
18	White-crowned Sparrow	1	2	1	4	1	3	
19	Brown-headed Cowbird		2		2		1	1
20	House Finch		1		1		1	
21	American Goldfinch	4	5	6	15	6	2	7
	TOTALS	17	35	21	73	21	16	36

Nickname RIVERSIDE II

Easting 391223

Northing 4494806

S15	SPECIES	30-May	27-Jun	17-Jul	TOTAL	<50m	>50m	Flyover
1	Great Egret	1			1			1
2	Turkey Vulture	8	2		10			10
3	Cooper's Hawk	1			1		1	
4	Eurasian Collared-Dove			3	3			3
5	Mourning Dove	2			2			2
6	Allen's Hummingbird	1			1	1		
7	Northern Flicker	1			1	1		
8	Pacific-slope Flycatcher	2	3		5	2	3	
9	Black Phoebe	1		1	2	2		
10	Common Raven		1		1		1	
11	Barn Swallow	1	3	1	5	1		4
12	Black-capped Chickadee		2		2	1	1	
13	Chestnut-backed Chickadee		2		2		2	
14	Wrentit		1		1		1	
15	Swainson's Thrush	2	3	1	6	4	2	
16	American Robin	2	3	1	6	2	4	
17	European Starling	1	19		20	19		1
18	Orange-crowned Warbler		1		1	1		
19	Common Yellowthroat			1	1	1		
20	Yellow Warbler	1	1		2	1	1	
21	Bryant's Savannah Sparrow	1	1		2		2	
22	Song Sparrow	4	2	1	7	4	3	
23	Black-headed Grosbeak		2		2	1	1	
24	Lazuli Bunting		1		1		1	
25	Brewer's Blackbird	1	4		5	4		1
26	Brown-headed Cowbird	1			1	1		
27	American Goldfinch	3			3	1		2
	TOTALS	34	51	9	94	47	23	24