

Hedrick Ranch Nature Area Bird Survey Report 2010

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Compiled by

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Introduction

The Hedrick Ranch Nature Area (HRNA) is a 220-acre reserve located on the south side of the Santa Clara River near Santa Paula, California. The parcel, formerly part of the Valley View Ranch, is now owned by the State Coastal Conservancy and the Friends of the Santa Clara River. HRNA was the first acquisition under the Santa Clara River Parkway Project, a program begun several years ago by the State Coastal Conservancy with the goal of eventually creating a 6,000-acre protected riparian corridor extending from Fillmore to the ocean (Worden 2009).

One of the stated goals of the HRNA is to restore native riparian and grassland vegetation occurring on the property to increase the complexity of habitat available for wildlife. Restored vegetation has already led to a wide variety of wildlife species using the property, including more than 150 bird species (Worden 2009). At least two federally listed bird species, the Southwestern Willow Flycatcher (*Empidonax traillii extimus*) and the Least Bell's Vireo (*Vireo bellii pusillus*) also have been recorded nesting on the property. Formal surveys for Least Bell's Vireo and Southwestern Willow Flycatcher have been conducted annually by Biologist Jim Greaves, and he and other observers have also conducted informal surveys for other bird species.

In the spring and summer of 2010, the Western Foundation of Vertebrate Zoology (WVZ) conducted standardized surveys for all bird species (including federally-listed species) migrating through and breeding on the HRNA to set a baseline for monitoring changes in their diversity and abundance as restoration proceeds on the property. This information will likely prove extremely useful for the HRNA in its continued work to secure funding to maintain the reserve, and also has scientific value because it will serve as a formal, publishable, record of bird species response to vegetation restoration on the Santa Clara River. The River is extremely significant both ecologically and managerially: it is one of only two natural river systems remaining in Southern California, and it has been considered one of the most endangered rivers in the U.S. (Friends of the Santa Clara River 2010).

Methodology

Fifteen permanent point count stations were established within the boundary of the HRNA. All stations were separated by a minimum of 250m, to maximize independence of data (Ralph et al. 1996). All stations were marked with pink flagging tape and GPS coordinates were recorded (Table 1) and then mapped using ArcGIS software (ESRI 2008; Figure 1). Station locations were chosen by first establishing survey sites at preferred locations, as indicated by Mr. Sandy Hedrick (Nature Area owner), then adding as many additional stations as possible within the remaining area.

Point count surveys were conducted at all stations on 29 April, 25 May and 8 June, between sunrise and 09:30h (PST), by two WFVZ technicians with abundant experience identifying southern California birds by sight and sound. An extra, non-survey visit to the HRNA, specifically to look for Willow Flycatchers, was conducted on 24 June. On each formal survey date, one technician surveyed stations 1-7 while the other surveyed stations 8-15. The order that stations were counted was reversed among the dates to minimize time biases, and the technicians alternated each time between the two groups of points to minimize observer biases. Technicians were trained in estimating distances to detected birds and worked together prior to conducting surveys to ensure their estimates were calibrated.

During the surveys, observers recorded the species, method of detection (call, song, visual, both or other), number of individuals, distance from station (m) and habitat association for all birds detected for 10 minutes. When possible, the age and sex of the bird were indicated. An Excel spreadsheet containing the data is included in this report (Appendix A).

Data Analysis

Data were analyzed using SPSS statistical software (SPSS Inc. 2004). A list of all species detected on or adjacent to the HRNA was generated (Appendix B) and includes anecdotal sightings that occurred between points. To calculate densities (individuals per station/individuals per ha) for each species, the maximum number of individuals detected during any one survey was used as the number of individuals of that species for that station. For example, if 3, 1 and 2

Song Sparrows were detected at station 10 on each of the three survey dates, respectively, it was assumed that there were three individuals in that survey area. For density estimates, only detections that occurred during the 10-min surveys and within 100m of the point count station were included. This is because a key assumption of density estimates is that individual birds are not counted twice from adjacent stations. The 100m buffer around stations is a conservative distance in this regard, given that stations were separated by at least 250 m. Thus, the survey area for each station was approximately 3.14 ha (total survey area=47.12 ha) and this value was used to calculate densities (individuals/ha). The 15 point count survey stations, with 100m buffers were mapped onto aerial imagery of the HRNA (Figure 1) to illustrate station locations and the area included in density estimates.

Results

Avian diversity and densities at HRNA: A total of 70 bird species was detected on the HRNA between the dates of 25 April and 24 June (listed in Appendix B). Density estimates for all bird species detected within 100m of survey stations (Table 2) indicated that the most abundant species overall were Common Yellowthroats (*Geothlypis trichas*; 1.21 individuals/ha), Yellow Warblers (*Dendroica petechia*; 1.00 individuals/ha) and Song Sparrows (*Melospiza melodia*; 1.00/ha). Spotted Towhees (*Pipilo maculates*), Yellow-breasted Chats (*Icteria virens*) and Black-headed Grosbeaks (*Pheucticus melanocephalus*), all constituents of healthy riparian ecosystems in Southern California, were the next most abundant species detected (range= 0.42-0.68 individuals/ha). Though not as abundant as these other species, Least Bell's Vireos were relatively common on the HRNA during the surveys, with an overall density of 0.40 individuals/ha. Vireos were widespread, with detections at 13 of the 15 point count stations. A single Willow Flycatcher was also detected on our final survey date of 8 June (at station 1). This individual only vocalized by call and never sang. Because 8 June is still within the period of migration for non-endangered subspecies of Willow Flycatchers, it is possible that this bird was a migrant passing through on its way to more northerly breeding grounds. No Willow Flycatchers were detected on the extra visit on 24 June.

Station-specific results: Because the 15 survey stations varied considerably in vegetative structure and hydrology, estimates of avian diversity and abundance were broken down by station (Table 3). The number of species detected at each point ranged from 14 to 30 (mean=17.53), with the greatest diversity occurring at points 10, 11, 12 and 15 (see Figure 1); each of these included areas of mature, mostly native tree (e.g., willow, *Salix spp.*) vegetation with standing or flowing water. The least avian diversity was observed at stations 1, 3, 4 and 7, which had drier soil and were situated on gravel bars with younger native vegetation mixed with a heavier Giant Cane (*Arundo donax*) component. Table 3 also shows the number of individuals detected at each station, for select species, and thus illustrates areas within the HRNA in which different species are most abundant or rare. Uncommon species were omitted from this list, but an effort was made to include a broad taxonomic representation of species with an affinity for riparian habitats.

Breeding observations: Although it can be reasonably assumed that most species detected during the point count surveys were breeding on or near the HRNA, observations for ten species that confirmed, or indicated likely breeding activity on the HRNA were noted (Table 4), along with their locations and relevant notes.

Additional notes of interest: In addition to bird species, observations of other animals, or their signs, were noted. These included: a shrew (*Sorex sp.*; dead on road near station 10), an unidentified Garter snake (*Thamnophis sp.*), Muskrat (*Ondatra zibethicus*; in duck pond), Western Chorus Frog (*Pseudachris regilla*), coyote (*Canis latrans*; scat and tracks only), Bobcat (*Lynx rufus*; tracks only). Only one adult Chorus frog was heard or seen during all of our time at HRNA (near station 5). Chorus frog tadpoles were the only other amphibians seen on the HRNA. These tadpoles were seen in a watering trough; none were observed in any streams or standing water.

References

Environmental Systems Research Institute, Inc. (ESRI), 1995–2009, available at:

<http://www.esri.com/legal/copyright-trademarks.html>

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SPSS Inc. (2004). SPSS Base 12.0 for Windows User's Guide. SPSS Inc., Chicago IL.

Ralph, C. J., G. R. Geupel, P. Pyle, T. E. Martin, and D. F. DeSante. 1993. Handbook of field methods for monitoring landbirds. Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture, General Technical Report PSW-GTR-144.

Worden, J. 2009. Watershed Newsletter, <http://fscr.org/html/2009-01-01.html>

List of Figures and Tables

Figure 1: Below

Table 1: Below

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Appendix A: Microsoft Excel spreadsheet file of all data obtained during the project (see attached file)

Appendix B: below

Figure 1: Map of Hedrick Ranch Nature Area (boundary shown in yellow) and adjacent areas. Black triangles indicate locations of 15 avian point count survey stations, with 100m circular buffers to indicate the survey area used for density estimates (birds beyond this distance were recorded but not included in density estimates). Units are UTM northings (vertical axis) and eastings (horizontal axis) in WGS 84 projection.

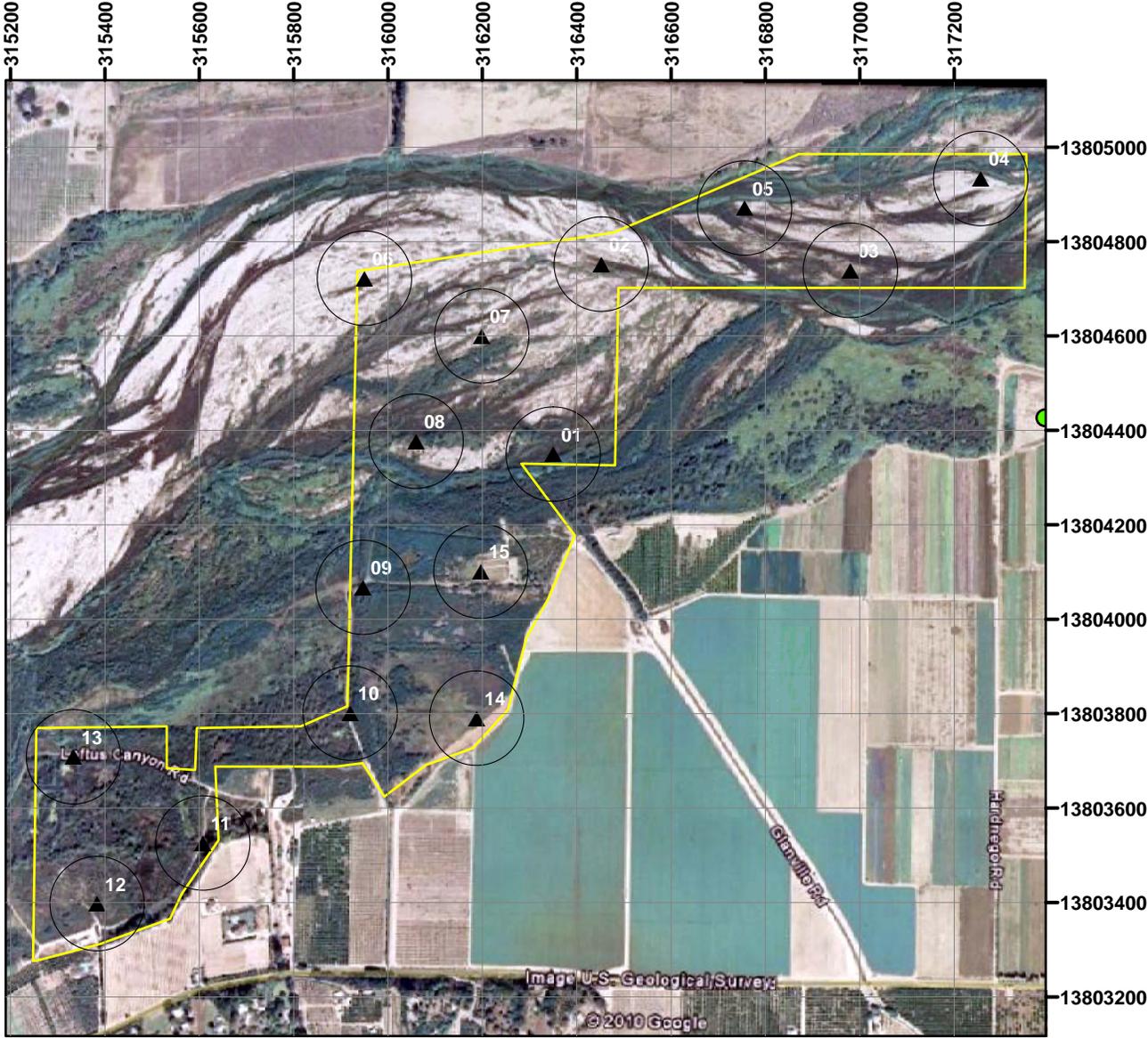


Table 1: Coordinates of long-term point count station locations at HRNA.

<u>Station</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Northing (WGS 84)</u>	<u>Easting (WGS 84)</u>
1	34.36423467	-118.99709000	13804350	316350
2	34.36787828	-118.99606925	13804752	316452
3	34.36785330	-118.99032824	13804739	316980
4	34.36965600	-118.98736691	13804934	317256
5	34.36900531	-118.99279344	13804871	316756
6	34.36751945	-119.00151942	13804722	315950
7	34.36646232	-118.99878985	13804600	316199
8	34.36442929	-119.00025459	13804377	316060
9	34.36161960	-119.00141423	13804068	315947
10	34.35921407	-119.00165118	13803801	315920
11	34.35667830	-119.00498550	13803526	315608
12	34.35548245	-119.00739497	13803398	315383
13	34.35827538	-119.00800475	13803709	315333
14	34.35916496	-118.99873495	13803791	316188
15	34.36197205	-118.99870553	13804102	316197

Table 2: Total number of detections (# of individuals) and density (# individuals/ha) for all species detected within 100m of point count stations during surveys.

Common Name	# Detected	Density (per ha)
Acorn Woodpecker	2	0.04
Allen's Hummingbird	1	0.02
American Goldfinch	25	0.53
American Robin	1	0.02
Anna's Hummingbird	12	0.25
Ash-throated Flycatcher	15	0.32
Bewick's Wren	17	0.36
Black Phoebe	3	0.06
Black-crowned Night-Heron	1	0.02
Black-headed Grosbeak	20	0.42
Blue Grosbeak	3	0.06
Brewer's Blackbird	1	0.02
Brown-headed Cowbird	3	0.06
Bushtit	14	0.30
California Quail	12	0.25
California Thrasher	1	0.02
California Towhee	3	0.06
Common Yellowthroat	57	1.21
Downy Woodpecker	4	0.08
European Starling	2	0.04
Great Egret	1	0.02
Great-tailed Grackle	3	0.06
Green Heron	1	0.02
Hairy Woodpecker	7	0.15
Hooded Oriole	1	0.02
House Finch	4	0.08
House Wren	9	0.19
Killdeer	2	0.04
Least Bell's Vireo	19	0.40
Lesser Goldfinch	14	0.30

Common Name	# Detected	Density (per ha)
Mallard	1	0.02
Mourning Dove	2	0.04
Northern Flicker	1	0.02
Northern Rough-winged Swallow	1	0.02
Nuttall's Woodpecker	6	0.13
Oak Titmouse	1	0.02
Orange-crowned Warbler	7	0.15
Pacific-Slope Flycatcher	13	0.28
Purple Finch	4	0.08
Red-tailed Hawk	1	0.02
Red-winged Blackbird	11	0.23
Song Sparrow	47	1.00
Spotted Towhee	32	0.68
Swainson's Thrush	5	0.11
Tree Swallow	12	0.25
Western Bluebird	2	0.04
Western Scrub-Jay	2	0.04
White-tailed Kite	1	0.02
Willow Flycatcher	1	0.02
Wilson's Warbler	1	0.02
Wrentit	1	0.02
Yellow Warbler	47	1.00
Yellow-breasted Chat	26	0.55
Yellow-rumped Warbler	2	0.04

Table 3: Number of species detected (top row) and number of individuals detected at each of 15 point count stations at HRNA (see Figure 1 for station locations).

	Station														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total # species detected	14	16	14	12	15	17	14	16	15	20	30	26	18	16	20
California Quail			2		1	1					2	4		1	1
Anna's Hummingbird	1	1		1	1	1	1	1		1	1	1	1	1	
Downy Woodpecker									2	1					1
Hairy Woodpecker	1							1	1	1			2		1
Nuttall's Woodpecker							1	1	1		1	1	1		
Bewick's Wren	1	1				1	2	3	2	2	2	1	1		1
House Wren		1			1					2	2	2			1
Ash-throated Flycatcher		2	2	1		1	2		2	1	1	2			1
Pacific-slope Flycatcher	1							1	2	3	1	1	1		3
Least Bell's Vireo	1	1	2	2	1	2	2	1	1		1		2	1	2
Orange-crowned Warbler	1			1		1	1	2		1					
Common Yellowthroat	3	4	4	2	3	4	4	3	2	5	4	3	5	6	5
Yellow-breasted Chat	3	2	2	2	2	1	2	2	2	2	1		3	1	1
Yellow Warbler	3	3	3	5	4	2	2	3	4	3	3	2	3	3	4
Swainson's Thrush	1									1	1			1	1
Red-winged Blackbird		2	2		2				1	2		1	1		
Brown-headed Cowbird					1	1					1				
Black-headed Grosbeak	1	1		1	2			1	2	1	3	2	2	1	3
Blue Grosbeak		1	1		1										
Spotted Towhee		2	2	2	3	2	3	2	5	2	2	2	2		3
Song Sparrow	4	1	3	3	5	3	2	3	2	4	3	3	3	4	4
American Goldfinch	1	1	4			1	2	1	1	2	7			4	1
Lesser Goldfinch			1	3	2	2	1	1		1				2	1

Table 4: Observations of birds exhibiting behaviors that directly indicated or implied they were breeding on the HRNA

<u>Species</u>	<u>Location (Station or UTM)</u>	<u>Date</u>	<u>Notes</u>
Bushtit	315586 E 13803534 N	25 April, 2010	Taking material from old nest to build new one
White-tailed Kites	Station 14	25 May, 2010	A pair of adults chased off a second pair of adults, then flew behind marsh and out of sight to where a 5th kite (young?) was vocalizing
Hairy Woodpecker	Station 10	25 May, 2010	Carrying food
Tree Swallow	Station 10	25 May, 2010	Carrying food
Yellow Warbler	315563 E 13803655 N	27 April, 2010	Sitting in nest ~ 3.5 m high
Ash-throated Flycatcher	Station 3	29 April, 2010	Both adults present with food; likely nest nearby
Common Yellowthroat	Station 5	29 April, 2010	Feeding young (could hear begging)
Nuttall's Woodpecker	Station 11	29 April, 2010	Entered nest hollow ~1.5 m above ground in stump
Western Bluebird	Station 14	29 April, 2010	Brought material to nestbox - harassed by Tree Swallows
Hairy Woodpecker	316391 E 13804242 N	8 June, 2010	Nesting in natural cavity
Common Yellowthroat	Station 15	8 June, 2010	With coarse nesting material
Common Yellowthroat	Station 13	8 June, 2010	With fledglings
Common Yellowthroat	Station 10	8 June, 2010	Carrying food
Tree Swallow	Station 10	8 June, 2010	Nesting in natural cavity; removed fecal sac
Lesser Goldfinch	317383 E 13804733 N	8 June, 2010	Female incubating 5 eggs
Common Yellowthroat	Station 3	8 June, 2010	Feeding fledglings

Appendix B: List of all bird species detected on HRNA between 25 April and 24 June, 2010, including anecdotal observations not occurring during surveys (indicated by asterisk in left column).

<u>Common Name</u>	<u>Scientific Name</u>	<u>Family</u>	<u>AOU Code</u>
Double-Crested Cormorant	<i>Phalacrocorax auritus</i>	Phalacrocoracidae	DCCO
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	Ardeidae	BCNH
Great Egret	<i>Ardea alba</i>	Ardeidae	GREG
Green Heron	<i>Butorides virescens</i>	Ardeidae	GRHE
Mallard	<i>Anas platyrhynchos</i>	Anatidae	MALL
* Sora	<i>Porzana carolina</i>	Rallidae	SORA
Killdeer	<i>Charadrius vociferus</i>	Charadriidae	KILL
* Spotted Sandpiper	<i>Actitis macularius</i>	Scolopacidae	SPSA
* Cooper's Hawk	<i>Accipiter cooperii</i>	Accipitridae	COHA
Red-shouldered Hawk	<i>Buteo lineatus</i>	Accipitridae	RSHA
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Accipitridae	RTHA
White-tailed Kite	<i>Elanus leucurus</i>	Accipitridae	WTKI
California Quail	<i>Callipepla californica</i>	Odontophoridae	CAQU
Eurasian Collared-dove	<i>Streptopelia decaocto</i>	Columbidae	EUCD
Mourning Dove	<i>Zenaida macroura</i>	Columbidae	MODO
* Greater Roadrunner	<i>Geococcyx californianus</i>	Cuculidae	GRRO
Lesser Nighthawk	<i>Chordeiles acutipennis</i>	Caprimulgidae	LENI
White-throated Swift	<i>Aeronautes saxatalis</i>	Apodidae	WTSW
Allen's Hummingbird	<i>Selasphorus sasin</i>	Trochilidae	ALHU
Anna's Hummingbird	<i>Calypte anna</i>	Trochilidae	ANHU
* Black-chinned Hummingbird	<i>Archilochus alexandri</i>	Trochilidae	BCHU
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	Picidae	ACWO
Downy Woodpecker	<i>Picoides pubescens</i>	Picidae	DOWO
Hairy Woodpecker	<i>Picoides villosus</i>	Picidae	HAWO
Northern Flicker	<i>Colaptes auratus</i>	Picidae	NOFL
Nuttal's Woodpecker	<i>Picoides nuttallii</i>	Picidae	NUWO
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	Tyrannidae	ATFL
Black Phoebe	<i>Sayornis nigricans</i>	Tyrannidae	BLPH
Pacific-Slope Flycatcher	<i>Empidonax difficilis</i>	Tyrannidae	PSFL
Willow Flycatcher	<i>Empidonax traillii</i>	Tyrannidae	WIFL

<u>Common Name</u>	<u>Scientific Name</u>	<u>Family</u>	<u>AOU Code</u>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	Hirundinidae	CLSW
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	Hirundinidae	NRWS
Tree Swallow	<i>Tachycineta bicolor</i>	Hirundinidae	TRES
Common Raven	<i>Corvus corax</i>	Corvidae	CORA
Western Scrub Jay	<i>Apelocoma californica</i>	Corvidae	WESJ
Wrentit	<i>Chamaea fasciata</i>	Timaliidae	WREN
Oak Titmouse	<i>Baeolophus inornatus</i>	Paridae	OATI
Bushtit	<i>Psaltriparus minimus</i>	Aegithalidae	BUSH
Bewick's Wren	<i>Thryomanes bewickii</i>	Troglodytidae	BEWR
House Wren	<i>Troglodytes aedon</i>	Troglodytidae	HOWR
American Robin	<i>Turdus migratorius</i>	Turdidae	AMRO
Swainson's Thrush	<i>Catharus ustulatus</i>	Turdidae	SWTH
Western Bluebird	<i>Sialia mexicana</i>	Turdidae	WEBL
California Thrasher	<i>Toxostoma redivivum</i>	Mimidae	CATH
* Hutton's Vireo	<i>Vireo huttoni</i>	Vireonidae	HUVI
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Vireonidae	LBVI
Yellow-rumped Warbler (Audubon's)	<i>Dendroica coronata</i>	Parulidae	AUWA
Common Yellowthroat	<i>Geothlypis trichas</i>	Parulidae	COYE
Orange-crowned Warbler	<i>Vermivora celata</i>	Parulidae	OCWA
Wilson's Warbler	<i>Wilsonia pusilla</i>	Parulidae	WIWA
Yellow-breasted Chat	<i>Icteria virens</i>	Parulidae	YBCH
Yellow Warbler	<i>Dendroica petechia</i>	Parulidae	YWAR
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	Cardinalidae	BHGR
Blue Grosbeak	<i>Passerina caerulea</i>	Cardinalidae	BLGR
* Lazuli Bunting	<i>Passerina amoena</i>	Cardinalidae	LAZB
California Towhee	<i>Pipilo crissalis</i>	Emberizidae	CALT
Song Sparrow	<i>Melospiza melodia</i>	Emberizidae	SOSP
Spotted Towhee	<i>Pipilo maculatus</i>	Emberizidae	SPTO
* White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	Emberizidae	WCSP
Brown-headed Cowbird	<i>Molothrus ater</i>	Icteridae	BHCO
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	Icteridae	BRBL
* Bullock's Oriole	<i>Icterus bullockii</i>	Icteridae	BUOR
Great-tailed Grackle	<i>Quiscalus mexicanus</i>	Icteridae	GTGR

<u>Common Name</u>	<u>Scientific Name</u>	<u>Family</u>	<u>AOU Code</u>
Hooded Oriole	<i>Icterus cucullatus</i>	Icteridae	HOOR
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Icteridae	RWBL
American Goldfinch	<i>Spinus tristis</i>	Fringillidae	AMGO
House Finch	<i>Carpodacus mexicanus</i>	Fringillidae	HOFI
Lesser Goldfinch	<i>Spinus psaltria</i>	Fringillidae	LEGO
Purple Finch	<i>Carpodacus purpureus</i>	Fringillidae	PUFI
European Starling	<i>Sturnus vulgaris</i>	Sturnidae	EUST