WINZLER & KELLY

MEMORANDUM

TO: Humboldt County Resource Conservation District

FROM: Stephanie Klein, Staff Ecologist
Ken Mierzwa, Senior Ecologist
Jeremy Svehla, Project Manager

DATE: August 26, 2011

RE: **Avian Protocol and Initial 2011 Survey Report to Support Pre and Post-Construction Monitoring**

JOB #: 10653-10001-11-300

INTRODUCTION

Winzler & Kelly performed the preconstruction Phase I avian survey within and around the limits of Phase I of the Salt River Ecosystem Restoration Project near Ferndale California. The purpose of the avian survey was to comply with monitoring requirements in the Salt River Ecosystem Restoration Project Habitat Mitigation and Monitoring Plan (HMMP) completed by H.T. Harvey & Associates and Winzler & Kelly, 2011. The goal of the monitoring effort was to track avian richness and relative abundance from pre-project baseline conditions through interim and post project conditions. It is assumed that complexity of the avian community will reflect the rate of recovery of restored plant communities and vegetation structure along the Salt River and restored tidal marsh. Final success will be measured by greater species richness in Year 20 when compared to pre-project conditions.

This report documents the June/July 2011 pre construction avian survey for Phase I of the Salt River Ecosystem Restoration Project. Baseline conditions were documented at five (5) survey points established within the Phase I proposed project disturbance area and two (2) reference survey points outside but adjoining the project area (Figure 1). Phase II initial survey shall take place prior to the vegetation removal and construction of Phase II following the same protocol.

The point counts follow a site-specific protocol developed in consultation with Michael van Hattem with the Department of Fish and Game, project biologists, and modified from the protocol established by Ralph et al. (1993). Due to truncated survey timeline, the 2011 surveys were conducted once in June and once in July. Late June or July surveys can increase the probability of detection of breeding willow flycatchers and cuckoos.

PRE AND POST PROJECT CONDITIONS

Table 1 contains the dominant habitat type and ground elevations for both existing pre-project and projected post-project conditions at each survey and reference location.

Table 1: Phase I Salt River Ecosystem Restoration Pre and Post Project Habitat Conditions

Survey Point ID	Pre-Project Dominant Habitat	Approximate Pre-Project Elevation (ft-NAVD 88)	Projected Post Project Habitat	Projected Post Project Elevation (ft-NAVD 88)
Survey Point 1	Riparian	10	Tidal Marsh	7
Survey Point 2	Riparian	9	Riparian	9
Survey Point 3	Agricultural Field	6	Levee (Upland)	14
Survey Point 4	Agricultural Field	6	Tidal Marsh	6 to 8[1]
Survey Point 5	Levee (Upland)	12	Levee (Upland)	12
Reference Point 1	Riparian (Freshwater wetland)	6	Riparian (Freshwater wetland)	6
Reference Point 2	Riparian (Tidal marsh)	6	Riparian (Tidal marsh)	6

[1] – Option fill area to be confirmed during construction. Final elevation could range between 6 and 8 feet (NAVD 88).

METHODS

Census monitoring using point count methods followed a site-specific protocol developed in consultation with California Department of Fish & Game and project biologists, modified from the protocol established by Ralph et al. (1993). For example, breeding bird surveys were conducted for 15 minutes vs. the traditional 3 minute point count at each fixed point within 4 hours of sunrise to capture the peak period of bird activity. Surveys were not conducted during rain or strong winds or after 10:30 am. The June and July surveys were required at minimum to be 10 days apart.

Point count surveys were conducted at 5 survey stations on Riverside Ranch and at two (2) Reference Point locations (both riparian and wetland) in the vicinity of the project site to control for inter-annual variability in species abundance (Figure 1). Survey Points were selected to be representative, at a minimum, of the following areas:

- Existing riparian in areas that are expected to recover to riparian, near the perimeter of the restoration area
- Pasturine wetland converted to proposed tidal wetland (Riverside Ranch)
- Riparian area proposed to be converted to salt marsh
- Existing salt marsh that will be enhanced or restored

The reference sites were selected within Riverside Ranch vicinity with careful consideration for the following:

- Long-term landowner agreement for monitoring
- Ease of access from existing roads
- Ease of access post project implementation
- Representative nature in relation to proposed conditions at project site

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- Minimum 400 meters apart from each other as well as 400 meters from fixed survey stations on project site
- The number of reference sites per habitat type (i.e., more than one) will compensate for future uncertainties such as unknown land management changes that could occur at reference points, access issues, property ownership changes, etc.
- Opportunity for flyover detection

Survey points were placed at least 400 meters apart in marsh habitats to avoid potential double counting of individual birds. Data was recorded using the following parameters: date, time, species code, common name, scientific name, tax order, number of birds seen or heard within 50 meters, number of birds seen or heard beyond 50 meters, number of birds that flew over the point location, and a total count per each sample point location. Phase II surveys, as well as, post construction annual surveys shall follow the same protocol. Tidal marsh surveys shall be conducted at a similar tidal stage for each replicate survey both within and across years (Conway, C.J. 2009).

When possible the survey included documentation on what habitat type(s) the bird species are utilizing, if any tree cavities are observed and if so the location, tree species, and diameter at breast height (dbh), for follow up documentation of cavity presence. Additionally, the survey attempted to mimic the willow fly catcher call near a willow tree this species was known to occupy, as documented in previous studies. Two (2) reference sites both riparian and wetland were established and will be annually monitored in the vicinity of the project site to control for inter-annual variability in species abundance.

Vegetation plot data was collected near each avian point count location. Herbaceous cover was documented within one (1) meter radius plots, while woody stems were documented using five (5) meter radius plot. Qualitative descriptions of habitat present at each survey point were recorded, as well as weather conditions.

HABITAT CHARACTERIZATION RESULTS

Winzler & Kelly conducted pre-dawn avian chorus survey in Ferndale California. Vegetation data was recorded at each survey point location including, five (5) fixed monitoring stations and two (2) reference locations that were either riparian or salt marsh habitat.

Survey Point 1

This point was located in a small herbaceous opening between the road and willow riparian habitat. Dominate plants observed are listed in Table 2.

Table 2. Survey Point 1 – Riparian Habitat

Scientific Name	Common Name	Percent Cover
Groundcover		
Raphanus sativus	cultivated radish	10%
Conium maculatum	poison hemlock	20%
Lolium multiflorum	rye grass	30%
Holcus lanatus	velvet grass	5%
Daucus catota	Queen Anne's Lace	30%
Ranunculus sp.	buttercup	5%
Shrubs		
Salix sp.	willow sp.	100%

Survey Point 2

This survey point was located in riparian habitat adjoining the Salt River. The slough channel had Lyngby's sedge (*Carex lyngbyei*) growing along the banks. To the east the riparian canopy was dominated by alders and on the west side of the channel the canopy was dominated by willows. Aside from the *Lolium*, the ground was covered with native herbaceous plants (Table 3).

Table 3. Survey Point 2 – Riparian Habitat

Scientific Name	Common Name	Percent Cover
Groundcover		
Lolium multiflorum	rye grass	15%
Scirpus robustus	sturdy bulrush	50%
Cicuta maculata	water hemlock	15%
Equisetum sp.	horsetail #1	5%
Holcus lanatus	velvet grass	10%
Juncus effuses	common rush	5%
Shrubs		
Alnus rubra	red alder	35%
Salix sp.	willow	55%
Rubus ursinus	California blackberry	10%

Survey Point 3

This point was located in the center of an un-mowed agricultural field dominated by pasture grass. Dominate plants observed are listed in Table 4.

Table 4. Survey Point 3 – Agricultural Field

Scientific Name	Common Name	Percent Cover
Holcus lanatus	velvet grass	45%
Rumex crispus	curly dock	10%
Lolium multiflorum	rye grass	20%
Festuca arundinacea	reed fescue	10%
Eleocharis macrostachya	Spike rush	10%
Juncus effuses	common rush	5%

Survey Point 4

This point was located in the middle of an agricultural field. The field was dominated by recently mowed pasture grass including white clover (*Trifolium repens*) and ryegrass (*Lolium multiflorum*). Dominate plants observed are listed in Table 5.

Table 5. Survey Point 4 – Agricultural Field

Scientific Name	Common Name	Percent Cover
Trifolium repens	white clover	75%
Lolium multiflorum	rye grass	25%

Survey Point 5

This point was located on top of the existing levee. The levee is dominated with pasture grasses and a few shrubs (Table 6). Facing north was a tidal slough with known tidewater goby habitat and banks lined with Lyngby's sedge (*Carex lyngbyei*), though not directly located within the survey plot location. Facing south from this survey location was an agricultural field.

Table 6. Survey Point 5 – Levee (Upland)

Scientific Name	Common Name	Percent Cover
Groundcover		
Cirsium vulgare	bull thistle	5%
Holcus lanatus	velvet grass	20%
Lolium multiflorum	rye grass	60%
Plantago lanceolata	narrow leaved plantain	10%
Raphanus sativus	cultivated radish	5%
Shrub layer		
Baccharis pilularis	coyote brush	95%
Toxicodendron diversilobum	poison oak	5%

Reference Point 1

Reference point one (1) is located in a stand of non-native reed canary grass (*Phalaris arundinacea)* adjacent to a dense riparian willow thicket approximately 10 feet north (Table 8). Agricultural fields surrounded this point to the east, west, and south. The purpose of reference point one (1) is to track the avian use of riparian habitat throughout all phases of the Salt River Project.

Table 7. Reference Point 1 – Riparian Freshwater Wetland

Scientific Name	Common Name	Percent Cover
Groundcover		
Phalaris arundinacea	reed canary grass	90%
Rumex crispus	curly dock	5%
Rumex paucifolius	few leaved dock	5%
Shrubs		
Salix sp.	willow sp.	100%

Reference Point 2

Reference point two (2) was located along Camp Weott Road in riparian tidal marsh habitat along a tidal slough channel. Both sides of the channel banks were lined with the rare Lyngby's sedge, while higher up on the banks were scattered shrubs and gumplant (Table 9).

Table 8. Reference Point 2 – Tidal Marsh

Scientific Name	Common Name	Percent Cover
Groundcover		
Carex lyngbyei	lyngby's sedge	60%
grindelia stricta	gumplant	20%
Spartina densiflora	cordgrass	10%
Salicornia pacifica	pickleweed	10%
Shrub layer		
Baccharis pilularis	coyote brush	25%
Alnus rubra	red alder	25%
Salix sp.	willow sp.	50%

AVIAN SURVEY RESULTS

To capture the breeding season bird monitoring began on June 30, 2011. The second survey occurred on July 21 to ensure that all breeding birds have established territories, but before many have begun to lay eggs (Ralph et. at). A total of 38 different species were accounted for between two summertime (June, July) dawn chorus surveys (Table 10). The most abundant species observed was the song sparrow (*Melospiza melodia*) where a total of 58 individuals were noted, followed by the American goldfinch (*Carduelis tristis*) where 43 individuals were recorded, and 36 individual barn swallow's (*Hirundo rustica*). The least abundant species having only one

individual recorded was Common Yellowthroat *(Geothlypis trichas),* Eurasian Collared-Dove *(Streptopelia decaocto),* Least Sandpiper *(Calidris minutilla),* Northern Flicker *(Colaptes auratus),* Osprey *(Pandion haliaetus),* Unknown Selasphorus Hummingbird *(Selasphorus Sp).* and the Wilson's Warbler *(Wilsonia pusilla).*

Table 9. Species List of Avian Fauna Observed in June/July 2011

Common Name	***Scientific Name***	**Preferred Habitat**	**Cavity Nester**	**Native**
American Crow	*Corvus brachyrhynchos*	Riparian Woodland	N	Y
American Goldfinch	*Carduelis tristis*	Riparian Woodland	N	Y
American Robin	*Turdus migratorius*	Generalist/Upland	N	Y
Band-tailed Pigeon	*Patagioenas fasciata*	Woodland/ Upland	N	Y
Barn Swallow	*Hirundo rustica*	Open Agricultural Near Water	N	Y
Black Phoebe	*Sayornis nigricans*	Woodland & Agricultural Near Water	N	Y
Black-capped Chickadee	*Poecile atricapillus*	Upland & Riparian Woodland	Y	Y
Black-headed Grosbeak	*Pheucticus melanocephalus*	Riparian Woodland	N	Y
Brewer's Blackbird	*Euphagus cyanocephalus*	Riparian Woodland, Shrub Marshland	N	Y
Brown-headed Cowbird	*Molothrus ater*	Deciduous Woodland, Grassland	N	Y
California Quail	*Callipepla californica*	Generalist/Upland	N	Y
Canada Goose	*Branta canadensis*	Marsh/Meadows/Agricultural	N	Y
Chestnut-backed Chickadee	*Poecile rufescens*	Upland & Riparian Woodland	Y	Y
Cliff Swallow	*Petrochelidon pyrrhonota*	Upland Open Areas Near Running Water	N	Y
Common Raven	*Corvus corax*	Generalist/Upland	N	Y
Common Yellowthroat	*Geothlypis trichas*	Marshland	N	Y
Eurasian Collared-Dove	*Streptopelia decaocto*	Urban/Suburban Agricultural	N	N
European Starling	*Sturnus vulgaris*	Generalist/Upland	Y	N
Great Egret	*Ardea alba*	Marshland	N	Y
House Finch	*Carpodacus mexicanus*	Upland Open Woodland /Urban	N	Y
Least Sandpiper	*Calidris minutilla*	Marshland	N	Y
Mallard	*Anas platyrhynchos*	Marshland, Lakes	N	Y
Marsh Wren	*Cistothorus palustris*	Marshland	N	Y
Mourning Dove	*Zenaida macroura*	Agricultural, Open Woodland	N	Y
Northern Flicker	*Colaptes auratus*	Woodland	Y	Y
Osprey	*Pandion haliaetus*	Along Rivers, Lakes, Shores	N	Y
Savannah Sparrow	*Passerculus sandwichensis*	Marshland/Grassland	N	Y
Song Sparrow	*Melospiza melodia*	Marshland	N	Y
Swainson's Thrush	*Catharus ustulatus*	Woodland, Riparian	N	Y
Tree Swallow	*Tachycineta bicolor*	Woodland Edge Near Water	Y	Y

Turkey Vulture	*Cathartes aura*	Open prairie/agriculture	N	Y
Selasphorus Hummingbird	*Selasphorus Sp.*	Riparian, Open Woodland	N	Y
Virginia Rail	*Rallus limicola*	Marshland	N	Y
White-crowned Sparrow	*Zonotrichia leucophrys*	Riparian	N	Y
White-tailed Kite	*Elanus leucurus*	Riparian Open Woodland	N	Y
Willow Flycatcher	*Empidonax traillii*	Riparian	N	Y
Wilson's Warbler	*Wilsonia pusilla*	Riparian woodland	N	Y
Wrentit	*Chamaea fasciata*	Upland Shrub	N	Y

On June 30, 2011 a total of 30 bird species and 195 counted individuals were noted during the pre-dawn chorus survey. On July 21, 31 avian species were noted during the pre-dawn chorus survey and 178 individuals counted. A full list of all the species observed relative to their survey point location can be found in Attachment A.

The two most abundant species on June 30th were the American goldfinch the song sparrow (*Melospiza melodia*) and the marsh wren (*Cistothorus palustris).* The American goldfinch and song sparrow were observed in every survey point location, while the barn swallow was observed at all survey locations with the exception of points 1 and point 5. The American goldfinch had a total of 23 noted individuals, the song sparrow had 24 individuals observed, and 20 marsh wren individuals were noted. The marsh wren and the American goldfinch were both counted 11 times within one point. In contrast, the July 21 survey recorded the marsh wren only four (4) times, at survey point 5, levee habitat. The Canada goose (*Branta Canadensis)* was the next most abundant species observed on June 30 in contrast, to July 21 when no records of the Canada goose were documented.

On June 30, 2011 reference site two (2) R2 riparian- tidal marsh located along Camp Weott Rd., was surveyed at 9:32 am and yielded the most species richness and abundance with observations between all the survey point locations totaling 47 individuals and 14 species. Survey Point Location three (3) agricultural field, had the second highest bird count totaling 35 birds among 13 species. The least species richness occurred at survey point one (1) riparian freshwater wetland where of the 14 individuals recorded seven (7) species were observed. However, this survey location is where the willow fly catcher was documented this year and in years past.

The July 21 survey data for reference site two (2) R2- riparian-tidal marsh had a total of 19 individuals among seven (7) species. The survey location with the highest species abundance and richness during the July survey was survey point four (4) agricultural field where 33 individuals were recorded among 13 different species. Abundance and richness was documented for each site from each of the two monitoring surveys in summer 2011 and are listed in Table 12.

Table 10. Species Richness and Abundance

Survey Point	Habitat	Abundance	Richness
June 20, 2011			
1	Riparian	14	7
2	Riparian	21	12
3	Agricultural Field	35	13
4	Agricultural Field	24	13
5	Levee (Upland)	33	12
R1	Riparian (Freshwater wetland)	21	9
R2	Riparian (Tidal marsh)	47	14
July 21, 2011			
1	Riparian	15	8
2	Riparian	26	12
3	Agricultural Field	23	10
4	Agricultural Field	33	13
5	Levee (Upland)	31	8
R1	Riparian (Freshwater wetland)	31	11
R2	Riparian (Tidal marsh)	19	7

The only recording of the common yellowthroat (*Geothlypis trichas*) was from the June survey at reference point one (1) R1 freshwater wetland habitat. The willow flycatcher was recorded in both surveys, yet from the same known location in a willow tree located across the road from the center of survey point one (1) riparian- freshwater wetland.

Table 13 highlights birds recorded that were unique to the June 30, 2011 survey and Table 14 reflects birds that were unique to the July 21, 2011 survey.

Table 11: Birds Unique to June Survey

Common Name	***Scientific Name***
American crow	*Corvus brachyrhynchos*
band-tailed pigeon	*Patagioenas fasciata*
Eurasian collared-dove	*Streptopelia decaocto*
great egret	*Ardea alba*
least sandpiper	*Calidris minutilla*
Virginia rail	*Rallus limicola*
White-tailed kite	*Elanus leucurus*
Wilson's warbler	*Wilsonia pusilla*

Table 12. Birds Unique to July Survey

Common Name	***Scientific Name***
Canada goose	*Branta Canadensis*
chestnut-backed chickadee	*Poecile rufescens*
common yellowthroat	*Poecile rufescens*
great egret	*Ardea alba*
northern flicker	*Colaptes auratus*
osprey	*Pandion haliaetus*
tree swallow	*Tachycineta bicolo*
selasphorus hummingbird	*Selasphorus Sp.*

CONCLUSION

The 2011 Salt River avian surveys had a total of five (5) survey point locations and two (2) additional reference survey locations. The surveys occurred on June 30 and July 21, 2011 starting at dawn until approximately 10:15 am. Habitat characterization was recorded at each survey point and included dominant plants and percent cover. The surveys yielded approximately 30 different avian species during each survey for a total of 38 different species recorded between the two surveys. Survey point location one (1) had the least amount of species abundance an richness in dawn chorus survey for each survey; however, this is the location of the willow flycatcher, which was observed during both 2011 surveys and was previously recorded in years past in the same location. During the June survey, reference point two (R2) had the most species diversity and abundance. The July survey was consistent across each survey points in terms of richness and abundance. Survey point four (4) had 33 individuals noted and 13 species, while survey point five (5) and reference one (R1) each had a total of 31 individuals, and R1 had higher species diversity at 11 than survey point five (5). A full list of all the specie observed relevant to their survey point location can be found in Attachment A.

REFERENCES

Ralph, C. John; Geupel, Geoffrey R.; Pyle, Peter; Martin, Thomas E.; DeSante, David F. 1993. *Handbook of Field Methods for Monitoring Landbirds*. Gen. Tech. Rep. PSW-GTR-144-www. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture; 41 p.

H.T. Harvey & Associates and Winzler and Kelly. 2011. *Salt River Ecosystem Restoration Project Habitat Mitigation and Monitoring Plan*. Prepared for Humboldt county Resource Conservation District. Project Number 3117-05.

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Attachment A