

APPENDIX A
BIRD SURVEY MEMORANDUM, 2000

Date: December 19, 2000

To: Ralph G. Stahl, Jr., Ph.D.
Copies to: Chuck Orwig and Brian Johnson

From: Francesca Demgen

Subject: *Transmittal, Bird Survey Data*

Attached you will find the Bird Survey Memorandum. The work was conducted by myself and Corinna Lu. The Memorandum includes sections on our methodology and results as well as summary data tables, a figure displaying the observation locations and an appendix with the field data recording sheets. Please don't hesitate to call me if you have any questions.

Bird Survey Memorandum

Methodology

Surveys for all bird species were conducted on October 12, November 9, and November 17, 2000. Notes were taken regarding the weather and the time of the survey. One high-tide survey and two low-tide surveys were conducted on the site in order to ensure that potential species in all habitats could be counted. The survey included 3 general locations: the tidal areas of Little Break, including the levees, Central Slough, and terrestrial areas. Birds were identified to species whenever possible. Unidentified birds were grouped as Gull species, Dabbling duck species, Yellowlegs species (Greater or Lesser), Medium shorebird species and Woodpecker species. In addition to the number of birds present, habitat and behavior were recorded. Foraging guilds for each species have also been assigned.

Little Break

To survey Little Break, a 15-foot boat with a 45 horsepower engine was rented, with an operator, from Lauritzen's Boat Harbor. While there were designated survey locations in the middle of the tidal basin, Figure 1, birds were surveyed from the boat during the entire trip. One stop was made on the eastern levee to identify any birds that may be in the vicinity, and to obtain a count of any waterbirds that were not seen from the boat. The perspective from the levee improved visibility by reducing the glare from the morning sun. Little Break surveys were scheduled in the morning in an attempt to lessen opportunities for human disturbance of the habitat, however, there were fishermen in boats in Little Break when we arrived for all 3 surveys. Our first survey was timed to coincide with low tide to identify locations of tidal flats where shorebird feeding might occur. No intertidal mud or sand flats were exposed on the 0.8 foot tide of October 12.

Central Slough

The Central Slough survey was conducted from the northeast and north sides. The open water and fringe of wetland vegetation were surveyed using binoculars and a spotting scope.

Terrestrial Areas

For the terrestrial portions of the survey, a specified location was used as an observation point, although we also walked around the area in order to identify birds that were more concealed. Birds were also surveyed from the car while driving to these points. Figure 1 identifies the survey location points. The sites were selected in areas where birds were seen to congregate during past site visits and in to include a diverse set of habitat types. The grassland immediately north of Central Slough and the riparian corridor north of it were surveyed. We made auto stops to survey the willows in the Red Pipe area and the small stand of tall trees east Central Slough to look for owl pellets. The large stand of pines, eucalyptus and shrubs in the southwest corner of the Little Break area was surveyed and the trees to the south were scanned.

Results

There were 44 species of birds identified in the 3 surveys, Table 1. In addition, a ring-necked pheasant was observed on a non-bird survey trip to the plant site. The birds were assigned to foraging guilds, Table 2, including the following:

- 4 species of dabbling water birds,
- 3 species of diving water birds,
- 2 species of granivores/frugivores (seed/fruit eaters),
- 9 species of insectivores,
- 3 species of insectivores/frugivores,
- 5 species of insectivores/granivores,
- 1 species of nectivores,
- 3 types of omnivores,
- 8 species of piscivores,
- 6 species of raptors, and
- 1 scavenger.

This scheme mixes feeding styles (dabblers and divers) with diet preferences (e.g. insectivores). Insectivores and piscivores are the 2 largest guilds, based on the number of species. Three species had over 50 individuals at any given time: American coot, mallard and tree swallows. The tree swallows were resting and feeding in the bulrush in Little Break. The following species were observed feeding: mallard, great egret, great blue heron, belted kingfisher, killdeer, northern harrier, red-shafted flicker, snowy egret, American coot, common moorhen, cliff swallow, pied-billed grebe, black phoebe, western meadowlark, yellowlegs, dabbling duck species and gull species.

The habitat use observations are summarized as follows:

- 10 species in Central Slough,
- 4 species in the eucalyptus grove,
- 13 species in the grassland, and
- 30 species in Little Break.

Birds were observed feeding, resting, hunting, flying over, perched and one species, the woodpecker was recorded despite only being heard and not seen. The data sheets are included as an appendix. Worthy of note are the muskrat, beaver and 5 river otters observed at the Central Slough.

This was not an exhaustive avian survey. It included only one season of year, however it can be considered as a baseline survey of avian use at the plant during the fall migratory season and demonstrates the diversity of avian use at the site.

Table 1 Bird Species Observed at the DuPont Oakley Plant

Common Species Name	Latin Species Name	Guilds
American Crow	<i>Corvus brachyrhynchos</i>	O
American Coot	<i>Fulica americana</i>	D
American Kestrel	<i>Falco sparverius</i>	R
American Robin	<i>Turdus migratorius</i>	I/F
Barn Owl	<i>Tyto alba</i>	R
Belted Kingfisher	<i>Ceryle alcyon</i>	P
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	P
Black Phoebe	<i>Sayornis nigricans</i>	I
White-tailed Kite	<i>Elans leucurus</i>	R
Bufflehead	<i>Bucephala albeola</i>	Di
Cliff Swallow	<i>Hirundo pyrrhonota</i>	I
Common Goldeneye	<i>Bucephala clangula</i>	Di
Common Moorhen	<i>Gallinula chloropus</i>	D
Common Snipe	<i>Gallinago gallinago</i>	I
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	P
Eared Grebe	<i>Podiceps nigricollis</i>	Di
Forster's Tern	<i>Sterna forsteri</i>	P
Great Blue Heron	<i>Ardea herodias</i>	P
Great Egret	<i>Ardea alba</i>	P
Green Winged Teal	<i>Anas crecca</i>	D
Killdeer	<i>Charadrius vociferus</i>	I
Loggerhead Shrike	<i>Lanius excubitor</i>	R
Mallard	<i>Anas platyrhynchos</i>	D
Marsh Wren	<i>Cistothorus palustris</i>	I/G
Mourning Dove	<i>Zenaida macroura</i>	G/F
Northern Harrier	<i>Circus cyaneus</i>	R
Northern Mockingbird	<i>Mimus polyglottos</i>	I/F
Pied-billed Grebe	<i>Podilymbus podiceps</i>	P
Red-shafted Flicker	<i>Colaptes auratus</i>	I
Red-tailed Hawk	<i>Buteo jamaicensis</i>	R
Ring-necked pheasant	<i>Phasianus colchicus</i>	G/F
Ruby-crowned Kinglet	<i>Regulus calendula</i>	I/F
Ruby-throated Hummingbird	<i>Archilochus colubns</i>	N
Savannah or Song Sparrow	<i>Passerculus sandwichensis</i>	I
Scrub Jay	<i>Aphelocoma californica</i>	O
Snowy Egret	<i>Egretta thula</i>	P
Song Sparrow	<i>Melospiza melodia</i>	I/G
Tree Swallow	<i>Tachycineta bicolor</i>	I
Turkey Vulture	<i>Cathartes aura</i>	S
Western Meadowlark	<i>Sturnella neglecta</i>	I/G
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	I/G
Yellow headed Blackbird	<i>Xanthocephalus xanthocep</i>	I/G
Yellowlegs species	<i>Tringa species</i>	I
Yellow-rumped Warbler	<i>Dendroica coronata</i>	I

Guilds
Dabblers=D
Divers=Di
Granivores/Frugivores=G/F
Insectivores=I
Insectivores/Frugivores=I/F
Insectivores/Granivores=I/G
Nectivores=N
Omnivores=O
Piscivores=P
Raptors=R
Scavengers=S

Table 2 Bird Species by Foraging Guild

DABLERS

American Coot	<i>Fulica americana</i>
Common Moorhen	<i>Gallinula chloropus</i>
Green Winged Teal	<i>Anas crecca</i>
Mallard	<i>Anas platyrhynchos</i>

DIVERS

Bufflehead	<i>Bucephala albeola</i>
Common Goldeneye	<i>Bucephala clangula</i>
Eared Grebe	<i>Podiceps nigricollis</i>

GRANIVORES/FRUGIVORES

Mourning Dove	<i>Zenaida macroura</i>
Ring-necked pheasant	<i>Phasianus colchicus</i>

INSECTIVORES

Black Phoebe	<i>Sayornis nigricans</i>
Cliff Swallow	<i>Hirundo pyrrhonota</i>
Common Snipe	<i>Gallinago gallinago</i>
Killdeer	<i>Charadrius vociferus</i>
Red-shafted Flicker	<i>Colaptes auratus</i>
Savannah or Song Sparrow	<i>Passerculus sandwichensis</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Yellowlegs species	<i>Tringa species</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>

INSECTIVORES/FRUGIVORES

American Robin	<i>Turdus migratorius</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>

INSECTIVORES/GRANIVORES

Marsh Wren	<i>Cistothorus palustris</i>
Song Sparrow	<i>Melospiza melodia</i>
Western Meadowlark	<i>Sturnella neglecta</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Yellow headed Blackbird	<i>Xanthocephalus xanthocephalus</i>

NECTIVORES

Ruby-throated Hummingbird	<i>Archilochus colubris</i>
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OMNIVORES

American Crow	<i>Corvus brachyrhynchos</i>
Gull species	

Scrub Jay	<i>Apelocoma californica</i>
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PISCIVORES

Belted Kingfisher	<i>Ceryle alcyon</i>
Black crowned Night Heron	<i>Nycticorax nycticorax</i>
Double-crested Cormorant	<i>Phalacrocrax auritus</i>
Forster's Tern	<i>Sterna forsteri</i>
Great Blue Heron	<i>Ardea herodias</i>
Great Egret	<i>Ardea alba</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
Snowy Egret	<i>Egretta thula</i>

RAPTORS

American Kestrel	<i>Falco sparverius</i>
Barn Owl	<i>Tyto alba</i>
Black shouldered/White tailed Kite	<i>Elans leucurus</i>
Loggerhead Shrike	<i>Lanius excubitor</i>
Northern Harrier	<i>Circus cyaneus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>

SCAVENGERS

Turkey Vulture	<i>Cathartes aura</i>
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Appendix

Bird Survey Field Data Sheets

October 12, 2000

November 9, 2000

November 17, 2000

DuPont Oakley Avian Survey Bird Species Database

Date: 10/12/00

Field Personnel: Francesca Demgen, Corinna Lu

Weather: Overcast

Start Time: 9:20am End Time: 11:15am

Common Species Name	Latin Species Name	No. of Individuals	Behavior	Habitat	Guilds
Black crowned night heron	<i>Nycticorax nycticorax</i>	3	R	EM	P
Yellow headed blackbird	<i>Xanthocephalus xanthocephalus</i>	17	R	LB	I/G
Song sparrow	<i>Melospiza melodia</i>	1	R	EM	I/G
Mallard	<i>Anas platyrhynchos</i>	66	R	LB	D
Snowy egret	<i>Egretta thula</i>	3	F	LB	P
Tree swallow	<i>Tachycineta bicolor</i>	90+	F	LB	I
Cliff swallow	<i>Hirundo pyrrhonota</i>	10	F	LB	I
Double-crested comorant	<i>Phalacrocrax auritus</i>	1	R	LB	P
American coot	<i>Fulica americana</i>	48		LB	D
Great blue heron	<i>Ardea herodias</i>	1	F	LB	P
Great egret	<i>Ardea alba</i>	2	F	LB	P
Gull species		18	FO	LB+SJR	O
Dabbling duck species		25	F	LB	D
Pied-billed grebe	<i>Podilymbus podiceps</i>	7	F	LB	P
American crow	<i>Corvus brachyrhynchos</i>	4	FO	LB	O
Marsh wren	<i>Cistothorus palustris</i>	1	HO	SJR	I/G
Red-tailed hawk	<i>Buteo jamaicensis</i>	1	R	LB trees	R
Yellowlegs species	<i>Tringa species</i>	1	F	LB	I
Belted kingfisher	<i>Ceryle alcyon</i>	1	F	LB	P
Killdeer	<i>Charadrius vociferus</i>	2	F	LB	I
Common moorhen	<i>Gallinula chloropus</i>	2	F	LB	D

Behavior
F = feeding
FO = flying over
R = resting
C = courtship
HO = heard only
P = perched
H = hunting
Habitat
G = grassland/upland
LB = aquatic/mudflat in Little
EM = emergent marsh
CS = Central Slough
SJR = San Joaquin River
Euc. = eucalyptus grove
W = willow
RPA = Red Pipe Area
PG = Paved Grass

Guilds
Dabblers=D
Divers=Di
Granivores/Frugivores=G/F
Insectivores=I
Insectivores/Frugivores=I/F
Insectivores/Granivores=I/g
Nectivores=N
Omnivores=O
Piscivores=P
Raptors=R
Scavengers=S

DuPont Oakley Avian Survey Bird Species Database

Date: 10/12/00

Field Personnel: Francesca Demgen, Corinna Lu

Weather: Partly Cloudy

Start Time: 12:10pm

End Time: 1:30pm

Common Species Name	Latin Species Name	No. of Individuals	Behavior	Habitat	Guilds
Mourning dove	<i>Zenaida macroura</i>	21	R	CS	G/F
American crow	<i>Corvus brachyrhynchos</i>	2	FO	G	O
Mallard	<i>Anas platyrhynchos</i>	15	C	CS	D
Pied-billed grebe	<i>Podilymbus podiceps</i>	2	F	CS	Pa
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	1	R	CS/EM	I/G
Western meadowlark	<i>Sturnella neglecta</i>	10	F	G	I/G
Northern harrier	<i>Circus cyaneus</i>	1	H	G	R
Loggerhead shrike	<i>Lanius excubitor</i>	1	H	G	R
Mallard	<i>Anas platyrhynchos</i>	7	F	Channel	D
Scrub jay	<i>Aphelocoma californica</i>	2	P	G	O
Yellow-rumped warbler	<i>Dendroica coronata</i>	4	P	Euc. Grove	I
Red-shafted flicker	<i>Colaptes auratus</i>	1	F	Euc. Grove	I
American kestrel	<i>Falco sparverius</i>	2	P	Euc. Grove	R

Behavior
F = feeding
FO = flying over
R = resting
C = courtship
HO = heard only
P = perched
H = hunting

Habitat
G = grassland/upland
LB=Little Break
EM = emergent marsh
CS = Central Slough
SJR = San Joaquin River's edge/intertidal
Euc. = eucalyptus grove
W = willow
RPA= Red Pipe Area
PG=Paved Grass

Guilds
Dabblers=D
Divers=Di
Granivores/Frugivores=G/F
Insectivores=I
Insectivores/Frugivores=I/F
Insectivores/Granivores=I/g
Nectivores=N
Omnivores=O
Piscivores=P
Raptors=R
Scavengers=S

DuPont Oakley Avian Survey Bird Species Database

Date: 11/09/00

Field Personnel: Francesca Demgen, Corinna Lu

Weather: Clear Cold/5-10mph Winds

Start Time: 8:30am

End Time: 9:50am

Common Species Name	Latin Species Name	No. of Individuals	Behavior	Habitat	Guilds
Great blue heron	<i>Ardea herodias</i>	1	nesting	Willow tree on Levee	P
Mallard	<i>Anas platyrhynchos</i>	10	R	LB	D
Black crowned night heron	<i>Nycticorax nycticorax</i>	3	FO	OW/LB	P
Mallard	<i>Anas platyrhynchos</i>	28	FO	LB	D
Gull species		4	FO & R	LB	O
Dabbling duck species		7	FO	LB	D
Great Egret	<i>Ardea alba</i>	1	R	LB	P
Dabbling duck species		16	R	LB	D
Black phoebe	<i>Sayornis nigricans</i>	1	F	LB	I
Pied-billed grebe	<i>Podilymbus podiceps</i>	10	R	LB	P
Snowy egret	<i>Egretta thula</i>	1	F	LB	P
American coot	<i>Fulica americana</i>	181	F	LB	D
Medium shorebird species		2	FO	LB	I
Mallard	<i>Anas platyrhynchos</i>	25	FO	LB	D
Mallard	<i>Anas platyrhynchos</i>	3	R	LB	D
Forster's tern	<i>Sterna forsteri</i>	7	FO	LB	P
American crow	<i>Corvus brachyrhynchos</i>	2	FO	LB	O
Dabbling duck species		30	F	LB	D
Tree swallow	<i>Tachycineta bicolor</i>	3	FO	LB	I
Barn owl	<i>Tyto alba</i>	1	P	LB levee	R
Belted kingfisher	<i>Ceryle alcyon</i>	1	F	LB/BB/levee	P

Behavior
F = feeding
FO = flying over
R = resting
C = courtship
HO = heard only
P = perched
H = hunting

Habitat
LB = grassland/wetland
LB = aquatic/mudflat in Little Break
EM = emergent marsh
CS = Central Slough
SJR = San Joaquin River's
Euc. = eucalyptus grove
W = willow
RPA = Red Pipe Area
PG = Paved Grass

Guilds
Dabblers=D
Divers=Di
Granivores/Frugivores=G/F
Insectivores=I
Insectivores/Frugivores=I/F
Insectivores/Granivores=I/g
Nectivores=N
Omnivores=O
Piscivores=P
Raptors=R

Dupont Oakley Avian Survey Bird Species Database

Date: 11/09/00

Field Personnel: Francesca Demigen, Corinna Lu

Weather: Clear Windy

Start Time: 10:15am

End Time: 9: 11:00AM

Common Species Name	Latin Species Name	No. of Individuals	Behavior	Habitat	Guilds
American kestrel	<i>Falco sparverius</i>	2	H	G	R
Red-tailed hawk	<i>Buteo jamaicensis</i>	1	H	G	R
Common snipe	<i>Gallinago gallinago</i>	9	FO	G	I
Mallard	<i>Anas platyrhynchos</i>	21	R	CS	D
Northern harrier	<i>Circus cyaneus</i>	1	H	G	R
Great blue heron	<i>Ardea herodias</i>	1	F	CS	P
Western meadowlark	<i>Sturnella neglecta</i>	2	R	CS	I/G
Western meadowlark	<i>Sturnella neglecta</i>	12	R	G	I/G
Northern mockingbird	<i>Mimus polyglottos</i>	1	R	G	I/F
Savannah or Song sparrow	<i>Passerculus sandwichensis</i>	8	R	G	I
Killdeer	<i>Charadrius vociferus</i>	2	FO	G	I
Mallard	<i>Anas platyrhynchos</i>	2	FO	CS	D
White tailed kite	<i>Elanus leucurus</i>	1	P	G	R
Loggerhead shrike	<i>Lanius ludovicianus</i>	1	P	G	R
Red-shafted flicker	<i>Colaptes auratus</i>	1	F	G	I
Woodpecker species	(heard pecking)	1	HO	Evcs	I

Behavior
F = feeding
FO = flying over
R = resting
C = courtship
HO = heard only
P = perched
H = hunting

Habitat
G = grassland/upland
Little Break
EM = emergent marsh
CS = Central Slough
SJR = San Joaquin River's
Euc. = eucalyptus grove
W = willow
RPA = Red Pipe Area
PG = Paved Grass

Guilds
Dabblers=D
Divers=Di
Granivores/Frugivores=G/F
Insectivores=I
Insectivores/Frugivores=I/F
Insectivores/Granivores=I/g
Nectivores=N
Omnivores=O
Piscivores=P
Raptors=R

DuPont Oakley Avian Survey Bird Species Database

Date: 11/17/00

Field Personnel: Francesca Demgen, Corinna Lu

Weather: Clear, cold

Start Time: 8:20am

End Time: 9:55am

Common Species Name	Latin Species Name	No. of Individuals	Behavior	Habitat	Guilds
Great blue heron	<i>Andea herodias</i>	1	P		P
Mallard	<i>Anas platyrhynchos</i>	2	FO	LB	D
Green-winged teal	<i>Anas crecca</i>	4	R	LB	D
American coot	<i>Fulica americana</i>	298	R,F	LB	O
Mallard	<i>Anas platyrhynchos</i>	7	R	LB	D
Eared grebe	<i>Podiceps nigricollis</i>	10			Di
Black crowned night heron	<i>Nycticorax nycticorax</i>	1	P	LB/EM	P
Pied-billed grebe	<i>Podilymbus podiceps</i>	7	R	LB	P
Common goldeneye	<i>Bucephala clangula</i>	12	R	LB	Di
Common moorhen	<i>Gallinula chloropus</i>	13	FO	LB	D
Bufflehead	<i>Bucephala albeola</i>	8	R	LB	Di
Double-crested cormorant	<i>Phalacrocorax auritus</i>	5	FO	LB	P
Gull species		8	F	LB	O
American kestrel	<i>Falco sparverius</i>	1	FO	LB	R
Black phoebe	<i>Sayornis nigricans</i>	1	FO	LB	I
Double-crested cormorant	<i>Phalacrocorax auritus</i>	1	P(on log)	LB	P
Northern Harrier	<i>Circus cyaneus</i>	1	F	LB	R
Great blue heron	<i>Andea herodias</i>	1	P	EM	P
Black crowned night heron	<i>Nycticorax nycticorax</i>	1	FO	LB	P
Red-tailed hawk	<i>Buteo jamaicensis</i>	1	H	LB/SJR levee	R

Behavior
F = feeding
FO = flying over
R = resting
C = courtship
HO = heard only
P = perched
H = hunting

Habitat
G = grassland/upland
LB = aquatic/mudflat in Little Break
EM = emergent marsh
CS = Central Slough
SJR = San Joaquin River's edge/intertidal
Euc. = eucalyptus grove
W = willow
RPA = Red Pipe Area
PG = Paved Grass

Guilds
Dabblers=D
Divers=Di
Granivores/Frugivores=G/F
Insectivores=I
Insectivores/Frugivores=I/F
Insectivores/Granivores=I/g
Nectivores=N
Omnivores=O
Piscivores=P

DuPont Oakley Avian Survey Bird Species Database

Date: 11/17/00

Field Personnel: Francesca Demgen, Corinna Lu

Weather: Clear, cool, sunny almost no wind

Start Time: 10:15am

End Time: 11:55am

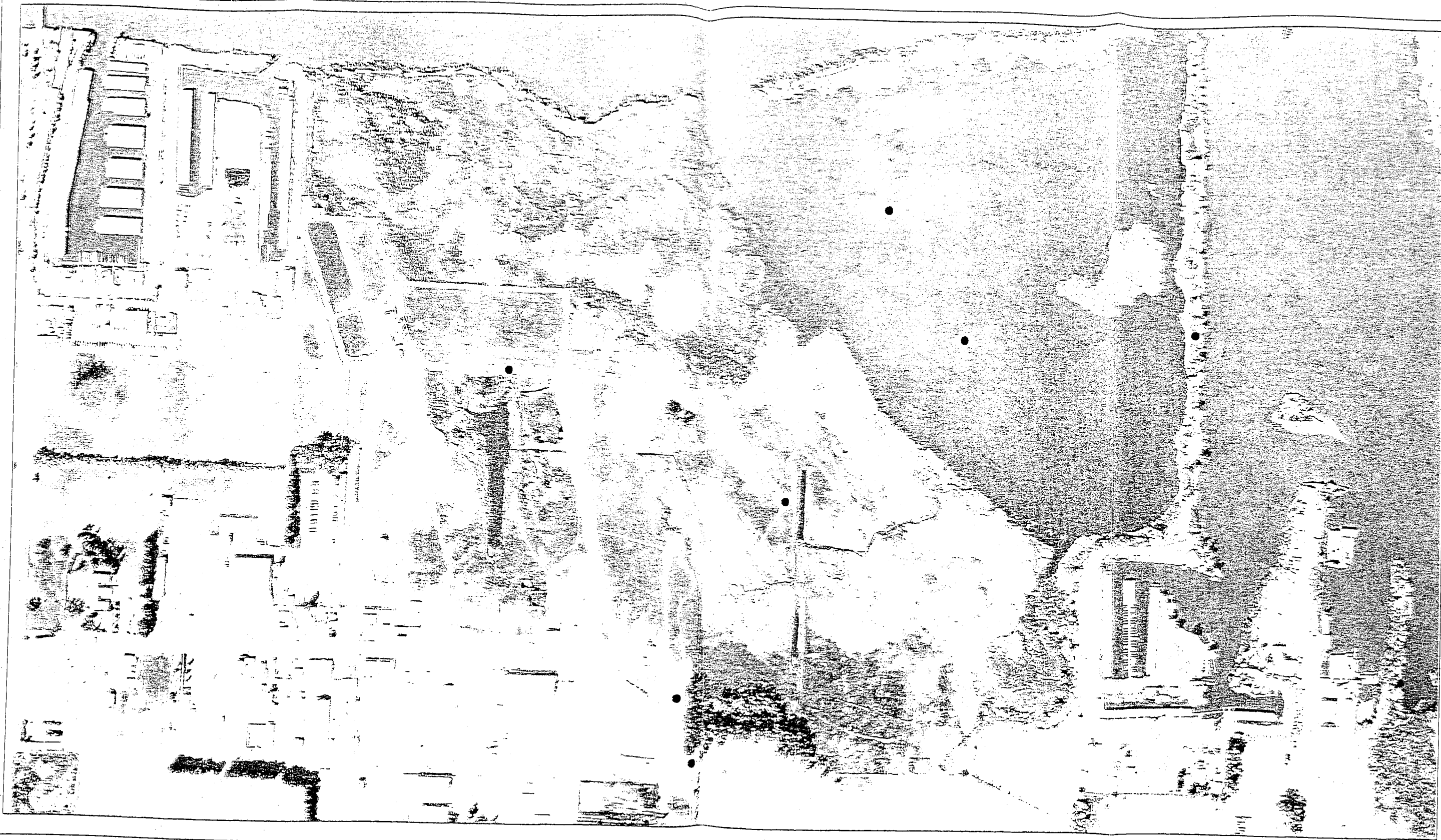
Common Species Name	Latin Species Name	No. of Individuals	Behavior	Habitat	Guilds
Northern Mockingbird	<i>Mimus polyglottos</i>	2	P	G	I/F
White tailed kite	<i>Elans leucurus</i>	1	H	G	R
Red-tailed hawk	<i>Buteo jamaicensis</i>	1	FO	G	R
Great blue heron	<i>Andea herodias</i>	1	R	CS	P
Mourning dove	<i>Zenaida macroura</i>	1	P	G	G/F
Turkey vulture	<i>Cathartes aura</i>	1	H	CS	S
Mallard	<i>Anas platyrhynchos</i>	15	FO	G	D
Ruby-crowned kinglet	<i>Regulus calendula</i>	1	P	G	I/F
Common snipe	<i>Gallinago gallinago</i>	9	R	CS	I
Pied-billed grebe	<i>Podilymbus podiceps</i>	2	F	CS	P
Mallard	<i>Anas platyrhynchos</i>	14	F	CS	D
American Crow	<i>Corvus brachyrhynchos</i>	1	HO	G	O
Killdeer	<i>Charadrius vociferus</i>	2	F	CS	I
Black phoebe	<i>Sayornis nigricans</i>	1	P	CS	I
Great blue heron	<i>Andea herodias</i>	3	P	LB/G	P
Western scrub jay	<i>Aphelocoma californica</i>	1	P	RPA/W	O
Ruby-throated hummingbird	<i>Archilochus colubris</i>	1	P	W	N
Red-shafted flicker	<i>Colaptes auratus</i>	1	P	W	I
Yellow-rumped warbler	<i>Dendroica coronata</i>	>10*	F	W	I
American robin	<i>Turdus migratorius</i>	1	P	W	I/F
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	14	P	PG	I/G

* The warblers were hidden in the tree branches.

Behavior
F = feeding
FO = flying over
R = resting
C = courtship
HO = heard only
P = perched
H = hunting

Habitat
LB = grassland/wetland
EM = emergent marsh
CS = Central Slough edge/intertidal
Euc = eucalyptus grove
W = willow
RPA = Red Pipe Area
PG = Paved Grass

Guilds
Dabblers=D
Divers=Di
Granivores/Frugivores=G/F
Insectivores=I
Insectivores/Frugivores=I/F
Insectivores/Granivores=I/g
Nectivores=N
Omnivores=O
Piscivores=P
Raptors=R
Scavengers=S



LEGEND

- - Survey Location Points



1:5000

URS

DuPont Oakley
Bird Surveys

Project No. 40-D6AN4228.2K

Survey Locations

Figure
1