



Example of flooded agricultural field with foraging birds present.



Dirt road adjacent to New River vegetation.



Vegetation within New River looking to the north of the BSA.



Slope down to New River, north of the BSA.





Evidence of removal of emergent vegetation through maintenance activities from dirt-lined channel.



Burrowing owl as commonly observed during surveys.

## **Appendix E – List of Plant Species Observed**

## Appendix E

### Plant Species Observed within the Biological Study Area

Scientific Name	Common Name
Monocots	
<b>Poaceae - Grass Family</b>	
<i>Saccharum ravennae</i> *	ravenna grass
<i>Schismus arabicus</i> *	Mediterranean grass
<b>Typhaceae - Cattail Family</b>	
<i>Typha</i> sp.	cattail
Dicots	
<b>Asteraceae - Sunflower Family</b>	
<i>Ambrosia dumosa</i>	burroweed
<i>Encelia farinosa</i>	brittlebush, incienso
<i>Geraea canescens</i>	desert-sunflower
<i>Hymenoclea salsola</i>	cheesebush
<i>Isocoma acradenia</i> var. <i>eremophila</i>	alkali goldenbush
<i>Pectis papposa</i>	chinchweed
<i>Pluchea sericea</i>	arrow weed
<i>Psathyrotes ramosissima</i>	turtleback
<b>Boraginaceae - Borage Family</b>	
<i>Cryptantha angustifolia</i>	narrow leaved cryptantha
<i>Heliotropium curassavicum</i>	salt heliotrope
<b>Brassicaceae - Mustard Family</b>	
<i>Brassica tournefortii</i> *	Saharan mustard, Sahara mustard
<i>Lepidium lasiocarpum</i>	pepperweed
<i>Sisymbrium irio</i> *	London rocket
<b>Chenopodiaceae - Goosefoot Family</b>	
<i>Atriplex canescens</i>	fourwing saltbush
<i>Atriplex lentiformis</i>	big saltbush
<i>Chenopodium album</i> *	lambs quarters
<i>Salsola tragus</i> *	Russian thistle, tumbleweed
<i>Suaeda moquinii</i>	bush seepweed
<b>Euphorbiaceae - Spurge Family</b>	
<i>Chamaesyce polycarpa</i>	smallseed sandmat
<b>Fabaceae - Legume Family</b>	
<i>Melilotus albus</i> *	white sweetclover
<i>Prosopis glandulosa</i>	honey mesquite
<b>Fouquieriaceae - Ocotillo Family</b>	
<i>Fouquieria splendens</i> ssp. <i>splendens</i>	ocotillo
<b>Geraniaceae - Geranium Family</b>	
<i>Erodium cicutarium</i> *	redstem stork's bill

Scientific Name	Common Name
<b>Myrtaceae - Myrtle Family</b>	
<i>Eucalyptus</i> sp.*	gum
<b>Plantaginaceae - Plantain Family</b>	
<i>Plantago ovata</i>	desert Indianwheat, woolly plantain
<b>Polygonaceae - Buckwheat Family</b>	
<i>Chorizanthe brevicornu</i> var. <i>brevicornu</i>	brittle spineflower
<i>Chorizanthe corrugata</i>	wrinkled spineflower
<b>Resedaceae - Mignonette Family</b>	
<i>Oligomeris linifolia</i>	lineleaf whitepuff
<b>Tamaricaceae - Tamarisk Family</b>	
<i>Tamarix ramosissima</i> *	Tamarisk
<b>Zygophyllaceae - Caltrop Family</b>	
<i>Larrea tridentata</i>	creosote bush
<i>Tribulus terrestris</i>	puncture vine

\*Non-native species

## **Appendix F – List of Wildlife Species Observed**

**Appendix F**  
**Wildlife Species Observations within the Biological Study Area**

Common Name	Scientific Name	Order	Family	Sensitivity Status <sup>1</sup>
<b>Reptiles &amp; Amphibians</b>				
Bullfrog	<i>Rana catesbeiana</i>	Anura	Ranidae	-
Desert Spiny Lizard	<i>Sceloporus magister</i>	Squamata	Phrynosomatidae	-
Side-Blotched Lizard	<i>Uta stansburiana</i>	Squamata	Phrynosomatidae	-
Longnose Snake	<i>Rhinocheilus lecontei</i>	Squamata	Colubridae	-
Checkered Garter Snake	<i>Thamnophis marcianus</i>	Squamata	Natricidae	-
<b>Avian</b>				
Northern Harrier	<i>Circus cyaneus</i>	Accipitriformes	Accipitridae	CDFW: Species of Special Concern (nesting)
Turkey Vulture	<i>Cathartes aura</i>	Accipitriformes	Cathartidae	-
Cinnamon Teal	<i>Anas cyanoptera</i>	Anseriformes	Anatidae	-
Blue-Winged Teal	<i>Anas discors</i>	Anseriformes	Anatidae	-
Mallard	<i>Anas platyrhynchos</i>	Anseriformes	Anatidae	-
Black-Chinned Hummingbird	<i>Archilochus alexandri</i>	Apodiformes	Trochilidae	-
Anna's Hummingbird	<i>Calypte anna</i>	Apodiformes	Trochilidae	-
Lesser Nighthawk	<i>Chordeiles acutipennis</i>	Caprimulgiformes	Caprimulgidae	-
Killdeer	<i>Charadrius vociferus</i>	Charadriiformes	Charadriidae	-
Black-Necked Stilt	<i>Himantopus mexicanus</i>	Charadriiformes	Recurvirostridae	-
Spotted Sandpiper	<i>Actitis macularius</i>	Charadriiformes	Scolopacidae	-
Wilson's Snipe	<i>Gallinago delicata</i>	Charadriiformes	Scolopacidae	-



Common Name	Scientific Name	Order	Family	Sensitivity Status <sup>1</sup>
Long-Billed Curlew	<i>Numenius americanus</i>	Charadriiformes	Scolopacidae	-
Whimbrel	<i>Numenius phaeopus</i>	Charadriiformes	Scolopacidae	-
Greater Yellowlegs	<i>Tringa melanoleuca</i>	Charadriiformes	Scolopacidae	-
Willet	<i>Tringa semipalmata</i>	Charadriiformes	Scolopacidae	-
Solitary Sandpiper	<i>Tringa solitaria</i>	Charadriiformes	Scolopacidae	-
Inca Dove	<i>Columbina inca</i>	Columbiformes	Columbidae	-
Mourning Dove	<i>Zenaida macroura</i>	Columbiformes	Columbidae	-
Greater Roadrunner	<i>Geococcyx californianus</i>	Cuculiformes	Cuculidae	-
Merlin	<i>Falco columbarius</i>	Falconiformes	Falconidae	CDFW: Watch List (wintering)
Prairie Falcon	<i>Falco mexicanus</i>	Falconiformes	Falconidae	CDFW: Watch List (nesting)
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	Falconiformes	Falconidae	ESA: Delisted CESA: Delisted CDFW: Fully Protected Species
American Kestrel	<i>Falco sparverius</i>	Falconiformes	Falconidae	-
Gambel's Quail <sup>2</sup>	<i>Callipepla gambelii</i>	Galliformes	Odontophoridae	-
Ring-Necked Pheasant <sup>2</sup>	<i>Phasianus colchicus</i>	Galliformes	Phasianidae	-
American Coot	<i>Fulica americana</i>	Gruiformes	Rallidae	-
Common Gallinule	<i>Gallinula galeata</i>	Gruiformes	Rallidae	-
Sora	<i>Porzana carolina</i>	Gruiformes	Rallidae	-
Horned Lark	<i>Eremophila alpestris</i>	Passeriformes	Alaudidae	-
Lazuli Bunting	<i>Passerina amoena</i>	Passeriformes	Cardinalidae	-

Common Name	Scientific Name	Order	Family	Sensitivity Status <sup>1</sup>
Common Raven	<i>Corvus corax</i>	Passeriformes	Corvidae	-
Song Sparrow	<i>Melospiza melodia</i>	Passeriformes	Emberizidae	-
Abert's Towhee	<i>Melospiza aberti</i>	Passeriformes	Emberizidae	-
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Passeriformes	Emberizidae	-
Brewer's Sparrow	<i>Spizella breweri</i>	Passeriformes	Emberizidae	-
White-Crowned Sparrow	<i>Zonotrichia leucophrys</i>	Passeriformes	Emberizidae	-
Barn Swallow	<i>Hirundo rustica</i>	Passeriformes	Hirundinidae	-
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	Passeriformes	Hirundinidae	-
Northern Rough-Winged Swallow	<i>Stelgidopteryx serripennis</i>	Passeriformes	Hirundinidae	-
Red-Winged Blackbird	<i>Agelaius phoeniceus</i>	Passeriformes	Icteridae	-
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	Passeriformes	Icteridae	-
Great-Tailed Grackle	<i>Quiscalus mexicanus</i>	Passeriformes	Icteridae	-
Western Meadowlark	<i>Sturnella neglecta</i>	Passeriformes	Icteridae	-
Yellow-Headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	Passeriformes	Icteridae	CDFW: Species of Special Concern (nesting)
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Passeriformes	Laniidae	CDFW: Species of Special Concern (nesting)
Northern Mockingbird	<i>Mimus polyglottos</i>	Passeriformes	Mimidae	-
American Pipit	<i>Anthus rubescens</i>	Passeriformes	Motacillidae	-
Wilson's Warbler	<i>Cardellina pusilla</i>	Passeriformes	Parulidae	-
Common Yellowthroat	<i>Geothlypis trichas</i>	Passeriformes	Parulidae	-

Common Name	Scientific Name	Order	Family	Sensitivity Status <sup>1</sup>
Orange-Crowned Warbler	<i>Oreothlypis celata</i>	Passeriformes	Parulidae	-
Yellow-Rumped Warbler	<i>Setophaga coronata</i>	Passeriformes	Parulidae	-
Black-Throated Gray Warbler	<i>Setophaga nigrescens</i>	Passeriformes	Parulidae	-
House Sparrow	<i>Passer domesticus</i>	Passeriformes	Passeridae	-
Phainopepla	<i>Phainopepla nitens</i>	Passeriformes	Ptilonotidae	-
Verdin	<i>Auriparus flaviceps</i>	Passeriformes	Remizidae	-
Marsh Wren	<i>Cistothorus palustris</i>	Passeriformes	Troglodytidae	-
Willow Flycatcher	<i>Empidonax traillii</i>	Passeriformes	Tyrannidae	-
Ash-Throated Flycatcher	<i>Myiarchus cinerascens</i>	Passeriformes	Tyrannidae	-
Black Phoebe	<i>Sayornis nigricans</i>	Passeriformes	Tyrannidae	-
Western Kingbird	<i>Tyrannus verticalis</i>	Passeriformes	Tyrannidae	-
Great Egret	<i>Ardea alba</i>	Pelecaniformes	Ardeidae	-
Great Blue Heron	<i>Ardea herodias</i>	Pelecaniformes	Ardeidae	-
Cattle Egret	<i>Bubulcus ibis</i>	Pelecaniformes	Ardeidae	-
Green Heron	<i>Butorides virescens</i>	Pelecaniformes	Ardeidae	-
Snowy Egret	<i>Egretta thula</i>	Pelecaniformes	Ardeidae	-
Black-Crowned Night Heron	<i>Nycticorax nycticorax</i>	Pelecaniformes	Ardeidae	-
White-Faced Ibis	<i>Plegadis chihi</i>	Pelecaniformes	Threskiornithidae	CDFW: Watch List (Nesting Colony)
Eared Grebe	<i>Podiceps nigricollis</i>	Podicipediformes	Podicipedidae	-
Burrowing Owl	<i>Athene cunicularia</i>	Strigiformes	Strigidae	-
Great Horned Owl	<i>Bubo virginianus</i>	Strigiformes	Strigidae	-

Common Name	Scientific Name	Order	Family	Sensitivity Status <sup>1</sup>
Barn Owl	<i>Tyto alba</i>	Strigiformes	Tytonidae	-
<b>Mammals</b>				
Coyote	<i>Canis latrans</i>	Carnivora	Canidae	-
Striped Skunk	<i>Mephitis mephitis</i>	Carnivora	Mephitidae	-
American Badger <sup>3</sup>	<i>Taxidea taxus</i>	Carnivora	Mustelidae	CDFW: Species of Special Concern
Raccoon	<i>Procyon lotor</i>	Carnivora	Procyonidae	-
Desert Cottontail	<i>Sylvilagus audubonii</i>	Lagomorpha	Leporidae	-
Botta's Pocket Gopher	<i>Thomomys bottae</i>	Rodentia	Geomyidae	-
Merriam's Kangaroo Rat	<i>Dipodomys merriami</i>	Rodentia	Heteromyidae	-
Common Muskrat	<i>Ondatra zibethicus</i>	Rodentia	Muridae	-
Round-Tailed Ground Squirrel	<i>Spermophilus tereticaudus</i>	Rodentia	Sciuridae	-

<sup>1</sup> Sensitivity Status Key

Federal Endangered Species Act (ESA)

State California Department of Fish and Game (CDFW)  
California Endangered Species Act (CESA)

BLM Sensitive

<sup>2</sup> Not protected by the Migratory Bird Treaty Act

<sup>3</sup> Burrow exhibiting signs of predation by a badger was observed.

## **Appendix G – Burrowing Owl Burrow Data**



**Appendix G**  
**Summary Data for Burrowing Owl Surveys**

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
1	1	4/17/2012	Inactive	Inactive	-	-	-	pellets	Very little sign.
1	2	5/10/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers	active burrow. Owl flushed from burrow upon approach. Owl using burrows 1 and 2. Location of owl noted to be at burrow 2.
1	3	5/30/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	-
1	4	6/27/2012	Occupied	Occupied	2	1	0	whitewash; tracks; prey (mouse, bird, etc.)	Two burrows, one small to west about 15m, small burrow is where juv is, point and most sign at large burrow
2	1	4/17/2012	Inactive	Inactive	-	-	-	whitewash	-
2	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	Owl flushed from 1 toward 2. Upon approach to 2, adult flushed from burrow. Based on observation, the same owl likely utilizes both burrows.
2	3	5/30/2012	Occupied	Active	-	-	-	whitewash; pellets; feathers	active burrow
2	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	Not same pair as at burrow 1, also using burrow 3
3	1	4/17/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
3	2	5/10/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	active burrow. Burrow is clearly currently utilized. It is likely due to the proximity of 3 to 2 that the same owl is utilizing 1, 2 and 3.
3	3	5/30/2012	Occupied	Occupied	2	0	0	whitewash; tracks; feathers	active burrow
3	4	6/27/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	Pair at 2 also using this burrow
4	1	4/17/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance
4	2	5/10/2012	Inactive	Inactive	-	-	-	whitewash	burrow extends under concrete culvert. Likely not currently utilized.
4	3	5/30/2012	Inactive	Inactive	-	-	-	whitewash	Likely passerine whitewash, wet inside
4	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
5	1	4/17/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
5	2	5/10/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers; prey (mouse, bird, etc.); scat (coyote, dog, etc.)	active burrow. Cow feces and rabbit foot at entrance, likely that the owl observed near 18 also utilizes 5. In addition, it is likely that 5 is the dominant burrow in terms of utilization.
5	3	5/30/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Burrow obliterated, tire tracks over
5	4	6/27/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Tire tracks
6	1	4/17/2012	Inactive	Inactive	-	-	-	none	no fresh sign
6	2	5/10/2012	Inactive	Inactive	-	-	-	whitewash; feathers	-
6	3	5/30/2012	Inactive	Inactive	-	-	-	none	whitewash not WBO, should not have be classed as active previous survey
6	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
7	1	4/17/2012	Active	Active	-	-	-	tracks	-
7	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; scat (coyote, dog, etc.)	active burrow. Owl flushed from burrow upon approach. Owl was seen with mate at burrow 9. Pair Very likely utilizes 7, 8 and 9.
7	3	6/1/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow. Satellite burrows.
7	4	6/27/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	-
8	1	4/17/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers	-

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
8	2	5/10/2012	Active	Active	-	-	-	whitewash; pellets; feathers	active burrow. Pair seen at 9 and one of said pair seen at 7.
8	3	6/1/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; prey (mouse, bird, etc.)	active burrow
8	4	6/27/2012	Occupied	Occupied	2	3	0	whitewash; pellets; tracks	Juveniles ducked into burrow 8, burrows 7, 8 should be lumped, used by same pair
9	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	-
9	2	5/10/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	active burrow. 2 adults seen. 1 adult retained location until 10 feet away. Vocalized vehemently until my departure from burrow. Owl returned to burrow Immediately Owl clearly defending either eggs or chicks.
9	3	6/1/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	active burrow. Satellite burrow.
9	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
10	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	2 burrow entrances. The pair was at the north entrance.
10	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers; sticks	Adult owl observed at 11 flushed and perched at 10. Owl flushed upon approach to burrow. Owl likely utilizes both burrows. A burrow entrance is located just south of 10, part of the same complex but clearly not currently utilized.
10	3	6/1/2012	Occupied	Occupied	1	0	0	none	Owl sheltering in pipe
10	4	6/27/2012	Occupied	Occupied	2	4	0	whitewash; pellets; tracks	other decorations (trash, string, plants, etc.)
11	1	4/17/2012	Active	Active	-	-	-	whitewash; pellets; feathers	other decorations (trash, string, plants, etc.)
11	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; sticks	active burrow. 1 adult flushed west from burrow upon approach. Burrow extensively decorated with sticks and grass.
11	3	6/2/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	1	1	-	none; feathers	Graded over only a few WBO feathers present no longer suitable. Dug up dirt with hands and found decapitated adult WBO. One fledgling found alive in burrow taken to Sonny Bono Refuge. No other fledglings present.
11	4	6/27/2012	Occupied	Occupied	1	1	0	whitewash; tracks	Adult warning on pipe and juvenile head out of burrow9
12	1	4/17/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	Maybe the same owl associated with burrow
12	2	5/11/2012	Occupied	To Be Determined	-	-	-	none	Could not locate burrow.
12	3	6/2/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Could not find a suitable burrow. There is a space under concrete lip of canal that could be it but has no WBO sign.
12	4	6/27/2012	Inactive	Inactive	-	-	-	whitewash	Could not find unless under concrete canal
13	1	4/17/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers	-
13	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets	active burrow. Adult flushed from burrow upon approach. Could be paired with owl observed at 11. Pair may utilize both burrows.
13	3	6/1/2012	Occupied	Inactive	-	-	-	none	no fresh sign
13	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	whitewash	Filled in with dirt, old sign
14	1	4/17/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
14	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	Burrow clearly utilized. Active burrow. Upon departure from burrow, observed an owl arrive and perch at burrow entrance.
14	3	6/1/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	active burrow
14	4	6/27/2012	Occupied	Occupied	2	4	0	whitewash; pellets; tracks	-
15	1	4/17/2012	Inactive	Inactive	-	-	-	none	-
15	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash	Active burrow. One owl from pair flushed from 9 to 15. It is very likely that pair observed utilizes 7, 8, 9 and 15.

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
15	3	6/1/2012	Occupied	Inactive	-	-	-	none	occupied by ground squirrel burrow filled with dirt
15	4	6/27/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Burrow no longer present, filled in with dirt, unknown cause
16	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
16	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers	active burrow. Owl flushed from burrow upon approach and Began circling the burrow while vocalizing. This bird very likely utilizes 17 as well. Both burrows should be considered part of the same complex.
16	3	6/1/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow
16	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; sticks	-
17	1	4/17/2012	Active	Active	-	-	-	whitewash; pellets; tracks	-
17	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers	active burrow. 1 owl flushed from 16 just south of this burrow. That owl very likely utilizes this burrow as well. Both burrows should be considered part of the same complex.
17	3	6/1/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	active burrow. Satellite burrow to 16.
17	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	7 large feathers, predation of one owl?
18	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	2 burrow entrances.
18	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; prey (mouse, bird, etc.)	active burrow. Very fresh tracks. Rabbit parts at entrance, though seem large, likely were utilized by owls. Adult flushed from immediate vicinity upon approach.
18	3	5/30/2012	Occupied	Active	-	-	-	whitewash; tracks; feathers	active burrow
18	4	6/27/2012	Occupied	Inactive	-	-	-	none	-
19	1	4/17/2012	Inactive	Inactive	-	-	-	none	-
19	2	5/10/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Could not locate burrow.
19	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow too short.
19	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
21	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
21	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	1 owl observed within 20 meters. Very likely associated with burrow. active burrow. Upon departure from burrow, owl returned to burrow.
21	3	6/1/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; prey (mouse, bird, etc.)	other decorations (trash, string, plants, etc.)
21	4	6/27/2012	Occupied	Occupied	1	4	0	whitewash; pellets; sticks	-
22	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
22	2	5/10/2012	Occupied	Active	-	-	-	whitewash; pellets	active burrow. Clearly currently being utilized.
22	3	6/1/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	active burrow
22	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow
23	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
23	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets	active burrow. Owl flushed from burrow entrance upon approach.
23	3	6/1/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	active burrow
23	4	6/27/2012	Occupied	Inactive	-	-	-	none	No new sign Squirrel in entrance
24	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
24	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers	active burrow other decorations (trash, string, plants, etc.)

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
24	3	6/1/2012	Occupied	Occupied	2	0	0	whitewash; tracks; feathers	other decorations (trash, string, plants, etc.)
24	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	active burrow
25	1	4/17/2012	Active	Active	-	-	-	whitewash; pellets	burrow in eroded cement bank
25	2	5/11/2012	Occupied	Occupied	2	0	0	whitewash; feathers	Pair at burrow even though it was flooded by canal water, pair flying in area, later seen inside what was left of burrow, so still active
25	3	6/2/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Flooded no longer suitable
25	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Inundated No owls in vicinity
26	1	4/17/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
26	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	-
26	3	6/2/2012	Inactive	Inactive	-	-	-	none	no fresh sign the burrows observed in this area did not appear to be WBO
26	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Point in middle of road No suitable burrow observed in vicinity
27	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
27	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	Minimal old whitewash. Burrow extends under west side of concrete culvert.
27	3	6/2/2012	Inactive	Inactive	-	-	-	none	-
27	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
28	1	4/18/2012	Inactive	Inactive	-	-	-	none	In eroded area underneath cement lined canal.
28	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	Burrow extends under culvert.
28	3	6/2/2012	Inactive	Inactive	-	-	-	none	-
28	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Inundated w/water
29	0	4/13/2012	Inactive	Inactive	-	-	-	none	-
29	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
29	2	5/11/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No longer suitable, collapsed
29	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not a suitable burrow. Filled in with soil.
29	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	No burrow present
30	0	4/13/2012	Inactive	Inactive	-	-	-	none	-
30	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
30	2	5/11/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No longer suitable, collapsed
30	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not a suitable burrow. Filled in with soil.
30	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Too small cobwebs over entrance
31	0	4/13/2012	Inactive	Inactive	-	-	-	none	-
31	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
31	2	5/11/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow no longer present
31	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	cobwebs over entrance. Filled in. Not a suitable burrow.
31	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	No burrow present
32	0	4/13/2012	Occupied	Occupied	1	0	0	whitewash; pellets	-
32	1	4/18/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
32	2	5/11/2012	Occupied	Inactive	-	-	-	feathers	Small burrow in vicinity of 163 and 195

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
32	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not a suitable WBO burrow. Only a small mammal burrow.
32	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Maybe double marking of 163
33	0	4/13/2012	Active	Active	-	-	-	whitewash; pellets	Looks active
33	1	4/18/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
33	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow
33	3	6/1/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow
33	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	-
34	0	4/12/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
34	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
34	2	5/10/2012	Inactive	To Be Determined	-	-	-	none	Burrow location is located in field. No burrow observed.
34	3	5/30/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	projection for pt was wrong, should be this local
34	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	-
35	0	4/12/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
35	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
35	2	5/10/2012	Inactive	To Be Determined	-	-	-	none	Burrow not located.
35	3	5/30/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	projection[previous] wrong, pt was here
35	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	-
36	0	4/12/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
36	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
36	2	5/10/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Burrow near berm was likely destroyed by recent grading activities.
36	3	5/30/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	-
36	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	-
37	0	4/12/2012	Inactive	Inactive	-	-	-	none	-
37	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
37	2	5/11/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
37	3	6/2/2012	Inactive	Inactive	-	-	-	none	no WBO sign. Space under concrete canal.
37	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
38	0	4/12/2012	Inactive	Inactive	-	-	-	pellets	-
38	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
38	2	5/9/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow collapsed and filled with dirt, sticks and shoes,
38	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	Active beehive adjacent to burrow.
38	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow not directly observed - too many bees
39	0	4/12/2012	Occupied	Occupied	1	0	0	whitewash	-
39	1	4/18/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
39	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; prey (mouse, bird, etc.)	-
39	3	6/1/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers	1 WBO about 30m southwest of burrow.



Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
39	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash; tracks; prey (mouse, bird, etc.)	active burrow
40	0	4/12/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
40	1	4/18/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
40	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; sticks	-
40	3	6/1/2012	Occupied	Occupied	1	1	0	whitewash; pellets; tracks; feathers	active burrow with young.
40	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	active burrow
41	0	4/12/2012	Occupied	Occupied	2	0	0	whitewash; pellets; bones (from degraded pellets); sticks	-
41	1	4/18/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; bones (from degraded pellets); sticks	-
41	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	-
41	3	6/1/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	active burrow
41	4	6/27/2012	Occupied	Occupied	1	1	0	whitewash; pellets; tracks; feathers	active burrow
42	0	4/12/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	Lots of shells
42	1	4/18/2012	Occupied	Occupied	2	0	0	pellets; tracks; sticks	-
42	2	5/9/2012	Occupied	Active	-	-	-	whitewash; tracks; sticks	active burrow, in road
42	3	6/1/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	active burrow
42	4	6/27/2012	Occupied	Active	-	-	-	whitewash; tracks	active burrow Possibly secondary burrow Owl from 155 flushed to this burrow, returned to 155
43	0	4/12/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	-
43	1	4/18/2012	Occupied	Active	-	-	-	whitewash; tracks	-
43	2	5/9/2012	Occupied	Active	-	-	-	whitewash; pellets; feathers	-
43	3	6/1/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow
43	4	6/27/2012	Occupied	Occupied	2	0	0	pellets; tracks; prey (mouse, bird, etc.)	active burrow
44	0	4/12/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
44	1	4/18/2012	Occupied	Occupied	2	0	0	whitewash; tracks	-
44	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	-
44	3	6/1/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; prey (mouse, bird, etc.)	Point needs to be moved to this location.
44	4	6/27/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	No burrow observed Possible slough from recent road grading covers area
45	0	4/12/2012	Occupied	Occupied	1	0	0	whitewash; pellets	-
45	1	4/18/2012	Occupied	Active	-	-	-	whitewash; tracks	-
45	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers	-
45	3	6/1/2012	Occupied	Active	-	-	-	whitewash; tracks	active burrow
45	4	6/27/2012	Occupied	Inactive	-	-	-	feathers	No recent sign and appears too low for BUOW - maybe partially filled in
46	1	4/10/2012	Occupied	Occupied	2	0	0	whitewash; tracks	-
46	2	5/8/2012	Occupied	Inactive	-	-	-	whitewash; pellets	no fresh sign
46	3	5/31/2012	Occupied	Inactive	-	-	-	none	-
46	4	6/26/2012	Occupied	Inactive	-	-	-	none	-
47	1	4/10/2012	Inactive	Inactive	-	-	-	none	-

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
47	2	5/7/2012	Inactive	Inactive	-	-	-	none	Numerous burrows. burrow in eroded bank
47	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not suitable. Too small and recent grading has made them not suitable for WBO.
47	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
48	1	4/10/2012	Inactive	Inactive	-	-	-	none	-
48	2	5/7/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank. Cluster of burrows.
48	3	5/31/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Can't find burrow. Recent drain cleaning eliminated burrow.
48	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable	-	-	-	-	-
49	1	4/10/2012	Inactive	Inactive	-	-	-	whitewash; pellets	2nd burrow entrance 1 foot west
49	2	5/7/2012	Inactive	Inactive	-	-	-	whitewash	old sign
49	3	5/31/2012	Inactive	Inactive	-	-	-	none	No sign
49	4	6/26/2012	Inactive	Inactive	-	-	-	-	-
50	1	4/10/2012	Inactive	Inactive	-	-	-	none	IID stake above
50	2	5/7/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank, 2 burrows
50	3	5/31/2012	Inactive	Inactive	-	-	-	pellets	no fresh sign
50	4	6/26/2012	Inactive	Inactive	-	-	-	-	cobwebs over entrance
51	1	4/10/2012	Inactive	Inactive	-	-	-	whitewash	IID STAKE ABOVE
51	2	5/7/2012	Inactive	Inactive	-	-	-	whitewash	burrow in eroded bank, old sign
51	3	5/31/2012	Inactive	Inactive	-	-	-	none	No sign
51	4	6/26/2012	Inactive	Inactive	-	-	-	-	-
52	1	4/10/2012	Inactive	Inactive	-	-	-	none	IID STAKE ABOVE
52	2	5/7/2012	Occupied	Occupied	1	0	0	whitewash; pellets	active burrow
52	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers	active burrow
52	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	-
53	1	4/10/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign
53	2	5/7/2012	Inactive	Inactive	-	-	-	whitewash; pellets	-
53	3	5/31/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign. Inactive burrow.
53	4	6/26/2012	Occupied	Occupied	1	0	0	-	-
54	1	4/10/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
54	2	5/8/2012	Inactive	Inactive	-	-	-	bones (from degraded pellets)	cobwebs over entrance, WBO flying in vicinity, but burrow appears inactive BUOW in vicinity
54	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
54	4	6/26/2012	Inactive	Inactive	-	-	-	-	-
55	1	4/10/2012	Inactive	Inactive	-	-	-	pellets	-
55	2	5/8/2012	Inactive	Inactive	-	-	-	none	-
55	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Could not find a suitable burrow. Only small mammal burrows.
55	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
56	1	4/10/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
56	2	5/8/2012	Occupied	Occupied	1	0	0	whitewash: feathers	active burrow, 2 burrow entrances

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
56	3	5/31/2012	Occupied	Occupied	1	0	0	pellets; tracks	other decorations (trash, string, plants, etc.) burrow in eroded bank
56	4	6/25/2012	Occupied	Occupied	2	0	0	-	Two burrow entrances
57	1	4/10/2012	Active	Active	-	-	-	whitewash; pellets; feathers	In road
57	2	5/8/2012	Active	Active	-	-	-	whitewash; pellets; feathers	active burrow, fresh pellets
57	3	5/31/2012	Active	Active	-	-	-	pellets; tracks	other decorations (trash, string, plants, etc.) looks active.
57	4	6/25/2012	Occupied	Occupied	2	0	0	-	-
58	1	4/10/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance
58	2	5/8/2012	Inactive	Inactive	-	-	-	whitewash; feathers	Doesn't look like it extends into bank, but can't be sure
58	3	5/31/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
58	4	6/25/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
59	1	4/10/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
59	2	5/8/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow
59	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Previous notes say active. Size is questionable. Looks like active ground squirrel. Not active WBO burrow this survey. The active burrow in the area is at 60.
59	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	occupied by ground squirrel
60	1	4/10/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
60	2	5/8/2012	Occupied	Occupied	2	0	0	whitewash; pellets; feathers	-
60	3	5/31/2012	Occupied	Occupied	2	0	0	pellets; tracks; prey (mouse, bird, etc.)	active burrow. burrow in eroded bank
60	4	6/25/2012	Occupied	Occupied	1	0	0	-	-
61	1	4/10/2012	Inactive	Inactive	-	-	-	whitewash	-
61	2	5/8/2012	Active	Active	-	-	-	whitewash; feathers	active burrow
61	3	5/31/2012	Active	Inactive	-	-	-	pellets	no fresh sign. burrow in eroded bank
61	4	6/25/2012	Occupied	Occupied	2	0	0	-	-
62	1	4/10/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance
62	2	5/8/2012	Inactive	Inactive	-	-	-	none	Can't tell if it's deep enough, undisturbed dirt clump in front
62	3	5/31/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance. burrow in eroded bank
62	4	6/25/2012	Inactive	Inactive	-	-	-	none	-
63	1	4/10/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
63	2	5/9/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow entrance collapsed, opening is now 18" x 20 ", would provide little cover for WBO
63	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Opening eroded away. Large entrance not likely to be suitable
63	4	6/26/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
64	1	4/10/2012	Active	Active	-	-	-	whitewash; pellets; tracks	-
64	2	5/9/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; sticks; scat (coyote, dog, etc.)	active burrow
64	3	5/30/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	active burrow
64	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	-	Tire tracks and grating collapsed and destroyed burrow
65	1	4/11/2012	Active	Active	-	-	-	whitewash; tracks	-
65	2	5/8/2012	Active	Inactive	-	-	-	whitewash	-
65	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Partially filled in with soil. No longer suitable.

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
65	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
66	1	4/11/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign
66	2	5/8/2012	Occupied	Occupied	2	0	0	whitewash; tracks; feathers	active burrow. Very fresh tracks.
66	3	5/31/2012	Occupied	Inactive	-	-	-	whitewash; feathers	no fresh sign
66	4	6/25/2012	Occupied	Occupied	2	0	0	pellets; tracks	-
67	1	4/11/2012	Inactive	Inactive	-	-	-	whitewash	-
67	2	5/8/2012	Active	Active	-	-	-	whitewash; tracks	active burrow
67	3	5/31/2012	Active	Inactive	-	-	-	pellets	old sign
67	4	6/25/2012	Active	Active	-	-	-	whitewash; tracks	-
68	1	4/11/2012	Inactive	Inactive	-	-	-	whitewash; feathers	Pipe
68	2	5/11/2012	Inactive	Inactive	-	-	-	none	Pipe
68	3	6/1/2012	Inactive	Inactive	-	-	-	none	Pipe
68	4	6/26/2012	Inactive	Inactive	-	-	-	none	Pipe covered
69	1	4/11/2012	Active	Active	-	-	-	whitewash	-
69	2	5/8/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers; scat (coyote, dog, etc.)	active burrow, other decorations (trash, string, plants, etc.)
69	3	6/1/2012	Occupied	Occupied	2	0	0	sticks	plant decorations
69	4	6/26/2012	Occupied	Occupied	2	0	0	tracks	-
70	1	4/11/2012	Active	Active	-	-	-	whitewash	-
70	2	5/8/2012	Occupied	Occupied	1	0	0	whitewash; tracks	active burrow
70	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Looks like bank has collapsed where burrow was
70	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
71	1	4/11/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
71	2	5/8/2012	Inactive	Inactive	-	-	-	none	no fresh sign
71	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
71	4	6/26/2012	Inactive	Inactive	-	-	-	none	Covered with sticks
72	1	4/11/2012	Inactive	Inactive	-	-	-	scat (coyote, dog, etc.)	Burrow above it has beehive in it
72	2	5/8/2012	Inactive	Inactive	-	-	-	whitewash	old sign. two burrows one with bees nest.
72	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
72	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
73	1	4/13/2012	Inactive	Inactive	-	-	-	whitewash; bones (from degraded pellets)	cobwebs over entrance no fresh sign
73	2	5/11/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers; prey (mouse, bird, etc.)	active burrow
73	3	5/30/2012	Occupied	Occupied	1	0	0	whitewash; pellets; sticks	-
73	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash; tracks	-
74	1	4/13/2012	Occupied	Occupied	2	0	0	whitewash; tracks	-
74	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow
74	3	5/30/2012	Occupied	Occupied	1	0	0	pellets; tracks	active burrow
74	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	-
75	1	4/13/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
75	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
75	3	5/30/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; sticks	active burrow
75	4	6/27/2012	Occupied	Occupied	2	3	0	whitewash; tracks; feathers; sticks	Broken IID pole, other decorations (trash, string, plants, etc.)
76	1	4/13/2012	Occupied	Occupied	2	0	0	tracks; feathers	-
76	2	5/11/2012	Occupied	Occupied	2	0	0	whitewash; tracks; feathers	Two owls within immediate vicinity. One flushed from 82 and one was perched in between burrows. Pair likely utilizes both burrows.
76	3	5/30/2012	Occupied	Occupied	1	0	0	pellets; tracks	active burrow
76	4	6/27/2012	Occupied	Occupied	2	2	0	whitewash; tracks	-
77	1	4/13/2012	Occupied	Occupied	2	0	0	whitewash; tracks; prey (mouse, bird, etc.)	-
77	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow other decorations (trash, string, plants, etc.)
77	3	5/30/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks; prey (mouse, bird, etc.); scat (coyote, dog, etc.)	active burrow
77	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; tracks; feathers; sticks	other decorations (trash, string, plants, etc.), lots of feathers and fuzz, looks like collecting not predation
78	1	4/13/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	-
78	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers	active burrow
78	3	5/30/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	active burrow 2nd pothole burrow entrance 3 m away
78	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; tracks; feathers	Two burrows
79	1	4/13/2012	Active	Active	-	-	-	whitewash; pellets; tracks	-
79	2	5/11/2012	Active	Active	-	-	-	whitewash; pellets; tracks	active burrow, potential escape burrow for 80
79	3	5/30/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow
79	4	6/27/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	-
80	1	4/13/2012	Active	Active	-	-	-	whitewash; tracks; prey (mouse, bird, etc.)	-
80	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow
80	3	5/30/2012	Occupied	Occupied	1	0	0	whitewash; tracks; prey (mouse, bird, etc.)	active burrow
80	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; tracks; prey (mouse, bird, etc.)	-
81	1	4/13/2012	Occupied	Occupied	1	0	0	whitewash; tracks	Flew to bmu056 when flushed
81	2	5/11/2012	Occupied	Occupied	1	0	0	pellets; tracks; feathers	active burrow, other decorations (trash, string, plants, etc.)
81	3	5/30/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers	active burrow
81	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; tracks; feathers; sticks	-
82	1	4/13/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers	-
82	2	5/11/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	active burrow
82	3	5/30/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow
82	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; tracks; feathers; sticks	other decorations (trash, string, plants, etc.)
83	1	4/13/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	Using other burrows to west, but this has most sign
83	2	5/11/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	active burrow. Adult seen at 84 likely utilizes this burrow as well.
83	3	5/30/2012	Occupied	Active	0	0	0	whitewash	active burrow
83	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash	-
84	1	4/13/2012	Active	Active	-	-	-	whitewash; pellets	-



Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
84	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; scat (coyote, dog, etc.)	active burrow, other decorations (trash, string, plants, etc.)
84	3	5/30/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	active burrow
84	4	6/27/2012	Occupied	Occupied	1	0	0	-	-
85	1	4/13/2012	Active	Active	-	-	-	whitewash	-
85	2	5/11/2012	Active	Active	-	-	-	whitewash; pellets	active burrow. Owl from 84flushed from this burrow. Owl very likely utilizes this burrow as well.
85	3	5/30/2012	Active	Active	-	-	-	whitewash; pellets	active burrow
85	4	6/27/2012	Active	Active	-	-	-	whitewash; pellets	-
86	1	4/13/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign
86	2	5/11/2012	Inactive	Inactive	-	-	-	whitewash	Arrowweed growing directly in front of entrance. Not currently utilized.
86	3	5/30/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
86	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
87	1	4/13/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	In dirt lot
87	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	Complex of 3 burrows within 10 ft of each other. Adult flushed upon approach to burrow. Likely utilizes 88 as well.
87	3	5/30/2012	Occupied	Occupied	2	0	0	whitewash; pellets; feathers; bones (from degraded pellets)	2 adults flushed from vicinity of three burrow complex active burrow
87	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	-
88	1	4/13/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	In dirt lot
88	2	5/11/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers; bones (from degraded pellets); sticks; prey (mouse, bird, etc.)	active burrow
88	3	5/30/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; bones (from degraded pellets)	active burrow
88	4	6/27/2012	Occupied	Occupied	2	2	0	whitewash; pellets; tracks; feathers	-
89	1	4/10/2012	Occupied	Occupied	2	0	0	whitewash; pellets; feathers	-
89	2	5/11/2012	Occupied	Inactive	-	-	-	none	Veg at entrance
89	3	5/31/2012	Occupied	Inactive	-	-	-	none	Possible muskrat burrow with poop in entrance and tunnels through grass.
89	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Collapsed
90	1	4/10/2012	Inactive	Inactive	-	-	-	whitewash	-
90	2	5/7/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
90	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
90	4	6/26/2012	Inactive	Inactive	-	-	-	-	-
91	1	4/10/2012	Active	Active	-	-	-	whitewash; pellets	2 burrow entrances
91	2	5/7/2012	Active	Active	-	-	-	whitewash; pellets	active burrow
91	3	5/31/2012	Active	Inactive	-	-	-	none	-
91	4	6/26/2012	Active	Inactive	-	-	-	-	-
92	1	4/10/2012	Inactive	Inactive	-	-	-	whitewash	Old sign
92	2	5/7/2012	Active	Active	-	-	-	whitewash	burrow in eroded bank. active burrow
92	3	5/31/2012	Active	Inactive	-	-	-	none	-
92	4	6/26/2012	Active	Inactive	-	-	-	none	-
93	1	4/10/2012	Occupied	Occupied	2	0	0	whitewash; pellets; feathers	-

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93	2	5/8/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow
93	3	5/31/2012	Occupied	Inactive	-	-	-	sticks	other decorations (trash, string, plants, etc.). old sign
93	4	6/26/2012	Occupied	Inactive	-	-	-	none	-
94	1	4/10/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance no fresh sign
94	2	5/7/2012	Active	Active	-	-	-	whitewash; tracks	active burrow
94	3	5/31/2012	Active	Inactive	-	-	-	none	-
94	4	6/26/2012	Active	Inactive	-	-	-	none	cobwebs over entrance
97	1	4/10/2012	Inactive	Inactive	-	-	-	none	ground squirrel sign
97	2	5/8/2012	Occupied	Occupied	1	0	0	whitewash; tracks	active burrow
97	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not suitable
97	4	6/26/2012	Inactive	Inactive	-	-	-	-	-
98	1	4/10/2012	Occupied	Occupied	2	0	0	whitewash; tracks	-
98	2	5/8/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers	Bird flushed from burrow. Later was flushed from burrow and seen utilizing sda102.
98	3	5/31/2012	Occupied	Occupied	1	0	0	feathers; scat (coyote, dog, etc.)	other decorations (trash, string, plants, etc.)
98	4	6/25/2012	Occupied	Active	-	-	-	whitewash; feathers	other decorations (trash, string, plants, etc.)
99	1	4/10/2012	Inactive	Inactive	-	-	-	whitewash; pellets	-
99	2	5/8/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank.
99	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not really a burrow that I can find. Burrow below water level that looks like muskrat or something
99	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
100	1	4/10/2012	Occupied	Occupied	2	0	0	tracks	-
100	2	5/8/2012	Occupied	Inactive	-	-	-	whitewash	Whitewash at mouth of burrow.
100	3	5/31/2012	Occupied	Inactive	-	-	-	none	-
100	4	6/25/2012	Occupied	Inactive	-	-	-	none	cobwebs over entrance
101	1	4/10/2012	Active	Active	-	-	-	whitewash	-
101	2	5/8/2012	Active	Active	-	-	-	whitewash	active burrow
101	3	5/31/2012	Occupied	Occupied	2	0	0	tracks	2 burrows at this location. Burrows are within 5-10 meters of each other. Marking as one point
101	4	6/28/2012	Occupied	Occupied	2	0	0	whitewash; feathers	-
102	1	4/10/2012	Occupied	Occupied	1	0	0	whitewash	2 entrances to burrow.
102	2	5/8/2012	Occupied	Active	-	-	-	whitewash; tracks; feathers	active burrow
102	3	5/31/2012	Occupied	Inactive	-	-	-	pellets	old sign
102	4	6/25/2012	Occupied	Inactive	-	-	-	whitewash	cobwebs over entrance. old sign
103	1	4/10/2012	Active	Active	-	-	-	pellets; tracks	-
103	2	5/8/2012	Active	Inactive	-	-	-	whitewash	old sign.
103	3	5/31/2012	Active	Inactive	-	-	-	none	-
103	4	6/25/2012	Active	Inactive	-	-	-	whitewash	cobwebs over entrance. old sign
104	1	4/10/2012	Inactive	Inactive	-	-	-	whitewash	Old sign. Burrow partially filled in from road work activities.
104	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance
104	3	5/30/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance along roadside under arrowweed.

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104	4	6/26/2012	Inactive	Inactive	-	-	-	-	cobwebs over entrance
105	1	4/11/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; bones (from degraded pellets)	-
105	2	5/8/2012	Occupied	Occupied	1	0	0	whitewash; tracks	active burrow. Fresh tracks at entrance. Adult owl flying in vicinity.
105	3	5/31/2012	Occupied	Occupied	2	0	0	sticks; scat (coyote, dog, etc.)	-
105	4	6/25/2012	Occupied	Occupied	2	0	0	-	-
106	1	4/11/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance
106	2	5/8/2012	Inactive	Inactive	-	-	-	whitewash; prey (mouse, bird, etc.)	no fresh sign. Cobwebs in entrance.
106	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No longer suitable
106	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
107	1	4/12/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers; bones (from degraded pellets)	This is the active burrow
107	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers	active burrow. Adult flushed from burrow upon approach.
107	3	6/1/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers; sticks	active burrow IID stake
107	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; scat (coyote, dog, etc.)	other decorations (trash, string, plants, etc.)
108	1	4/12/2012	Occupied	Occupied	2	0	0	whitewash; pellets; feathers; bones (from degraded pellets)	-
108	2	5/10/2012	Occupied	Active	-	-	-	whitewash; pellets; feathers	active burrow. Complex of two burrows.
108	3	6/1/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow burrow in eroded bank IID stake
108	4	6/26/2012	Occupied	Active	-	-	-	whitewash; pellets; sticks	-
109	1	4/13/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; bones (from degraded pellets); scat (coyote, dog, etc.)	-
109	2	5/10/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	active burrow
109	3	5/31/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers; sticks; prey (mouse, bird, etc.)	active burrow another smaller burrow located approx 1 meter away - no sign.
109	4	6/25/2012	Occupied	Occupied	1	3	1	whitewash; pellets; tracks; feathers	-
110	1	4/17/2012	Occupied	Occupied	2	0	0	-	Burrow not visible from this vantage point
110	2	5/9/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	3 active burrow. 1 inactive burrow. 4 burrows total in complex
110	3	5/31/2012	Occupied	Active	-	-	-	whitewash; pellets; feathers	active burrow
110	4	6/25/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	IID pole
111	1	4/17/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers	other decorations (trash, string, plants, etc.) plants
111	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	IID pole, photos
111	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow
111	4	6/25/2012	Occupied	Occupied	2	3	0	whitewash; pellets; tracks; feathers; bones (from degraded pellets)	active burrow Partial remains of BUOW wing on burrow apron Additional juvenile BUOW perched approx 10 meters to south
112	1	4/17/2012	Active	Active	-	-	-	whitewash; pellets; feathers; scat (coyote, dog, etc.)	cobwebs over entrance
112	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers	IID pole
112	3	5/31/2012	Occupied	Inactive	-	-	-	whitewash; pellets	cobwebs over entrance

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									active burrow
112	4	6/25/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; sticks	active burrow
113	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets	-
113	2	5/10/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; sticks	5 active burrows, 3 IID poles, two WBO were seen on different poles and may be part of two separate pairs
113	3	5/31/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; sticks	5 burrows w/in 15 meters of each other. 2 adult BUOW present. active burrow
113	4	6/25/2012	Occupied	Occupied	1	2	0	whitewash; pellets; tracks; feathers	active burrow
115	1	4/18/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; prey (mouse, bird, etc.); scat (coyote, dog, etc.)	-
115	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks; prey (mouse, bird, etc.); scat (coyote, dog, etc.)	active burrow
115	3	6/1/2012	Occupied	Active	-	-	-	whitewash; tracks; feathers; sticks; prey (mouse, bird, etc.); scat (coyote, dog, etc.)	active burrow
115	4	6/28/2012	Occupied	Active	-	-	-	tracks; feathers; scat (coyote, dog, etc.)	-
116	1	4/18/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers	other decorations (trash, string, plants, etc.) plant material. Cement culvert with sign over burrow with sign.
116	2	5/11/2012	Active	Active	-	-	-	whitewash	could be active
116	3	6/2/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No burrow found
116	4	6/28/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Owl burrow. Owl nearby in pipe. See point 606 to south
117	0	4/12/2012	Active	Active	-	-	-	none	other decorations (trash, string, plants, etc.), bird from burrow ID 107 was here but active burrow is RLC603
117	1	4/18/2012	Active	Active	-	-	-	whitewash; pellets; prey (mouse, bird, etc.)	-
117	2	5/10/2012	Active	Active	-	-	-	whitewash; prey (mouse, bird, etc.)	active burrow
117	3	6/1/2012	Active	Inactive	-	-	-	whitewash	Marked by IID stake
117	4	6/26/2012	Active	Inactive	-	-	-	whitewash	-
118	0	4/12/2012	Inactive	Inactive	-	-	-	whitewash	burrow in eroded bank, no fresh sign
118	1	4/18/2012	Inactive	Inactive	-	-	-	none	no new sign
118	2	5/11/2012	Inactive	To Be Determined	-	-	-	none	Point on N bank of earthen canal near entrance to culvert. No burrow found.
118	3	5/30/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
118	4	6/26/2012	Inactive	Inactive	-	-	-	whitewash	-
119	0	4/12/2012	Inactive	Inactive	-	-	-	whitewash; pellets	-
119	1	4/18/2012	Inactive	Inactive	-	-	-	whitewash; feathers	-
119	2	5/11/2012	Active	Active	-	-	-	whitewash; pellets; scat (coyote, dog, etc.)	3 burrows total. 2 burrows w/in 8 feet of each other. One burrow at lower third of bank, the other at upper third. Previous burrows 120 and 121 were combined with 119
119	3	5/30/2012	Active	Inactive	-	-	-	none	burrow in eroded bank, collapsing several burrows
119	4	6/26/2012	Active	Inactive	-	-	-	none	burrow in eroded bank, 3 burrows together, tracks of tractor over burrows
122	0	4/12/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign
122	1	4/18/2012	Inactive	Inactive	-	-	-	feathers	One feather observed. No fresh sign
122	2	5/11/2012	Inactive	Inactive	-	-	-	none	-
122	3	5/30/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank, no fresh sign

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
122	4	6/26/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
123	0	4/12/2012	Inactive	Inactive	-	-	-	pellets	-
123	1	4/18/2012	Inactive	Inactive	-	-	-	pellets	-
123	2	5/11/2012	Inactive	Inactive	-	-	-	whitewash; pellets; scat (coyote, dog, etc.)	cobwebs over entrance active burrow
123	3	5/30/2012	Inactive	Inactive	-	-	-	whitewash; pellets	Maybe active burrow, burrow in eroded bank, recent earthmoving by hoe at burrow entrance distorting sign, may be fresh
123	4	6/26/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
124	0	4/12/2012	Occupied	Occupied	1	0	0	whitewash; pellets; bones (from degraded pellets)	-
124	1	4/18/2012	Occupied	Occupied	1	0	0	whitewash; pellets	-
124	2	5/11/2012	Occupied	Inactive	-	-	-	whitewash; pellets	cobwebs over entrance old sign
124	3	5/30/2012	Occupied	Inactive	-	-	-	none	cobwebs over entrance, burrow in eroded bank
124	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	whitewash; pellets	old sign, roof of burrow collapsed, partially blocking entrance, hoe work directly above and in channel
125	0	4/12/2012	Inactive	Inactive	-	-	-	none	Large burrow
125	1	4/18/2012	Active	Active	-	-	-	tracks	-
125	2	5/11/2012	Occupied	Occupied	2	0	0	tracks; feathers	active burrow Burrow in lower portion of S bank of earthen canal. Pellets and whitewash on top of opposite bank. One owl observed perched on N bank. I think this is supposed to be burrow 125.
125	3	5/30/2012	Occupied	Occupied	1	0	0	pellets; tracks; feathers	burrow in eroded bank, owl observed in area in am, pellets , whitewash on opposite bank to north
125	4	6/26/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	burrow in eroded bank, additional sign on opposite bank=perch site
126	0	4/12/2012	Inactive	Inactive	-	-	-	none	-
126	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
126	2	5/11/2012	Inactive	To Be Determined	-	-	-	none	Point in middle of road. No suitable burrow observed in vicinity.
126	3	5/30/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
126	4	6/26/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
127	0	4/12/2012	Inactive	Inactive	-	-	-	none	-
127	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
127	2	5/11/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Hole in road. Does not open into a burrow. Possibly collapsed?
127	3	5/30/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Hole in road, filled in with dirt, would need to be dug out
127	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable	-	-	-	none	In road, filled in with dirt from erosion
128	0	4/12/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
128	1	4/18/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance.
128	2	5/11/2012	Inactive	To Be Determined	-	-	-	none	In middle of road. No burrow or other hole found.
128	3	5/30/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
128	4	6/26/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
129	1	4/10/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
129	2	5/7/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
129	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
129	4	6/26/2012	Inactive	Inactive	-	-	-	-	cobwebs over entrance
130	1	4/10/2012	Inactive	Inactive	-	-	-	none	In sinkhole, one potential burrow facing south
130	2	5/11/2012	Inactive	Inactive	-	-	-	none	Collapsed
130	3	5/31/2012	Inactive	Inactive	-	-	-	whitewash	-
130	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
131	1	4/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets; sticks	In sinkhole WBO observed on perch about 50 to SW, owl then flew to burrow
131	2	5/7/2012	Occupied	Active	-	-	-	whitewash; pellets	active burrow
131	3	5/31/2012	Occupied	Inactive	-	-	-	pellets	old sign
131	4	6/26/2012	Occupied	Inactive	-	-	-	-	old sign. cobwebs over entrance
132	1	4/10/2012	Occupied	Occupied	1	0	0	whitewash	WBO on road next to potential sinkhole burrow complex. Flew to south side of Anza road about 100 m to west of burrow
132	2	5/7/2012	Occupied	Active	-	-	-	whitewash; pellets	active burrow
132	3	5/31/2012	Occupied	Inactive	-	-	-	none	cobwebs over entrance. Sinkholes in edge of road. No WBO sign.
132	4	6/26/2012	Occupied	Inactive	-	-	-	tracks; feathers	-
133	1	4/10/2012	Occupied	Occupied	2	0	0	whitewash; pellets	Pair flew to rlc003
133	2	5/7/2012	Occupied	Active	-	-	-	whitewash; pellets; bones (from degraded pellets)	active burrow
133	3	5/31/2012	Occupied	Inactive	-	-	-	pellets; feathers	no fresh sign. Appears currently inactive.
133	4	6/28/2012	Occupied	Inactive	-	-	-	none	-
134	1	4/10/2012	Occupied	Occupied	2	0	0	whitewash	Another recently collapsed by grader burrow on other side of bank about 60 m to North WBO hanging around both
134	2	5/8/2012	Occupied	Active	-	-	-	whitewash; pellets; feathers	active burrow
134	3	5/31/2012	Occupied	Inactive	-	-	-	none	burrow in eroded bank
134	4	6/26/2012	Occupied	Inactive	-	-	-	-	-
135	1	4/10/2012	Occupied	Occupied	1	0	0	whitewash	-
135	2	5/8/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow filled in, no potential for WBO
135	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	burrow in eroded bank. Partially filled not suitable for WBO.
135	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
136	1	4/10/2012	Inactive	Inactive	-	-	-	none	Large burrow, may be mammal burrow
136	2	5/8/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
136	3	5/31/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
136	4	6/26/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
137	1	4/10/2012	Occupied	Occupied	1	0	0	whitewash	Flushed to south
137	2	5/8/2012	Occupied	Inactive	-	-	-	none	-
137	3	5/31/2012	Occupied	Inactive	-	-	-	none	burrow in eroded bank
137	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Caved in
142	1	4/11/2012	Inactive	Inactive	-	-	-	none	Large burrow 16" wide
142	2	5/8/2012	Inactive	Inactive	-	-	-	none	Good size
142	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Partially filled in with soil. No longer suitable.

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
142	4	6/25/2012	Inactive	Inactive	-	-	-	none	-
143	1	4/11/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers	-
143	2	5/8/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	Egg shell outside burrow, two burrows, active burrow
143	3	5/31/2012	Occupied	Inactive	-	-	-	none	No sign only round tail tracks.
143	4	6/25/2012	Occupied	Inactive	-	-	-	-	-
144	1	4/11/2012	Inactive	Inactive	-	-	-	none	Possible canid dig
144	2	5/8/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow collapsed.
144	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No burrow
144	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	no burrow
145	1	4/11/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers; bones (from degraded pellets)	A lot of sign present
145	2	5/8/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow
145	3	6/1/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers; sticks	active burrow
145	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	-	Road grated
146	1	4/11/2012	Inactive	Inactive	-	-	-	none	-
146	2	5/9/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Could not find burrow.
146	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Can't find burrow. Only ground squirrel burrows present
146	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Can't find
147	1	4/12/2012	Inactive	Inactive	-	-	-	whitewash	Whitewash associated with stake, two burrows but only one has depth
147	2	5/10/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Burrow collapsed by recent grading activities.
147	3	5/30/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	whitewash	Collapsed
147	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	-
148	1	4/12/2012	Inactive	Inactive	-	-	-	whitewash; pellets	Cave-in area, can't tell if turns but sign present
148	2	5/10/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Burrow not located. Likely destroyed by recent grading.
148	3	5/30/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	No Longer Suitable (Damaged)
148	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	-
149	1	4/12/2012	Inactive	Inactive	-	-	-	feathers	-
149	2	5/10/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	GPS inaccurate. Burrow not located. Berm has clearly been channelized likely destroying burrow.
149	3	5/30/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	No Longer Suitable (Damaged),
149	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	feathers	Found burrow and IID pole interior of burrow collapsed by activities in channel
150	1	4/12/2012	Inactive	Inactive	-	-	-	whitewash	In side of deep drainage, white wash may be passerine
150	2	5/11/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	No longer present after hoe work in ditch
150	3	5/30/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	No Longer Suitable (Damaged)
150	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	-
151	1	4/12/2012	Active	Active	-	-	-	whitewash; pellets	burrow looks active



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151	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	-
151	3	6/1/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	Other decorations (trash, string, plants, etc.)
151	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; tracks; feathers	active burrow
152	1	4/12/2012	Active	Active	-	-	-	whitewash	-
152	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	Two burrows, one less obvious, active burrow
152	3	6/1/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	active burrow
152	4	6/27/2012	Occupied	Active	-	-	-	tracks	active burrow Directly adjacent to 43, at which a pair of owls was observed Secondary burrow
153	1	4/12/2012	Active	Active	-	-	-	whitewash	-
153	2	5/9/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers; sticks	active burrow
153	3	6/1/2012	Active	Inactive	-	-	-	whitewash; pellets	no fresh sign
153	4	6/27/2012	Active	Active	-	-	-	tracks	active burrow One of a pair of owls from 43 observed at entrance
154	1	4/12/2012	Active	Active	-	-	-	whitewash; pellets; tracks	-
154	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow, saw WBO at burrow later in survey
154	3	6/1/2012	Occupied	Inactive	-	-	-	none	Old sign. Burrow in lower road.
154	4	6/27/2012	Occupied	Active	-	-	-	tracks	active burrow
155	1	4/12/2012	Occupied	Occupied	2	0	0	whitewash; pellets; feathers	2 entrances. 2 satellite burrows within 5 meters both being used
155	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	In road, tire tracks on berg
155	3	6/1/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow
155	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers; bones (from degraded pellets); sticks	active burrow
156	1	4/12/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
156	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	-
156	3	6/1/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; prey (mouse, bird, etc.)	active burrow. Possible satellite burrow to 167.
156	4	6/27/2012	Occupied	Occupied	1	2	0	whitewash; pellets; tracks; feathers; bones (from degraded pellets)	active burrow
158	1	4/12/2012	Inactive	Inactive	-	-	-	none	-
158	2	5/11/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No longer suitable
158	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	cobwebs over entrance. Small burrow entrance.
158	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	cobwebs over entrance Mostly filled in
159	1	4/13/2012	Occupied	Occupied	1	0	0	whitewash; pellets	WBO seen about 100 m to south of burrow, not at entrance, later seen at entrance
159	2	5/11/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No burrow present
159	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No good burrow visible. Burrow partially filled in with soil.
159	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No burrow observed
160	1	4/13/2012	Occupied	Occupied	1	0	0	whitewash; pellets	-
160	2	5/9/2012	Occupied	Active	-	-	-	whitewash; pellets	active burrow
160	3	6/1/2012	Occupied	Inactive	-	-	-	whitewash; tracks	no fresh sign
160	4	6/27/2012	Occupied	Inactive	-	-	-	none	cobwebs over entrance

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161	1	4/13/2012	Active	Active	-	-	-	whitewash; pellets	-
161	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers; sticks	-
161	3	6/1/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow
161	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; sticks; scat (coyote, dog, etc.)	active burrow
162	1	4/13/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	-
162	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	-
162	3	6/1/2012	Occupied	Inactive	-	-	-	whitewash; pellets; feathers	no fresh sign. old sign
162	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	feathers	Partially filled in cobwebs over entrance
163	1	4/13/2012	Occupied	Occupied	1	0	0	whitewash; pellets	WBO observed at burrow during second pass
163	2	5/11/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers	-
163	3	6/1/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	other decorations (trash, string, plants, etc.).
163	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	-
164	1	4/13/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance
164	2	5/11/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
164	3	6/1/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign. cobwebs over entrance
164	4	6/27/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
166	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash	2 burrow entrances
166	2	5/11/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	active burrow, two burrows
166	3	6/1/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; prey (mouse, bird, etc.)	multiple entrances to same burrow. active burrow
166	4	6/27/2012	Occupied	Occupied	2	2	0	whitewash; pellets; tracks; feathers	active burrow; 2 entrances 2 entrances 1 m apart
168	1	4/17/2012	Active	Active	-	-	-	whitewash; pellets; sticks	-
168	2	5/10/2012	Active	Active	-	-	-	whitewash	Burrow shows potential WBO activity. Some minimal whitewash present. Entrance appears frequented, though occupation is not conclusive. A second burrow that may have been suitable at one time, but now has been filled in.
168	3	6/2/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Filled in By gopher
168	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Several burrows in vicinity, but all have been filled in and are no longer suitable
170	1	4/17/2012	Inactive	Inactive	-	-	-	whitewash	WBO pair about 60 m to south
170	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	old sign
170	3	5/31/2012	Inactive	Inactive	-	-	-	whitewash	-
170	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	whitewash	old sign, back collapsed
171	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	three active burrows total
171	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; feathers	3 burrows within 10 ft of each other. Extensive whitewash. All active. Adult perched at burrow upon approach.
171	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	3 burrows, active burrow
171	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; bones (from degraded pellets); sticks	other decorations (trash, string, plants, etc.)
172	1	4/17/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign
172	2	5/9/2012	Active	Active	-	-	-	whitewash; pellets; tracks	active burrow. Fresh tracks.
172	3	5/31/2012	Active	Inactive	-	-	-	whitewash	Very large, probably canid, couldn't confirm owl tracks

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172	4	6/26/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers	-
173	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash	-
173	2	5/9/2012	Occupied	Inactive	-	-	-	none	likely burrow part of the three burrow complex [173, 175 and 174] just south of point. Point not at a burrow.
173	3	5/31/2012	Occupied	Active	-	-	-	whitewash	active burrow
173	4	6/26/2012	Occupied	Active	-	-	-	whitewash; pellets	-
174	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets	-
174	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; sticks	active burrow. It is very likely that 174 and 175 are utilized by the same owl observed within the vicinity.
174	3	5/31/2012	Occupied	Occupied	2	0	0	whitewash; pellets	active burrow
174	4	6/26/2012	Occupied	Active	-	-	-	whitewash; pellets; feathers	-
175	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; sticks	-
175	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; tracks	active burrow. It is very likely that 175 and 174 are utilized by the same owl.
175	3	5/31/2012	Occupied	Active	-	-	-	whitewash	active burrow, 173, 174 and 175 directly adjacent
175	4	6/26/2012	Occupied	Active	-	-	-	whitewash; feathers	-
176	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; sticks	-
176	2	5/9/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	active burrow. Fresh sign.
176	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers; sticks	active burrow, IID pole
176	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
177	1	4/17/2012	Active	Active	0	0	0	whitewash; feathers; sticks	-
177	2	5/9/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	active burrow. One of the adults observed circled burrow during collection of data. Is likely utilizing 176 as well. Observed 1 adult flush from 177 and perch at 176. It remained there until I departed from 177.
177	3	5/31/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; sticks	active burrow other decorations (trash, string, plants, etc.), predated egg on apron
177	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; sticks	-
178	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; sticks	Two burrows together
178	2	5/9/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	active burrows. 2 burrows within 5 feet of each other both with very recent sign of activity. Likely utilized same pair. 1 owl observed circling both burrows during collection of data.
178	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	2 burrows, active burrow, other decorations (trash, string, plants, etc.), half egg shell on apron
178	4	6/26/2012	Occupied	Occupied	2	3	0	whitewash; pellets; tracks	-
179	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; prey (mouse, bird, etc.)	-
179	2	5/9/2012	Occupied	Active	-	-	-	whitewash; pellets; bones (from degraded pellets)	active burrow. Fresh sign at burrow entrance.
179	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers; prey (mouse, bird, etc.)	active burrow, other decorations (trash, string, plants, etc.)
179	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	-
180	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
180	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers	active burrow. Burrow 196 is likely utilized By same owl. Owl vocalized upon approach to burrow and retained a distance of no more than 5-10 meters during data collection.
180	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers	active burrow

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180	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
181	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
181	2	5/9/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow not located. Observed a burrow that may at one point have been functional, but no longer exhibits the correct morphology.
181	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	whitewash; pellets	Filled in with sign on apron
181	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Burrow filled in w/tire track over top Point off
182	1	4/17/2012	Inactive	Inactive	0	0	0	whitewash; pellets	-
182	2	5/9/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Burrow appears crushed from grading activity. Old prey remains observed at crushed entrance.
182	3	5/31/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Crushed
182	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Burrow filled in
183	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets	Two burrows\directly adjacent, same pair appears to be assoc w/ these burrows.
183	2	5/9/2012	Occupied	Active	-	-	-	whitewash; pellets	active burrow. Extensive whitewash.
183	3	5/31/2012	Occupied	Active	-	-	-	whitewash; pellets; scat (coyote, dog, etc.)	active burrow
183	4	6/26/2012	Occupied	Active	-	-	-	whitewash; tracks; sticks	active burrow
187	1	4/17/2012	Active	Active	-	-	-	whitewash; feathers	-
187	2	5/9/2012	Active	Active	-	-	-	whitewash; tracks	active burrow. Fresh sign. Likely linked to burrow complex 188
187	3	5/31/2012	Active	Active	-	-	-	none	Well used, just no sign but may be active, just tidy owls
187	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash; tracks	-
188	1	4/17/2012	Active	Active	-	-	-	whitewash; pellets; feathers	WBO pair at burrow to north; 2 burrows
188	2	5/9/2012	Active	Active	-	-	-	whitewash; tracks; feathers	burrow in eroded bank. Three burrows within 20 feet of each other. All three burrows including 187 have fresh sign and are likely utilized by the same individuals.
188	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; prey (mouse, bird, etc.)	active burrows, 2 burrows
188	4	6/26/2012	Occupied	Occupied	1	1	0	whitewash; pellets; tracks; feathers	Two active burrows
189	1	4/17/2012	Inactive	Inactive	-	-	-	whitewash	WBO pair about 100 M to north
189	2	5/9/2012	Inactive	To Be Determined	-	-	-	none	Burrow not found. Likely that it was intended to mark one of the burrows associated with 188.
189	3	5/31/2012	Active	Active	-	-	-	whitewash; tracks	active burrow
189	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not found
190	1	4/17/2012	Inactive	Inactive	-	-	-	whitewash	-
190	2	5/9/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow no longer suitable, collapsed
190	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Collapsed
190	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Filled in
191	1	4/17/2012	Inactive	Inactive	-	-	-	none	At road edge
191	2	5/9/2012	Inactive	Inactive	-	-	-	none	-
191	3	5/31/2012	Inactive	Inactive	-	-	-	none	, at road edge
191	4	6/26/2012	Inactive	Inactive	-	-	-	none	Road edge, small
192	1	4/17/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; sticks	WBO directly to west about 20 m watching

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
192	2	5/9/2012	Occupied	Occupied	2	0	0	tracks; scat (coyote, dog, etc.)	active burrow. Very fresh tracks; clearly utilized. Both adults flushed from immediate vicinity upon approach. Coyote scat at entrance.
192	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; prey (mouse, bird, etc.)	active burrow
192	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; bones (from degraded pellets); sticks	other decorations (trash, string, plants, etc.)
193	1	4/17/2012	Inactive	Inactive	-	-	-	none	-
193	2	5/9/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow no longer suitable, collapsed
193	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Can't find, maybe collapsed
193	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Can't find
194	1	4/17/2012	Inactive	Inactive	-	-	-	whitewash; feathers	-
194	2	5/9/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow not observed.
194	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow not deep enough
194	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Filled in
195	1	4/17/2012	Occupied	Occupied	1	0	0	whitewash	-
195	2	5/11/2012	Occupied	Inactive	-	-	-	pellets	Appears to be short burrow with pellets inside, adjacent to 163, too shallow to be main burrow
195	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	pellets	old sign. Too short not a suitable burrow.
195	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	whitewash	Old whitewash, looks like collapsed
196	1	4/17/2012	Occupied	Occupied	1	0	0	whitewash	-
196	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers	active burrow. 180 is likely utilized by same owl.
196	3	5/31/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	active burrow,
196	4	6/26/2012	Occupied	Occupied	0	1	0	whitewash; pellets; tracks; feathers; sticks	other decorations (trash, string, plants, etc.)9
197	1	4/17/2012	Occupied	Occupied	1	0	0	whitewash	-
197	2	5/9/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	Active burrow. This point encompasses two burrows within 5 feet of each other. One active with sign & One inactive with sign A previous burrow was crushed. Burrow ID 185 and 186 were deleted because they were redundant with ID 197.
197	3	5/31/2012	Occupied	Active	-	-	-	whitewash; pellets	active burrow, 2 entrances
197	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Burrow filled in, apron still visible Only one entrance apparent
198	1	4/17/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers; sticks	Was observed individual
198	2	5/9/2012	Occupied	Active	-	-	-	whitewash; tracks; feathers	active burrow. Very recent sign.
198	3	5/31/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers; bones (from degraded pellets); sticks; scat (coyote, dog, etc.)	active burrow
198	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow
199	1	4/17/2012	Inactive	Inactive	-	-	-	none	-
199	2	5/9/2012	Inactive	Inactive	-	-	-	none	No sign. Clearly not currently utilized.
199	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No longer present
199	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Filled in
200	1	4/17/2012	Inactive	Inactive	-	-	-	whitewash	Under lifted concrete may be too wet
200	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	Located under broken culvert.

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
200	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Too open , too wet
200	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Cavity under broken concrete Not a suitable burrow
201	1	4/17/2012	Inactive	Inactive	-	-	-	none	-
201	2	5/9/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow no longer suitable, collapsed
201	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Collapsed, not present
201	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Filled in
202	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash	-
202	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow. Owl perched by 205 flushed and perched by this burrow. Observations suggest that 205,206, 204 may be utilized by same pair. Inconclusive.
202	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers; sticks	active burrow, 3 entrances
202	4	6/26/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	active burrow Appears that one pair is utilizing burrows 202 - 206
203	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash	-
203	2	5/9/2012	Occupied	To Be Determined	-	-	-	none	Burrow not found.
203	3	5/31/2012	Occupied	Active	-	-	-	whitewash; pellets	active burrow
203	4	6/26/2012	Occupied	Active	-	-	-	whitewash; tracks; feathers	active burrow
204	1	4/17/2012	Active	Active	-	-	-	whitewash	-
204	2	5/9/2012	Active	Active	-	-	-	whitewash	active burrow. Clearly utilized, probably while foraging. Likely utilized by owls occupying 205 and 206. Inconclusive.
204	3	5/31/2012	Active	Inactive	-	-	-	whitewash	Cavernous
204	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash	active burrow Large opening beneath concrete canal side Likely secondary burrow for occupant(s) of 205/206
205	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; sticks	-
205	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow. Adult flushed from burrow upon approach. May be linked with 206.
205	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers	active burrow, 3 entrances
205	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow Occupant flushed to burrow 206
206	1	4/17/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	Three burrows adjacent to each other
206	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow. Two burrows within 7 feet of each other, both clearly utilized. Northernmost burrow with fresh pellets around entrance. Adult flushed from vicinity upon approach. May be linked with 205.
206	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow, 3 entrances
206	4	6/26/2012	Occupied	Active	-	-	-	whitewash; pellets; feathers; bones (from degraded pellets)	active burrow Occupant of burrow 205 flushed when approached and landed here
208	0	4/11/2012	Inactive	Inactive	-	-	-	whitewash	large burrow
208	1	4/18/2012	Inactive	Inactive	-	-	-	whitewash	-
208	2	5/9/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank, GPS not accurate so previous points corrected in database.
208	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
208	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
209	0	4/11/2012	Inactive	Inactive	-	-	-	none	Three burrows in hill need dawn/dusk

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
209	1	4/18/2012	Inactive	Inactive	-	-	-	none	May have hive inside
209	2	5/9/2012	Inactive	Inactive	-	-	-	none	Bees nest. Burrow in GPS not accurate.
209	3	5/30/2012	Inactive	Inactive	-	-	-	none	Active beehive.
209	4	6/27/2012	Inactive	Inactive	-	-	-	none	Beehive
210	0	4/11/2012	Inactive	Inactive	-	-	-	whitewash; pellets	/dusk
210	1	4/18/2012	Inactive	Inactive	-	-	-	whitewash	-
210	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance, another burrow on bank.
210	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
210	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
211	1	4/18/2012	Inactive	Inactive	-	-	-	none	2 burrows in erosion ruts
211	2	5/10/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
211	3	5/30/2012	Inactive	Inactive	-	-	-	pellets	no fresh sign.
211	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
212	0	4/11/2012	Inactive	Inactive	-	-	-	whitewash	Sinkhole,
212	1	4/18/2012	Inactive	Inactive	-	-	-	whitewash	-
212	2	5/9/2012	Inactive	Inactive	-	-	-	none	-
212	3	5/30/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
212	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
213	0	4/11/2012	Inactive	Inactive	-	-	-	none	-
213	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
213	2	5/9/2012	Inactive	Inactive	-	-	-	none	-
213	3	5/30/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
213	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
214	0	4/11/2012	Inactive	Inactive	-	-	-	none	In side of Greeson Wash, large burrow
214	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
214	2	5/9/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
214	3	5/30/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance.
214	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
215	1	4/18/2012	Occupied	Occupied	2	0	0	whitewash; pellets	In junk pile
215	2	5/10/2012	Occupied	Occupied	2	0	0	whitewash; pellets; feathers	active burrow
215	3	5/30/2012	Occupied	Inactive	-	-	-	whitewash; pellets	no fresh sign in junk pile.
215	4	6/27/2012	Occupied	Occupied	1	0	0	-	Owl present perched at point
216	0	4/11/2012	Occupied	Occupied	1	0	0	whitewash	-
216	1	4/18/2012	Occupied	Occupied	2	0	0	whitewash	-
216	2	5/9/2012	Occupied	Inactive	-	-	-	none	-
216	3	5/30/2012	Occupied	Active	-	-	-	pellets; tracks	active burrow but no owls present at time of survey.
216	4	6/26/2012	Occupied	Inactive	-	-	-	pellets	-
217	0	4/11/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign 4 entrances in 5 feet. One has bee hive.
217	1	4/18/2012	Inactive	Inactive	-	-	-	whitewash	no WBO



Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
217	2	5/10/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance, bees in entrance
217	3	5/30/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; prey (mouse, bird, etc.)	3 burrow entrances. The east most entrance is the occupied burrow.
217	4	6/26/2012	Occupied	Occupied	1	0	0	sticks; scat (coyote, dog, etc.)	East entrance occupied
218	0	4/11/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign
218	1	4/18/2012	Occupied	Occupied	1	0	0	whitewash	One owl on stake
218	2	5/10/2012	Occupied	Inactive	-	-	-	whitewash	cobwebs over entrance no fresh sign, status active due to occupancy at last survey
218	3	5/30/2012	Occupied	Inactive	-	-	-	none	No sign present.
218	4	6/26/2012	Occupied	Inactive	-	-	-	none	2 entrances
219	0	4/11/2012	Inactive	Inactive	-	-	-	whitewash	-
219	1	4/18/2012	Active	Active	-	-	-	whitewash	Appears active
219	2	5/10/2012	Active	Inactive	-	-	-	none	cobwebs over entrance, status active due to active during last survey
219	3	5/30/2012	Active	Inactive	-	-	-	none	cobwebs over entrance
219	4	6/26/2012	Active	Inactive	-	-	-	none	-
220	0	4/11/2012	Inactive	Inactive	-	-	-	none	-
220	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
220	2	5/10/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; scat (coyote, dog, etc.)	active burrow
220	3	5/30/2012	Occupied	Occupied	2	0	0	pellets; tracks	burrow in eroded bank
220	4	6/26/2012	Occupied	Occupied	2	0	0	scat (coyote, dog, etc.)	-
221	0	4/12/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign cobwebs over entrance
221	1	4/18/2012	Inactive	Inactive	-	-	-	whitewash	-
221	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	-
221	3	5/30/2012	Inactive	Inactive	-	-	-	none	No sign
221	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
222	0	4/11/2012	Inactive	Inactive	-	-	-	none	-
222	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
222	2	5/9/2012	Inactive	Inactive	-	-	-	none	-
222	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
222	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
223	0	4/11/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
223	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
223	2	5/9/2012	Inactive	Inactive	-	-	-	none	Small burrow. Suitable?
223	3	5/30/2012	Inactive	Inactive	-	-	-	none	No sign
223	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
224	0	4/11/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign
224	1	4/18/2012	Inactive	Inactive	-	-	-	whitewash	-
224	2	5/9/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
224	3	5/30/2012	Inactive	Inactive	-	-	-	none	No sign
224	4	6/27/2012	Occupied	Occupied	2	0	0	scat (coyote, dog, etc.)	-

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
225	0	4/11/2012	Inactive	Inactive	-	-	-	none	2 burrows
225	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
225	2	5/9/2012	Inactive	Inactive	-	-	-	none	-
225	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
225	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
226	0	4/11/2012	Inactive	Inactive	-	-	-	whitewash	-
226	1	4/18/2012	Inactive	Inactive	-	-	-	whitewash	-
226	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	-
226	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
226	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
227	0	4/11/2012	Inactive	Inactive	-	-	-	whitewash	/dusk
227	1	4/18/2012	Inactive	Inactive	-	-	-	whitewash	-
227	2	5/9/2012	Active	Active	-	-	-	whitewash; pellets	active burrow
227	3	5/30/2012	Active	Inactive	-	-	-	whitewash; pellets	no fresh sign. Does not appear active.
227	4	6/27/2012	Active	Inactive	-	-	-	none	-
228	0	4/11/2012	Inactive	Inactive	-	-	-	none	-
228	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
228	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance
228	3	5/30/2012	Inactive	Inactive	-	-	-	whitewash; pellets	no fresh sign. Does not look active.
228	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
229	0	4/11/2012	Inactive	Inactive	-	-	-	none	-
229	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
229	2	5/9/2012	Inactive	Inactive	-	-	-	none	-
229	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
229	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
230	0	4/11/2012	Inactive	Inactive	-	-	-	none	-
230	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
230	2	5/9/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
230	3	5/29/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
230	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
231	0	4/11/2012	Inactive	Inactive	-	-	-	none	Beehive inside
231	1	4/18/2012	Inactive	Inactive	-	-	-	none	active Beehive
231	2	5/8/2012	Inactive	Inactive	-	0	0	-	-
231	3	5/30/2012	Inactive	Inactive	-	-	-	none	Active beehive. Burrow not occupied or active
231	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	Active beehive
232	0	4/11/2012	Inactive	Inactive	-	-	-	none	In wash, two burrows
232	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
232	2	5/10/2012	Inactive	To Be Determined	-	-	-	none	No burrow observed.
232	3	5/30/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank hard to tell if it's a burrow.
232	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
233	0	4/11/2012	Inactive	Inactive	-	-	-	none	Along drainage, thick veg
233	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
233	2	5/10/2012	Inactive	To Be Determined	-	-	-	none	Burrow not visible bush in front.
233	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Can't find burrow
233	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
234	0	4/11/2012	Inactive	Inactive	-	-	-	none	-
234	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
234	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
234	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
234	4	6/26/2012	Active	Active	-	-	-	sticks	-
235	0	4/11/2012	Inactive	Inactive	-	-	-	whitewash; pellets; bones (from degraded pellets)	-
235	1	4/18/2012	Occupied	Occupied	1	0	0	whitewash; pellets; bones (from degraded pellets)	WBO flew north
235	2	5/10/2012	Occupied	Active	-	-	-	whitewash; pellets; feathers	active burrow
235	3	5/30/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; prey (mouse, bird, etc.)	active burrow
235	4	6/26/2012	Occupied	Active	-	-	-	pellets; feathers; bones (from degraded pellets)	-
236	0	4/12/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign
236	1	4/18/2012	Inactive	Inactive	-	-	-	whitewash	-
236	2	5/11/2012	Inactive	Inactive	-	-	-	none	-
236	3	5/30/2012	Inactive	Inactive	-	-	-	none	Burrow under concrete canal.
236	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
237	0	4/12/2012	Inactive	Inactive	-	-	-	none	-
237	1	4/18/2012	Inactive	Inactive	-	-	-	none	-
237	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
237	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No longer suitable. Filled in. Holes at gates to irrigate farmers fields
237	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
238	0	4/13/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance no fresh sign
238	1	4/18/2012	Active	Active	-	-	-	whitewash; pellets; tracks	WBO about 10 m to north across canal at another burrow. This burrow is now active
238	2	5/11/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers; scat (coyote, dog, etc.)	active burrow
238	3	5/30/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers; sticks; scat (coyote, dog, etc.)	active burrow, semi alive insect prey
238	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
300	2	5/7/2012	Inactive	Inactive	-	-	-	whitewash; pellets; feathers	-
300	3	6/1/2012	Inactive	Inactive	-	-	-	none	-
300	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
301	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash; pellets	cobwebs over entrance old sign
301	3	5/29/2012	Inactive	Inactive	-	-	-	none	-
301	4	6/27/2012	Inactive	Inactive	-	-	-	-	-

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
302	2	5/9/2012	Inactive	Inactive	-	-	-	none	-
302	3	5/30/2012	Inactive	Inactive	-	-	-	pellets	old sign
302	4	6/27/2012	Inactive	Inactive	-	-	-	none	Watched skunk go into this burrow last night
303	2	5/9/2012	Inactive	Inactive	-	-	-	none	-
303	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
303	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
304	2	5/10/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
304	3	5/30/2012	Inactive	Inactive	-	-	-	none	No sign
304	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
305	2	5/10/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance 2 burrow entrances w/in 4 ft of each other.
305	3	5/30/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
305	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
306	2	5/10/2012	Inactive	Inactive	-	-	-	none	Burrow in vertical channel bank.
306	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Does not look suitable to me. I can see back and appears to be caving in
306	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
307	2	5/11/2012	Occupied	Occupied	1	0	0	none	active burrow
307	3	6/1/2012	Occupied	Inactive	-	-	-	none	No sign observed.
307	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Filled in
308	2	5/8/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank, no fresh sign
308	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
308	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
309	2	5/8/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
309	3	5/31/2012	Inactive	Inactive	-	-	-	none	2 entrances. Point should be in drain
309	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
310	2	5/8/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; scat (coyote, dog, etc.)	active burrow
310	3	5/31/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	active burrow
310	4	6/26/2012	Occupied	Inactive	-	-	-	scat (coyote, dog, etc.)	old sign
311	2	5/8/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
311	3	6/1/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank. No sign.
311	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
312	2	5/8/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign, under cement culvert
312	3	5/31/2012	Inactive	Inactive	-	-	-	none	Holes under concrete canal.
312	4	6/26/2012	Inactive	Inactive	-	-	-	-	cobwebs over entrance
313	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	-
313	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
313	4	6/26/2012	Inactive	Inactive	-	-	-	-	-
314	2	5/9/2012	Active	Active	-	-	-	tracks; feathers; prey (mouse, bird, etc.)	active burrow
314	3	5/29/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers	-

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314	4	6/26/2012	Occupied	Occupied	2	0	0	tracks; sticks; prey (mouse, bird, etc.); scat (coyote, dog, etc.)	-
315	2	5/9/2012	Inactive	Inactive	-	-	-	none	-
315	3	5/29/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
315	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
316	2	5/9/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
316	3	5/29/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
316	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
317	2	5/9/2012	Inactive	Inactive	-	-	-	none	-
317	3	5/30/2012	Inactive	Inactive	-	-	-	none	No sign
317	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Dirt caving in
318	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
318	3	5/30/2012	Inactive	Inactive	-	-	-	none	No sign
318	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
319	2	5/10/2012	Inactive	Inactive	-	-	-	whitewash	-
319	3	5/30/2012	Inactive	Inactive	-	-	-	none	Not really a burrow just a space underneath concrete canal.
319	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
320	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
320	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not really a burrow just space under concrete.
320	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
321	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
321	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Same comment as 319. Not really a burrow.
321	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
322	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
322	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not really a burrow. Space under concrete canal.
322	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
323	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
323	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not really a burrow. Space under concrete.
323	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
324	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
324	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not really a burrow. Space under concrete.
324	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
325	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
325	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not really a burrow. Space under concrete.
325	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
326	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
326	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not really a burrow. Space under concrete.
326	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
327	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
327	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not really a burrow. Space under concrete.

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
327	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
328	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
328	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not really a Burrow. Space under concrete.
328	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
329	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
329	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not really a burrow. Space under concrete canal at gate to let water into the field.
329	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
330	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
330	3	6/1/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
330	4	6/26/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
331	2	5/11/2012	Inactive	Inactive	-	-	-	none	-
331	3	5/30/2012	Inactive	Inactive	-	-	-	none	Burrow underneath cement canal.
331	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
332	2	5/11/2012	Inactive	Inactive	-	-	-	none	-
332	3	5/30/2012	Inactive	Inactive	-	-	-	none	Burrow under cement canal.
332	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
333	2	5/11/2012	Inactive	Inactive	-	-	-	none	-
333	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
333	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
334	2	5/11/2012	Inactive	Inactive	-	-	-	none	-
334	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
334	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
335	2	5/11/2012	Inactive	Inactive	-	-	-	none	-
335	3	5/30/2012	Inactive	Inactive	-	-	-	pellets; feathers	Older sign. Appears inactive.
335	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers	other decorations (trash, string, plants, etc.)
336	2	5/11/2012	Inactive	Inactive	-	-	-	none	-
336	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Could not find burrow marked burrow in this area as 336
336	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
337	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
337	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not really a burrow. Space under concrete.
337	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
338	2	5/10/2012	Inactive	Inactive	-	-	-	none	Burrow may have originally been utilized by larger mammal, yet has correct morphology to support an owl.
338	3	6/2/2012	Inactive	Inactive	-	-	-	none	no fresh sign no burrow found
338	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	No burrow observed
339	2	5/10/2012	Inactive	Inactive	-	-	-	none	Suitable morphology. Not currently utilized.
339	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
339	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
340	2	5/8/2012	Inactive	Inactive	-	-	-	whitewash	burrow in eroded bank

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
340	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
340	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
341	2	5/8/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank. Two burrows within 5 m of each other.
341	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
341	4	6/25/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance.
342	2	5/8/2012	Inactive	Inactive	-	-	-	whitewash	Burrow complex. 3 burrows.
342	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
342	4	6/25/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
343	2	5/8/2012	Active	Active	-	-	-	whitewash; tracks	active burrow
343	3	5/31/2012	Active	Inactive	-	-	-	none	Not active burrow this survey
343	4	6/25/2012	Active	Inactive	-	-	-	whitewash	cobwebs over entrance. old sign
344	2	5/9/2012	Inactive	Inactive	-	-	-	none	burrow extends under concrete culvert. not currently utilized, though correct morphology. Extensive whitewash nearby.
344	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
344	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
345	2	5/10/2012	Inactive	Inactive	-	-	-	whitewash	WBO utilization inconclusive, though has proper morphology.
345	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
345	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
346	2	5/10/2012	Inactive	Inactive	-	-	-	none	Although not currently utilized, morphology suggests suitability.
346	3	5/30/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	No longer present, may have been graded
346	4	6/27/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	-
347	2	5/10/2012	Inactive	Inactive	-	-	-	none	Burrow not currently utilized. Located in very impressionable soils with no WBO tracks present, though morphology suggests suitability.
347	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
347	4	6/27/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	Area recently graded
348	2	5/10/2012	Inactive	Inactive	-	-	-	none	Burrow is not currently utilized, though morphology suggests suitability. Soil impressionability would reveal any owl tracks.
348	3	6/1/2012	Inactive	Inactive	-	-	-	none	no fresh sign not an owl burrow
348	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No burrow.
349	2	5/10/2012	Inactive	Inactive	-	-	-	none	Burrow not currently utilized, though morphology suggests suitability.
349	3	6/1/2012	Inactive	Inactive	-	-	-	none	no fresh sign burrow shows no signs of owls; additional burrow to north also no owl signs don't think either utilizes by owls
349	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
350	2	5/10/2012	Inactive	Inactive	-	-	-	none	Burrow clearly not presently utilized, although morphology suggests suitability.
350	3	6/1/2012	Inactive	Inactive	-	-	-	none	no fresh sign does not appear to be owl burrow
350	4	6/27/2012	Inactive	Inactive	-	-	-	none	-

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
351	2	5/11/2012	Inactive	Inactive	-	-	-	whitewash	Burrow not likely currently utilized. Suitable morphology.
351	3	6/2/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow appears to narrow quickly after wide entrance - possibly too small for BUOW
351	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
352	2	5/11/2012	Active	Active	-	-	-	whitewash; feathers	active burrow.
352	3	5/30/2012	Occupied	Occupied	1	0	0	feathers	active burrow
352	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash; pellets; sticks	-
353	2	5/10/2012	Inactive	Inactive	-	-	-	none	Burrow has proper morphology to support WBO.
353	3	6/2/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Did not find burrow that appeared to being used by WBO
353	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No burrow observed at point, though 2 collapsed burrows in the vicinity - not suitable
354	2	5/10/2012	Inactive	Inactive	-	-	-	none	Shows sign of use by small mammal, though morphology suggests suitability for an owl.
354	3	6/2/2012	Inactive	Inactive	-	-	-	none	no fresh sign the burrows in this area do not appear to be WBO
354	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Filled in
355	2	5/11/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Burrow has been dug out within the last 24 hours. May have been active, though any potential sign has been covered by spoils. Canine either coyote or feral dog. Burrow exhibits suitable morphology for WBO.
355	3	5/30/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Larger burrow w/ deep gouging of burrow entrance. Maybe Badger.
355	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
357	2	5/7/2012	Inactive	Inactive	-	-	-	whitewash	old sign
357	3	5/31/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
357	4	6/26/2012	Inactive	Inactive	-	-	-	-	cobwebs over entrance
358	2	5/7/2012	Active	Active	-	-	-	whitewash; pellets; bones (from degraded pellets)	active burrow, three burrows, two with cobwebs
358	3	5/31/2012	Active	Inactive	-	-	-	pellets; feathers	no fresh sign. burrow in eroded bank
358	4	6/26/2012	Active	Inactive	-	-	-	-	old sign. cobwebs over entrance
359	2	5/7/2012	Inactive	Inactive	-	-	-	whitewash	old sign, cobwebs over entrance
359	3	5/31/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
359	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
360	2	5/7/2012	Inactive	Inactive	-	-	-	whitewash	-
360	3	5/31/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
360	4	6/26/2012	Inactive	Inactive	-	-	-	-	cobwebs over entrance
361	2	5/8/2012	Inactive	Inactive	-	-	-	whitewash	no fresh sign
361	3	5/31/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
361	4	6/26/2012	Inactive	Inactive	-	-	-	-	-
362	2	5/8/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	In buffer
362	3	5/30/2012	Occupied	Occupied	2	0	0	tracks; feathers	burrow outside buffer
362	4	6/25/2012	Occupied	Occupied	2	3	0	-	-
363	2	5/8/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
363	3	5/31/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance. burrow in eroded bank



Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
363	4	6/25/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
364	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers	-
364	3	5/31/2012	Occupied	Inactive	-	-	-	whitewash; sticks	cobwebs over entrance
364	4	6/25/2012	Occupied	Active	-	-	-	whitewash; tracks	-
365	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; tracks; sticks	-
365	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers; sticks	active burrow Additional burrow entrance 3 meters away w/ cobwebs, no sign.
365	4	6/25/2012	Occupied	Occupied	2	4	0	whitewash; pellets; tracks; feathers	Pieces of IID pole adjacent
366	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	Four burrows within 10 m, all active
366	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; tracks; sticks; prey (mouse, bird, etc.)	active burrow
366	4	6/25/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
367	2	5/9/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	2 burrows
367	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow Could only find 1 burrow at white IID stake.
367	4	6/25/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
368	2	5/9/2012	Occupied	Occupied	2	0	0	whitewash; tracks; feathers	Stake about 5 m away with pellets, whitewash, 4 burrows marked as one point for complex.
368	3	5/31/2012	Occupied	Active	-	-	-	whitewash; pellets; feathers	Stake w/whitewash and pellets at base. Ubiquitous pellets atop lower opposite bank. Multiple burrows Several small burrows in the vicinity - maybe 2 of which seem suitable for BUOW.
368	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	whitewash; pellets	Owl on stake but adjacent burrows caved in, burrow at 611
369	2	5/8/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	In buffer
369	3	5/30/2012	Occupied	Occupied	2	0	0	pellets; tracks; scat (coyote, dog, etc.)	-
369	4	6/25/2012	Occupied	Active	-	-	-	tracks; feathers	Egg outside of burrow
370	2	5/8/2012	Inactive	Inactive	-	-	-	whitewash; feathers	old sign
370	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; feathers	other decorations (trash, string, plants, etc.)
370	4	6/26/2012	Occupied	Occupied	1	0	0	-	-
371	2	5/9/2012	Inactive	Inactive	-	-	-	none	-
371	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Delete point. No burrow present....may have collapsed.
371	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	none	No burrow observed
372	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets	IID pole, 2 burrows. Burrow 5 meters to north with whitewash
372	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; sticks	active burrow 2 burrows w/in 3 meters, one active.
372	4	6/25/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
373	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets	-
373	3	5/31/2012	Occupied	Active	-	-	-	whitewash	Possibly used for temporary shelter.
373	4	6/25/2012	Occupied	Active	-	-	-	whitewash; pellets	-
374	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	IID pole
374	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow
374	4	6/25/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
375	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; scat	-

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
								(coyote, dog, etc.)	
375	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow
375	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	-
376	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	IID pole
376	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow
376	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	other decorations (trash, string, plants, etc.)
377	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
377	3	5/31/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	active burrow
377	4	6/26/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	Used by 376 owl
378	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow
378	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow
378	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	-
379	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow
379	3	6/2/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	active burrow tracks not fresh cobwebs over entrance
379	4	6/26/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	-
380	2	5/9/2012	Active	Active	-	-	-	whitewash; pellets; feathers	active burrow
380	3	5/31/2012	Active	Active	-	-	-	whitewash; pellets; tracks	active burrow
380	4	6/26/2012	Active	Active	-	-	-	whitewash; pellets; tracks	-
381	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	-
381	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No suitable burrow observed in the vicinity.
381	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	whitewash	IID pole broken into burrow partially blocking entrance
382	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	-
382	3	5/31/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance small mammal tracks
382	4	6/25/2012	Inactive	Inactive	-	-	-	whitewash	Mammal tracks
383	2	5/9/2012	Inactive	Inactive	-	-	-	none	Very large
383	3	5/31/2012	Inactive	Inactive	-	-	-	none	Large burrow.
383	4	6/25/2012	Occupied	Occupied	1	0	0	whitewash; tracks	Alarm calling
384	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance, old sign, looks like old WBO burrow, dirt clod at entrance but still accessible
384	3	5/31/2012	Inactive	Inactive	-	-	-	whitewash	cobwebs over entrance
384	4	6/25/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	IID pole
385	2	5/9/2012	Active	Active	-	-	-	pellets; tracks	active burrow
385	3	5/31/2012	Active	Inactive	-	-	-	none	burrow in eroded bank
385	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	tracks	Collapsed earth cave in
386	2	5/9/2012	Active	Active	-	-	-	whitewash; pellets	2 burrows. 1 active burrow
386	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; tracks; feathers	active burrow 2 burrows in close proximity with other perches.
386	4	6/25/2012	Occupied	Active	-	-	-	whitewash; tracks	-

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
387	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash; feathers	-
387	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Point at irrigation culvert - no suitable burrows observed in the vicinity.
387	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Washed away by irrigation activities
388	2	5/9/2012	Inactive	Inactive	-	-	-	whitewash	-
388	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	whitewash	No suitable burrow observed. Sparse whitewash ubiquitous on bank.
388	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	whitewash	Could not find
389	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow
389	3	6/2/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow
389	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers; bones (from degraded pellets); sticks	-
390	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash	-
390	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No burrow found, may have become flooded
390	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No suitable burrows observed in the area
391	2	5/10/2012	Inactive	Inactive	-	-	-	none	Smells like rats
391	3	6/1/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank erosion feature not well suited for BUOW
391	4	6/28/2012	Inactive	Inactive	-	-	-	-	-
392	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow
392	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow
392	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; scat (coyote, dog, etc.)	active burrow
393	2	5/10/2012	Inactive	Inactive	-	-	-	none	Across waterway, under fence post
393	3	5/31/2012	Inactive	Inactive	-	-	-	whitewash	Under fence post
393	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
394	2	5/10/2012	Inactive	Inactive	-	-	-	none	-
394	3	5/31/2012	Inactive	Inactive	-	-	-	whitewash	-
394	4	6/27/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	-	Burrow doesn't exist
395	2	5/10/2012	Inactive	Inactive	-	-	-	whitewash	burrow in eroded bank
395	3	5/31/2012	Inactive	Inactive	-	-	-	none	Point in cultivated AG field. Erosional feature across road may provide potential habitat, but unlikely.
395	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
396	2	5/10/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers; bones (from degraded pellets); sticks; scat (coyote, dog, etc.)	active burrow, lots of fresh sigh
396	3	5/31/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers; scat (coyote, dog, etc.)	active burrow
396	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; sticks; scat (coyote, dog, etc.)	-
397	2	5/10/2012	Inactive	Inactive	-	-	-	none	Two burrows, likely canid digs
397	3	5/31/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank 2 entrances on road, one in bank below
397	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
398	2	5/10/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
398	3	6/2/2012	Inactive	Inactive	-	-	-	none	Series of erosion voids in earth and concrete channel bank burrow in eroded bank
398	4	6/25/2012	Inactive	Inactive	-	-	-	none	-
399	2	5/10/2012	Inactive	Inactive	-	-	-	whitewash	Under concrete
399	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	whitewash	Able to inspect more closely, too small
399	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
400	2	5/10/2012	Inactive	Inactive	-	-	-	none	Large burrow
400	3	6/1/2012	Inactive	Inactive	-	-	-	none	Large entrance, narrows w/in 1 m
400	4	6/28/2012	Inactive	Inactive	-	-	-	-	-
401	2	5/10/2012	Inactive	Inactive	-	-	-	none	Low potential but suitable size
401	3	6/1/2012	Inactive	Inactive	-	-	-	none	Point in middle of field No suitable burrows observed in the vicinity
401	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	-
402	2	5/11/2012	Inactive	Inactive	-	-	-	whitewash	IID pole
402	3	6/1/2012	Inactive	Inactive	-	-	-	whitewash	burrow in eroded bank IID stake w/whitewash at base burrow part of an erosion feature
402	4	6/25/2012	Inactive	Inactive	-	-	-	whitewash	-
403	2	5/11/2012	Inactive	Inactive	-	-	-	none	New dig
403	3	6/1/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No burrow. Delete point.
403	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Not present
404	2	5/11/2012	Inactive	Inactive	-	-	-	none	Two recent digs
404	3	6/1/2012	Inactive	Inactive	-	-	-	none	no fresh sign
404	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
405	2	5/8/2012	Inactive	Inactive	-	-	-	none	-
405	3	5/30/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank
405	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
406	2	5/9/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; bones (from degraded pellets); sticks; prey (mouse, bird, etc.); scat (coyote, dog, etc.)	Same owl as incidental observation
406	3	6/2/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks	other decorations (trash, string, plants, etc.). there is a flag on GPS but no number. Possibly 405
406	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks; scat (coyote, dog, etc.)	active burrow
407	2	5/10/2012	Active	Active	-	-	-	whitewash; pellets	active burrow
407	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; tracks	active burrow
407	4	6/25/2012	Occupied	Active	-	-	-	whitewash; pellets; tracks; feathers	IID pole
408	2	5/10/2012	Occupied	Occupied	1	0	0	whitewash; pellets	Under concrete, active burrow
408	3	5/31/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No burrow observed. May have been flooded by AG activities.
408	4	6/27/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	No suitable burrows observed in the area
501	3	5/29/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank. Difficult to see back
501	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
502	0	5/31/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	active burrow, NOT IN NEW AREA

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
503	3	5/29/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
503	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
504	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow
504	4	6/25/2012	Occupied	Active	-	-	-	whitewash	-
505	0	5/31/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	other decorations (trash, string, plants, etc.) active burrow, NOT IN NEW AREA
507	0	5/31/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers	active burrow, NOT IN NEW AREA
508	3	5/31/2012	Inactive	Inactive	-	-	-	pellets	no fresh sign. burrow in eroded bank
508	4	6/26/2012	Inactive	Inactive	-	-	-	-	-
509	3	5/31/2012	Inactive	Inactive	-	-	-	pellets	old sign. burrow in eroded bank
509	4	6/25/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
510	0	5/31/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers; prey (mouse, bird, etc.)	active burrow, parcel 22
511	3	5/31/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks	active burrow
511	4	6/25/2012	Occupied	Occupied	1	0	0	-	-
512	3	5/31/2012	Active	Active	-	-	-	whitewash; tracks; feathers	Possible satellite burrow to afi005.
512	4	6/25/2012	Active	Active	-	-	-	-	-
513	3	5/31/2012	Inactive	Inactive	-	-	-	whitewash; pellets; feathers	old sign. Currently not used but need to check.
513	4	6/25/2012	Occupied	Occupied	2	0	0	whitewash; tracks; bones (from degraded pellets)	-
514	3	5/31/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers; prey (mouse, bird, etc.)	active burrow, burrow in eroded bank
514	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; sticks	other decorations (trash, string, plants, etc.)
515	3	5/31/2012	Inactive	Inactive	-	-	-	none	Large burrow with no sign on edge of field.
515	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
516	3	6/1/2012	Occupied	Occupied	1	0	0	pellets	Fresh digging alongside of farmer's pipe that connects field with head ditch. WBO perched nearby and appears to be foraging in freshly harvested hay field.
516	4	6/26/2012	No Longer Suitable	No Longer Suitable	-	-	-	none	Area inundated w/irrigation water No burrow observed
517	3	6/2/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	Nearby incidental WBO is associated with this burrow. active burrow
517	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks	active burrow
519	3	5/30/2012	Inactive	Inactive	-	-	-	none	burrow in eroded bank.
519	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
520	3	5/30/2012	Inactive	Inactive	-	-	-	none	Nice large burrow in eroded bank but no sign.
520	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
521	3	6/1/2012	Occupied	Occupied	1	0	0	feathers	other decorations (trash, string, plants, etc.)active burrow
521	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash; feathers; sticks; scat (coyote, dog, etc.)	other decorations (trash, string, plants, etc.), adult perched on broken concrete pipe about 10m away
523	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
523	4	6/25/2012	No Longer Suitable	No Longer Suitable	-	-	-	-	-
524	3	5/30/2012	Occupied	Occupied	2	0	0	whitewash; pellets; scat (coyote, dog, etc.)	active burrow.
524	4	6/27/2012	Occupied	Active	-	-	-	whitewash; pellets	This burrow is likely satellite occupied by same pair as 526

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
526	3	5/30/2012	Occupied	Occupied	1	0	0	whitewash; pellets	-
526	4	6/27/2012	Occupied	Occupied	2	0	0	whitewash; pellets; sticks; prey (mouse, bird, etc.); scat (coyote, dog, etc.)	-
527	0	5/31/2012	Occupied	Occupied	1	0	0	pellets; feathers; prey (mouse, bird, etc.)	active burrow, NOT IN NEW AREA
528	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
528	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
530	0	5/31/2012	Occupied	Occupied	1	0	0	pellets	parcel 22
531	3	5/31/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers; prey (mouse, bird, etc.)	active burrow
531	4	6/25/2012	Active	Active	-	-	-	whitewash; tracks; feathers; bones (from degraded pellets)	-
532	3	5/31/2012	Inactive	Inactive	-	-	-	none	-
532	4	6/26/2012	Inactive	Inactive	-	-	-	none	-
533	3	6/1/2012	Active	Active	-	-	-	pellets; tracks; feathers	active burrow
533	4	6/26/2012	No Longer Suitable (Damaged)	No Longer Suitable (Damaged)	-	-	-	-	Road grated
534	3	6/1/2012	Inactive	Inactive	-	-	-	none	-
534	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
535	3	6/1/2012	Inactive	Inactive	-	-	-	none	-
535	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
536	3	6/1/2012	Inactive	Inactive	-	-	-	none	-
536	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
537	3	6/2/2012	Inactive	Inactive	-	-	-	none	-
537	4	6/26/2012	Inactive	Inactive	-	-	-	none	Under concrete canal side
538	3	5/30/2012	Inactive	Inactive	-	-	-	none	-
538	4	6/27/2012	Inactive	Inactive	-	-	-	-	-
539	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow Marked by white IID stake.
539	4	6/25/2012	Occupied	Occupied	2	2	0	whitewash; pellets; tracks	IID pole
540	3	5/31/2012	Inactive	Inactive	-	-	-	whitewash; tracks; feathers	Egg fragment inside burrow active burrow
540	4	6/25/2012	Occupied	Occupied	0	2	0	whitewash; pellets; tracks	-
541	3	5/31/2012	Inactive	Inactive	-	-	-	none	cobwebs over entrance
541	4	6/25/2012	Active	Active	-	-	-	whitewash; pellets; feathers	-
542	3	5/31/2012	Active	Active	-	-	-	whitewash; pellets; tracks; feathers	active burrow May be part of the series of burrows that make up 368.
542	4	6/25/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
544	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	active burrow
544	4	6/25/2012	Occupied	Occupied	1	0	0	whitewash	-
545	3	6/1/2012	Inactive	Inactive	-	-	-	whitewash	Burrow near top of steep incised channel
545	4	6/26/2012	Inactive	Inactive	-	-	-	whitewash	IID pole
546	3	6/1/2012	Inactive	Inactive	-	-	-	none	Large burrow at base of incised cut, below <i>Atriplex</i>
546	4	6/28/2012	Inactive	Inactive	-	-	-	-	-
547	3	6/1/2012	Inactive	Inactive	-	-	-	whitewash	A bit small but likely suitable

Burrow ID <sup>1</sup>	Survey Number <sup>2</sup>	Date	Cumulative Burrow Status <sup>3</sup>	Survey Status <sup>4</sup>	Number of Adult Owls	Number of Juvenile Owls	Number of Owls Age Unknown	Sign Present	Notes
547	4	6/28/2012	Inactive	Inactive	-	-	-	none	-
548	3	6/2/2012	Inactive	Inactive	-	-	-	none	Under <i>Atriplex</i> , entrance ceiling is of deadfall
548	4	6/28/2012	Inactive	Inactive	-	-	-	none	-
549	3	5/31/2012	Inactive	Inactive	-	-	-	none	Under bush
549	4	6/27/2012	Inactive	Inactive	-	-	-	-	Occupied by kingsnake
550	3	5/31/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers; sticks; scat (coyote, dog, etc.)	active burrow, other decorations (trash, string, plants, etc.)
550	4	6/26/2012	Occupied	Occupied	2	0	0	whitewash; pellets; tracks; feathers	-
600	4	6/25/2012	Occupied	Occupied	2	0	0	-	Two burrows w/in 5 meters
601	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; scat (coyote, dog, etc.)	-
602	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
603	4	6/27/2012	Inactive	Inactive	-	-	-	none	Actively used by large mammal skunk? fox? 3 entrances
604	4	6/27/2012	Inactive	Inactive	-	-	-	none	-
605	4	6/28/2012	Occupied	Occupied	1	0	0	tracks	-
606	4	6/28/2012	Occupied	Occupied	2	0	0	pellets; feathers	Bird sheltering in pipe. adult scolding me
607	4	6/26/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks; feathers	active burrow
608	4	6/27/2012	Inactive	Inactive	-	-	-	none	2 recently excavated burrows w/in 2.5 m of each other in bank adjacent to road No BUOW sign, but suitable
609	4	6/27/2012	Occupied	Occupied	2	2	0	whitewash; tracks; feathers; bones (from degraded pellets); sticks	active burrow Possibly 44, but different location
610	4	6/25/2012	Active	Active	-	-	-	whitewash; tracks	Lots of very fresh tracks
611	4	6/25/2012	Occupied	Occupied	1	0	0	whitewash; pellets	Owl at stake of collapsed 368, but burrow here
612	4	6/25/2012	Occupied	Occupied	1	0	0	whitewash; pellets; tracks	-
613	4	6/27/2012	Inactive	Inactive	-	-	-	none	In vicinity of many owls with juveniles, likely to be used by juv
614	4	6/27/2012	Occupied	Occupied	1	0	0	whitewash	Three new burrows

<sup>1</sup> Burrow IDs are not sequential due to burrows in close proximity being lumped together as a burrow complex in follow-up surveys.

<sup>2</sup> Note that not all burrows will have four surveys as a result of cumulatively adding burrows (i.e., new burrows were found throughout the survey season).

<sup>3</sup> Burrows were classified as occupied due to presence of owls directly at the burrow during either the habitat assessment or Surveys 1 - 4. Burrows were classified as active due to the presence of fresh or recent sign during either the habitat assessment or Surveys 1 - 4 (no owls observed at the burrows). Burrows were classified as inactive due to the absence of fresh or recent sign during either the habitat assessment or Surveys 1 - 4. Burrows were classified as no longer suitable due to a previously suitable burrow that was no longer suitable due to erosion, a natural burrow collapse, or inadvertent damage from anthropogenic activities.

<sup>4</sup> Classification status of the burrow for the given survey period.

**Appendix H – Live Oak Associates, Inc. and Conservation Science Partners  
Report - Burrowing Owl Occupancy Estimation and Inferring  
Patterns of Space Use to Inform Conservation Strategies**





# LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

**WISTARIA RANCH SOLAR ENERGY CENTER, IMPERIAL COUNTY  
BURROWING OWL OCCUPANCY ESTIMATION  
AND INFERRING PATTERNS OF SPACE USE  
TO INFORM CONSERVATION STRATEGIES**



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Project No. 1803-01

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## INTRODUCTION

With the publication of the *Staff Report on Burrowing Owl Mitigation* in 2012 (2012 *Staff Report*) (CDFW, 2012), the California Department of Fish and Wildlife (CDFW) invited project applicants to develop ecologically based burrowing owl mitigation strategies. This was a significant improvement on the previous approach, which relied on a relatively simplistic prescriptive mitigation strategy for compensating for impacts to nesting burrowing owls. Typically, applicants compensated for the loss of burrowing owls by placing a conservation easement on occupied habitat or acquiring credits at an approved mitigation bank at 6.5 acres for every pair of nesting owls impacted by the project (CDFW 1995). This approach relied on a “one size fits all” policy for mitigating for impacts to species or ecologically sensitive habitats.

Ecologists have longed recognized and pondered the uneven distribution of species over the landscape and their range. For example, Aldo Leopold (1933, *Game Management*) noted that attempts to “...understand whether a given piece of land is suitable for a given species of game... is one of the great enigmas of animate nature.” Spatial and temporal variations of abundance across a species range is driven by important biotic and abiotic factors such as soil, vegetation cover, spatial and temporal variable distribution of food resources, road networks, weather, etc. In addition to the spatial ecology and varied population dynamics of a species across its range, the ecological stresses on the species also vary spatially and temporally. This spatial and temporal variability challenge land managers, regulators and project proponents to look for alternatives to the one-size-fits-all strategy for estimating a project’s impacts to a species and for developing suitable, feasible and proportional mitigations to compensate for these impacts.

The 2012 *Staff Report* responds to this challenge by establishing a framework for a more ecologically based strategy for conserving burrowing owl populations, as well as encouraging innovative methodologies for estimating a project’s potential effects on suitable burrowing owl habitat and how those impacts are appropriately mitigated. In a significant departure from CDFW’s 1995 *Staff Report* (CDFW, 1995), the 2012 *Staff Report* does not prescribe exactly how a project is to calculate impacts, or precisely how a project needs to accommodate for impacts. Instead, the 2012 *Staff Report* outlines a process to “Define the problem”, determine the “Type and extent of the disturbance”, identify the “Duration and timing of the impact”, note how the project might affect those owls not being directly affected by a “Visibility and sensitivity” analysis, and identify “Environmental Factors” that might be influenced by the project.

Among the basic principles of conservation biology is that species abundance and long-term viability is dependent on four factors: 1) the overall rarity of the species within its range; 2) the overall rarity of the species regionally; 3) the level of effect that the project is having on the species both in loss of habitat and to individuals regionally; and 4) what are the important population demographic characteristics such as the reproductive strategy of the taxa under

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consideration (e.g., r-selected species have high reproductive potential with parental investment spread over several offspring or k-selected species with low reproductive potential and parental investment focused on a few offspring), rate of recruitment, age and gender specific mortality rates, etc.

It is becoming increasingly common to develop habitat- or species-specific conservation strategies that account for factors such as ecology, relative rarity of resources impacted, and spatial distribution of species within a project area. For example, two relatively recent regional Multi-Species Habitat Conservation Plans (HCP) in the San Francisco Bay Area include burrowing owls as a covered species. The burrowing owl conservation strategy for East Contra Costa County HCP (ECCCCHCP 2006) is an in-lieu fee program used to acquire in fee-title or place conservation easements over suitable lands (e.g., ranching lands consisting primarily of annual grasslands) for the explicit purpose of enhancing, managing and monitoring these lands for burrowing owls.

The Santa Clara Valley Habitat Plan (SCVHP 2012) was confronted with greater challenges in developing a suitable conservation strategy. The burrowing owl populations in Santa Clara County have ranged from 120 to 141 pairs in 1997 down to 21 to 23 known pairs in 2008 (SCVHP 2012).

The SCVHP (2012) burrowing owl conservation plan includes goals of stabilizing the extant population through nesting habitat protection and short-term and temporary easements or management agreements, increasing the expansion of extant colonies through protecting and managing potential burrowing owl nesting habitat, and conducting studies and experimental trials aimed at increasing reproductive success of burrowing owl populations and burrowing owl reintroductions. The SCVHP has accommodated “alternative” mitigation measures including short-term, temporary easements and management agreements to address region specific constraints to owl conservation.

## **DEFINING THE PROBLEM**

The Wistaria Ranch Solar Energy Center project (Wistaria Project) will implement a series of extensive avoidance and minimization measures that are consistent with the recommendations of 2012 Staff Report (AECOM 2014). These measures are intended to avoid and minimize disruption of an active nest and to avoid and minimize harm, injury or mortality of individual owls during construction and operation of the solar facility.

The 2012 Staff Report not only provides guidance on how best to avoid and minimize impacts to individual owls and occupied nest burrows, but it also provides a framework to generate site specific impact analysis that can better lead to targeted compensation strategies that can link local conservation challenges and project-specific impacts to the conservation strategy. Therefore, one goal of this Technical Report builds on this framework to evaluate project-related impacts to core foraging habitat by relying on robust statistical and spatial tools to

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generate site-specific estimates of spatial use of owls at a spatial scale that is relevant for the species and the project site.

### **Burrowing Owls in the Imperial Valley**

The agricultural lands of Imperial County support the highest density of burrowing owls throughout its range, due in large part to the abundance of orthoptera (i.e., grasshopper and crickets) populations on which BUOW forage and the abundance of suitable burrows along linear features (i.e., Imperial Irrigation District canal systems) that remain largely undisturbed (Desante 2004, Rosenberg and Haley 2004). In fact, it has been estimated that nearly 70% of the burrowing owls in California occupy farmed lands of Imperial County, with another 15 to 20% of the population within the farmed lands of the Central Valley of California (DeSante et al. 2004)

Burrowing owls in the Imperial Valley have a home range based on the robust statistical estimator (fixed kernel) of about 111 acres, with 80% of the foraging occurring within 600 m of an active nest (Rosenberg et al. 2004). Circles provide a relatively poor representation of how owls use space as a 600 m radius circumscribes an area of 279 acres, or about 2.5 times the size of the average home range for owls.

The Campo Verde Solar Project was approved between the 1995 Staff Report (i.e., data on owl use were primarily collected in 2011) and the new strategies outlined in the 2012 Staff Report (Heritage 2012). Thus, this project in the latter stages of planning had to shift their analysis to best represent the changes advocated how projects should evaluate impacts to foraging habitat for the burrowing owl. Given the timing of the approval of the FEIR and the eventual construction of the project, this project advocated estimating impacts by placing a 200 m circle around each occupied nest burrow (i.e., Heritage detected 27 pairs of owls using the site) and calculating the area of the polygon formed by the 200 m circle (i.e., not double counting space) on the project site. It was argued that lacking site-specific evidence on spatial use patterns for the burrowing owl, that the 200 m buffer was a reasonable surrogate for core foraging habitat for the burrowing owl as it is based on published studies on the home range characteristics and foraging patterns for the burrowing owl in the Imperial Valley (see Rosenberg and Haley 2004). Based on these studies about 40% of the nocturnal foraging effort occurs within 200 m of a nest burrow and that all diurnal foraging forays occur within this area for the Imperial Valley.

The 200 m buffer, while a reasonable estimate of core foraging habitat when other more robust estimates are lacking, does not accommodate the wide range of cropping patterns or the varying owl density that occurs across the Imperial Valley. In other words, owls and agricultural crops are not evenly distributed across the Imperial Valley. Thus, an inherent assumption in this approach is that each candidate site being evaluated needs to be appreciably similar in abundance and distribution of owls, and consistent with the cropping patterns from where these estimates were originally derived. It also falsely assumes that lands within 200 m represents

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the core foraging habitat for the owl; this is only true, when the crop types within the 200 m buffer support suitable prey for the owl. Suitable nest sites in the Imperial Valley are generally restricted to the linear canals and roads. Crops that support an abundance of prey and provide characteristics that facilitate foraging are not always closest to the nests, and as such owls will forage much greater than 200 m as 60% of their foraging efforts occur over 200 m from the nests (80% from 0 to 600 m) and upwards of 2200 m from a nest burrow.

## **Goals and Objectives**

Analyzing the impacts from utility-scale solar farms on burrowing owl populations in the Imperial Valley provides a set of challenges, but also allows for some unique opportunities not afforded other projects within the range of the owl in California. The unusually high abundance of owls and the scale of the solar farms afford in some cases (i.e., rigorous data collection and high integrity with the data) the use of robust statistical and spatial tools to more precisely quantify the impact to core foraging habitat.

In the case of the Wistaria Project, AECOM systematically surveyed the site rigorously following the CDFW survey protocol during the spring and summer of 2012 breeding season for burrowing owls across several thousand acres that included the Wistaria Project and surrounding areas (see AECOM 2014 Burrowing Owl Technical Report for survey details and data collection). AECOM completed four separate surveys over the site and detected 381 active or occupied burrows. They observed between 19 and 55 pairs of owls over the four surveys at occupied burrows.

The careful and systematic adherence to the CDFW survey protocol conducted by AECOM and the internal integrity and abundance of the data afforded a unique opportunity to statistically estimate occupancy. This rare and unique intersection of a large data set and large spatial scale allows the use of robust statistical tools to inform both the impact assessment and mitigation strategy. The advantages of this approach over the reliance on generalized decision rules (e.g., 200 m buffer) is that we are able to infer patterns of species occurrence specific to the site. We can also estimate detection probabilities within the context of important covariates that greatly improve estimates of occupancy of burrowing owls. We can then derive spatially explicit use patterns based on burrow specific occupancy and define with greater accuracy the owls' core foraging habitat. This provides a robust metric to estimate impacts from the project on burrowing owls within a regional context and can inform a mitigation strategy tailored to offset the impact.





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## **BUOW Occupancy Methods**

### ***Analysis and model inference extents***

We derived the environmental variables and implemented the models described below across an analysis extent that encompassed most of the burrow locations identified on the project area. Because 18 of 381 burrow locations did not fall within the extent of the available spatial data summarizing environment attributes (they were immediately adjacent to the US-Mexico border), we did not include these locations in our analysis. Including these data would have biased the analysis as suitable spatial data on covariates were lacking to appropriately buffer them. In other words, including them would have led to spurious results. Conversely, their exclusion did not compromise the outputs of the model as they represented less than 5% of the data set.

We refer to the arbitrary rectangular extent defined by our environmental variables as the ‘analysis extent.’ We define the area encompassed by all of the buffered pixels (see below) as the ‘inference area.’ We then clipped our model results according to the Wistaria Project boundary and refer to this area as the ‘project footprint.’

### ***Spatial data on burrow activity status***

We obtained and compiled spatial data on burrow activity status from field surveys conducted during four separate occasions: April 10-18, May 7-11, May 29-June 2, and June 25-28, 2012. These data included information regarding unique burrow identifier, location coordinates, occupancy status, and several other attributes that were not included in this analysis. For each survey occasion, and based on burrow-specific field notes, we classified burrows as occupied (code = 1) when burrows were defined as ‘occupied’ or ‘active,’ or unoccupied (0) when burrows were defined as ‘inactive,’ ‘destroyed,’ ‘no longer suitable,’ or ‘to be determined’ (i.e., a burrow observed during a previous survey that could not be found so was considered destroyed and inactive). Based upon the spatial extent of available environmental variables (see below), we used survey data for 363 burrows to estimate occupancy.

### ***Environmental variables***

We identified five unique environmental variables (or covariates) not only considered important for the burrowing owl but ones that also had suitable spatial data at a scale and resolution that could be incorporated into our models of occupancy and that encompassed the full analysis extent. These included soil, crop, hydrography, and road features (Table 1). We obtained spatial data on dominant soil types (i.e., map units) from the USDA Natural Resources Conservation Service Soil Survey Geographic Database (NRCS 2008; 10-m pixel resolution). Within a geographic information system (GIS), we spatially related each burrow location to one of six soil types (or classes): badlands, Holtville silty clay, Holtville silty clay (wet), Imperial-

Glenbar silty clay loams (wet), Imperial silty clay (wet), and other. The ‘other’ class included seven additional, but uncommon soil types. We used six classes because > 6 classes resulted in too few burrow locations per class and poor model performance. To account for spatial uncertainty in the correct specification of a soil type at a given 10-m pixel, as well as spatial uncertainty in the burrow location, we smoothed the soils data using a 3×3 pixel focal majority operation in the GIS prior to intersecting each burrow location.

**Table 1. Environmental variables and data sources used to model burrowing owl burrow occupancy in the area that included the Wistaria Project footprint in 2012.**

Environmental variable	Description	Units	Source	Year data created
Soil type	Badlands, Holtville silty clay, Holtville silty clay (wet), Imperial-Glenbar silty clay loams (wet), Imperial silty clay (wet), other	N/A	USDA Natural Resources Conservation Service SSURGO	2008
Dominant crop type	Alfalfa, durum wheat, and other hay/non-alfalfa	N/A	USDA National Agricultural Statistic Service	2012
Cover type persistence	Count (0-5) of number of preceding years a pixel was a 2012 dominant cover type	years	USDA National Agricultural Statistic Service	2007-2012
Distance to road	Distance to all road types (improved and unimproved)	meters	US Census Bureau TIGER/Line	2012
Distance to man-made hydrologic feature	Distance to linear features coded as canal or ditch	meters	USGS National Hydrography Dataset	2008

We obtained spatial data on dominant crop cover type for each year of the six-year period 2007-2012 from the USDA National Agricultural Statistic Service (NASS 2012; 30-56-m pixel resolution). We resampled each of the crop type data layers to a 10-m resolution for consistency with the soils data. Because we were interested in the relationship between burrow occupancy and adjacent crop types, we smoothed these layers using a 600-m radius focal majority operation in the GIS. This radius around each pixel approximates the distance from the burrow within which owls have been observed to forage in the Imperial Valley



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(Rosenberg and Haley 2004). Based on the focal majority operation, we spatially related each burrow location to one of three dominant crop types (or classes) identified within 600 m of each pixel, namely alfalfa, durum wheat, and 'other hay/non-alfalfa.' All three of these crop types are specific classes existing within the Metadata of the USDA Cropland Data Layer and were relevant as they defined the majority of the crop types for the inference area. Thereby providing an opportunity to make meaningful comparisons amongst crop types based on a well-accepted National spatial data set.

Because locations with less human disturbance have been described as good foraging habitat for burrowing owls (Rosenberg and Haley 2004), we derived a single data layer describing cover type persistence using the dominant crop cover type data obtained (and subsequently smoothed) for 2007-2012 and intersected this result with each burrow location. Using the 2012 cover type as a baseline, this new layer represented a count (0-5) of the number of years that a given pixel was the same cover type in the preceding five-year period. Prior to modeling, we standardized this layer to have a mean of zero and unit variance.

Burrowing owl burrows are frequently associated with man-made, linear surface features in the environment, such as roads and canals (Rosenberg and Haley 2004, Bartok and Conway 2010). Thus, we used the GIS to develop two data layers (10-m pixel resolution) as estimates of Euclidean distance (in meters) of a given pixel (or burrow location) from linear surface features across the analysis extent. First, we used 2011 TIGER/Line data obtained from the US Census Bureau (2012) to estimate the distance to the nearest road feature, regardless of type (i.e., paved, improved, unimproved), that was present in this county-level dataset. Second, we extracted features from the National Hydrographic Database (USGS 2008) to estimate the distance to the nearest canal or ditch (i.e., hydrologic) feature that was present in this national dataset. Prior to modeling, we standardized both distance layers to have a mean of zero and unit variance.

### ***Occupancy estimation***

Drawing on the activity status data obtained during the four surveys in 2012, we used the single-season occupancy-modeling framework of MacKenzie et al. (2006) to estimate probabilities of two parameters—burrow detection ( $p$ ) and burrow occupancy ( $\psi$ ). We derived two separate models of  $p$  based on the assumptions that detectability was constant (an intercept-only model) across surveys or survey-specific. We produced a single model of  $\psi$  that was conditioned on the full suite of five environmental variables described above, as well as an intercept-only model that assumed  $\psi$  was a random process (MacKenzie et al. 2006). Both of these models also incorporated survey-specific estimates of detection probability. For each parameter, we used Akaike's Information Criterion (AIC; Burnham and Anderson 2002) to compare the two models and evaluate model performance (or fit). We considered a model to be a good approximation of the data when AIC difference ( $\Delta AIC$ ) values were  $> 4.0$  AIC units

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lower than the intercept-only model (Anderson 2008). We used the full model of  $\psi$  to estimate the effect size (based on a Z-statistic, or  $\beta/SE$ ) and rank the relative importance of each environmental variable. We considered  $|Z|$  values  $\geq 2.0$  for a given variable to be indicative of a strong relationship between burrow occupancy and that variable. For evaluation purposes only, we generated two separate models of  $\psi$  for each of the two categorical variables (i.e., dominant soil type and dominant crop type) and that also were conditioned on survey-specific estimates of  $p$ . We conducted all analyses using the single-season occupancy estimation module in program PRESENCE (v2.2; Hines 2006).

We used the GIS to implement our full model of  $\psi$  and to derive a spatially explicit estimate (or map) of occupancy in 2012 for the inference and project areas. Importantly, our models and spatially explicit estimates of occupancy quantify the importance of *adjacency* between burrows and environmental variables, namely dominant crop types. For example, we would not expect the interior portion of alfalfa or wheat fields to include burrows, but we would expect burrows adjacent to preferred crop types to reflect higher occupancy rates.

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## RESULTS

Our survey-specific model of  $p$  was 15.8 AIC units lower (i.e., better) than a model that assumed  $p$  was constant over each survey. Estimates of  $p$  for each of the four consecutive survey periods in 2012 were 0.84 (SE = 0.03), 0.85 (0.03), 0.67 (0.04), and 0.72 (0.03).

Our model of  $\psi$  that was conditioned on the full suite of five environmental variables was 58.5 AIC units lower than the intercept-only model, suggesting this model approximated the data well. The occupancy rate over the entire 2012-survey period was 0.55 (0.03).

Based on values of the Z-statistic, adjacency with durum wheat ( $Z = 4.80$ ) and alfalfa crop types (4.52), followed by cover type persistence (2.65), Imperial silty clay (wet; 2.28), and Imperial-Glenbar silty clay loams (wet; 2.00) were all strong positive predictors of burrow occupancy in 2012 (Table 2). High occupancy rates also were strongly associated with areas closer to roads (-2.09); in other words, proximity to roads was a strong predictor of occupancy rates at the burrow.

For the two models that included only dominant soil type or dominant crop type, burrow occupancy was highest in areas with Holtville silty clay (wet;  $\psi = 0.76$ ) and adjacent to durum wheat (0.75), respectively (Table 3). Areas with Holtville silty clay (0.28) and adjacent to other hay/non-alfalfa crop types (0.43) were less important predictors of occupancy.

Our spatially explicit estimates of occupancy at individual burrows across the inference and project areas ranged between 0.02-0.95 and 0.03-0.95, respectively (Table 4, Figures 1-2).

**Table 2. Regression coefficients ( $\beta$ ), standard errors (SE), and Z-statistics (Z) for environmental variables used to model burrowing owl burrow occupancy in 2012. All continuous variables were standardized to have a mean of zero and unit variance. Variables with  $|Z|$  values  $\geq 2.00$  were considered strong predictors of occupancy. Four additional parameters were estimated to account for survey-specific detection probabilities, but are not included below.**

Environmental variable (or class)	$\beta$	SE	Z
Badlands <sup>1</sup>	0.36	0.75	0.48
Holtville silty clay <sup>1</sup>	-1.16	0.93	-1.25
Holtville silty clay (wet) <sup>1</sup>	0.99	0.65	1.52
Imperial-Glenbar silty clay loams (wet) <sup>1</sup>	1.08	0.54	2.00
Imperial silty clay (wet) <sup>1</sup>	1.23	0.54	2.28
Alfalfa crop type <sup>2</sup>	1.90	0.42	4.52
Durum wheat crop type <sup>2</sup>	3.07	0.64	4.80
Cover type persistence	0.53	0.20	2.65
Distance to roads	-0.23	0.11	-2.09
Distance to man-made hydrologic feature	-0.20	0.16	-1.25
Intercept	-1.96	0.54	--

<sup>1</sup> Soil class compared to 'other' class

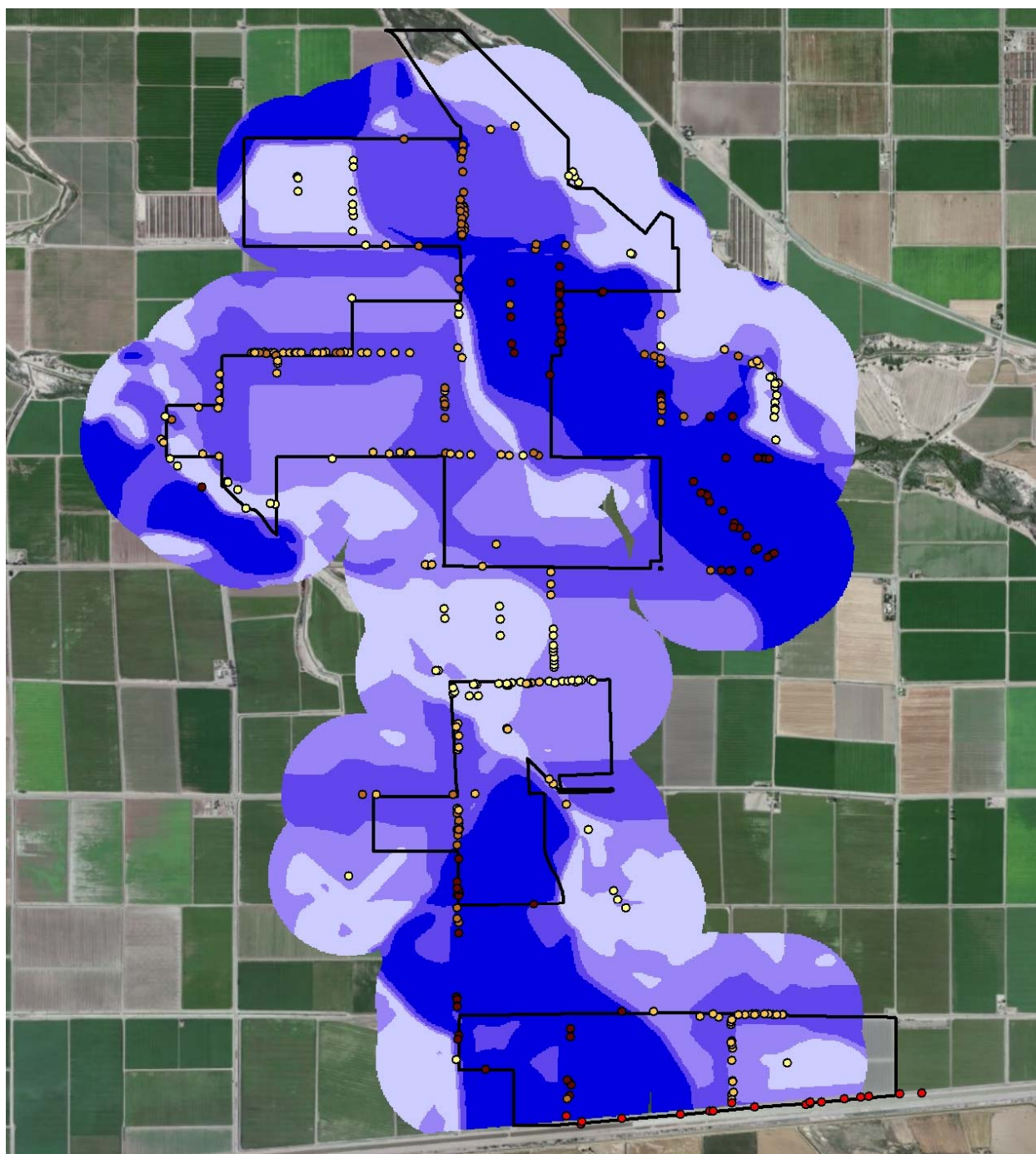
<sup>2</sup> Crop class compared to 'other hay/non-alfalfa' class

**Table 3. Estimates of burrowing owl burrow occupancy ( $\psi$ ) and the associated standard error (SE) and confidence interval (CI) for each level of the dominant soil type and dominant crop type variables in 2012. Estimates were conditioned on two separate models that each included survey-specific estimates of  $p$ .**

Environmental variable (or class)	$\psi$	SE	95% CI
Badlands	0.38	0.12	0.18 - 0.62
Holtville silty clay	0.28	0.14	0.09 - 0.60
Holtville silty clay (wet)	0.76	0.08	0.58 - 0.87
Imperial-Glenbar silty clay loams (wet)	0.70	0.05	0.60 - 0.78
Imperial silty clay (wet)	0.48	0.04	0.40 - 0.55
Other soils	0.37	0.11	0.19 - 0.60
Alfalfa crop type	0.68	0.05	0.59 - 0.76
Durum wheat crop type	0.75	0.06	0.61 - 0.86
Other hay/non alfalfa	0.43	0.04	0.36 - 0.50

**Table 4. Descriptive statistics for estimates of burrowing owl burrow occupancy derived from the inference area and within the Wistaria Project footprint.**

Statistic	Inference area	Wistaria Project footprint
Mean	0.49	0.50
Standard deviation	0.22	0.20
Min	0.02	0.04
Max	0.95	0.93



Probabilistic estimates of burrowing owl burrow occupancy in 2012, conditioned on survey-level (n=4) detection probabilities and environmental variables, including dominant soil type (n=6), dominant crop cover type (n=3), crop persistence, distance to nearest road, and distance to nearest canal or ditch feature. The dominant crop cover type was determined within a 600-m radius around each burrow. Estimates of occupancy beyond known burrow locations therefore reflect the importance of adjacent crop cover types.

#### Occupancy probability

- 0.02 - 0.34
- 0.35 - 0.45
- 0.46 - 0.68
- 0.69 - 0.95

Wistaria project footprint

#### Burrow-specific occupancy rate

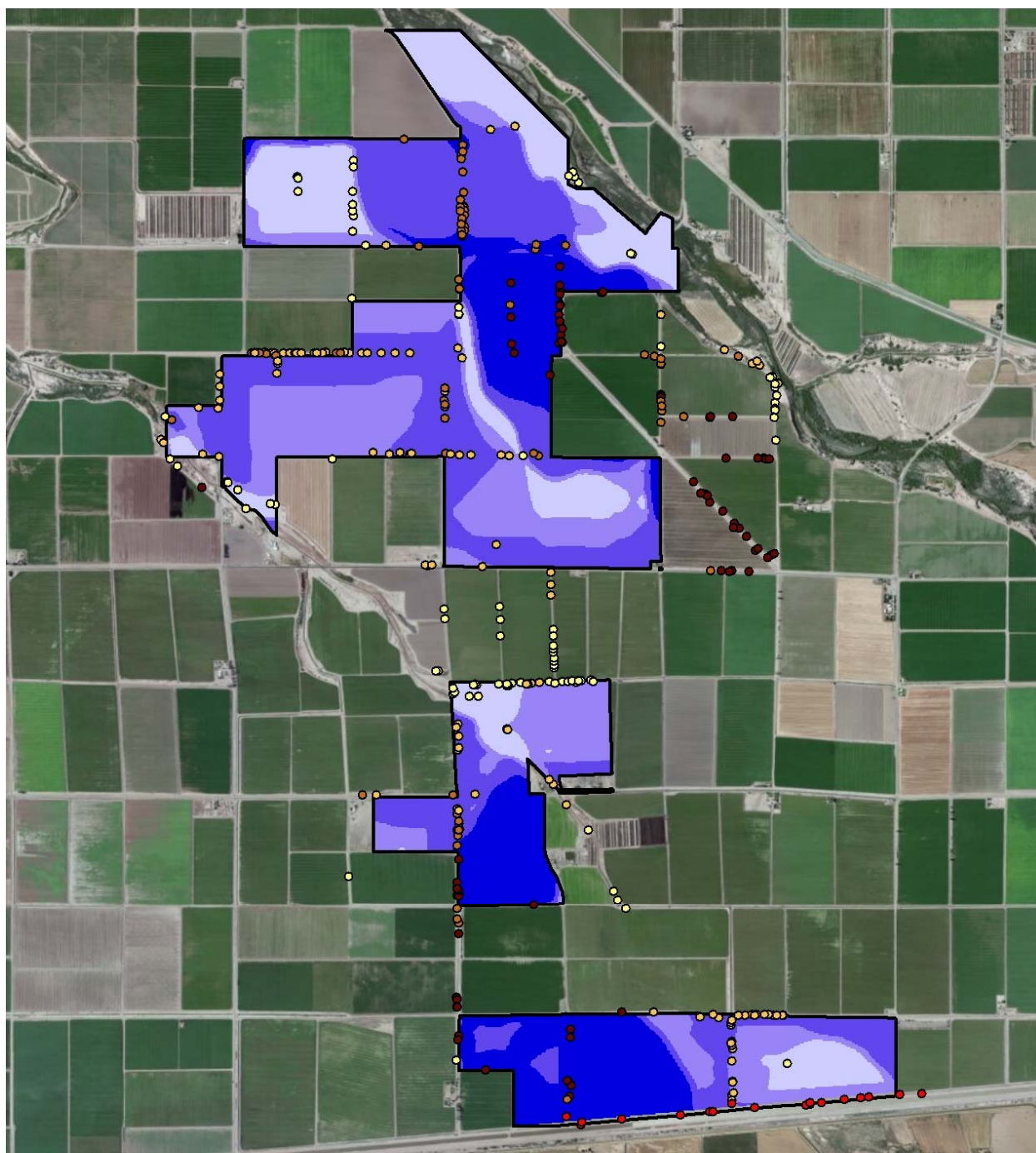
- 0.06 - 0.38
- 0.39 - 0.57
- 0.58 - 0.74
- 0.75 - 0.90
- Burrows excluded from analysis

0 1 km



CSP 06/06/14





Probabilistic estimates of burrowing owl burrow occupancy in 2012, conditioned on survey-level (n=4) detection probabilities and environmental variables, including dominant soil type (n=6), dominant crop cover type (n=3), crop persistence, distance to nearest road, and distance to nearest canal or ditch feature. The dominant crop cover type was determined within a 600-m radius around each burrow. Estimates of occupancy beyond known burrow locations therefore reflect the importance of adjacent crop cover types.

#### Occupancy probability

- 0.02 - 0.34
- 0.35 - 0.45
- 0.46 - 0.68
- 0.69 - 0.95

Wistaria project footprint

#### Burrow-specific occupancy rate

- 0.06 - 0.38
- 0.39 - 0.57
- 0.58 - 0.74
- 0.75 - 0.90
- Burrows excluded from analysis

0 1 km



CSP 06/06/14

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## DISCUSSION

### ***Modeling and Project Impacts***

Not surprisingly, the varying occupancy estimates at the individual burrows within the inference area were strongly influenced by the presence or adjacencies of various covariates. Owl occupancy was strongly influenced by the adjacency of alfalfa and wheat, when compared with the USDA class of “other hay/non-alfalfa”. This analysis was based on the USDA National Cropland Data Layer and their classification scheme. Other factors (e.g., irrigation type, etc.) may also influence the importance of adjacent crop type, but spatial data on these potential covariates is presently lacking and thus, any influence these factors have remains speculation or an untested hypothesis. The model outputs are considered robust based on the model statistics and the strength of several of the covariates as predictors of burrow occupancy; particularly for the importance of durum wheat and alfalfa adjacent (i.e., buffered by 600 m) to burrows. In addition, based on the model, we can infer that crop consistency matters. So lands in the inference area that support durum wheat and alfalfa and do so over 2 or more years influence burrow occupancy more than lands that grow “hay/other non-alfalfa crops and/or are regularly rotated (no-crop consistency).

Other factors that are considered strong predictors for burrow occupancy include soil type and proximity to roads. Distribution of burrowing animals are known to be influenced by soil type due to ease of digging or stability of the burrows once they have been excavated. As for roads, proximity of roads was found to be a strong predictor of occupancy, which is to be expected as burrowing owl burrows are almost exclusively along farm roads, ditches, canals or IID water infrastructure canals in the Imperial Valley. It is quite likely that while there was a strong association of proximity to roads, that relationship would have been much stronger had there been a spatial data set that distinguished between farm roads, IID roads or paved roads. The existing National data set did not do so, and no other spatial data set of the inference area existed.

The statistical models relied on for this analysis allowed us to derive relatively precise and robust estimates of the project’s impacts on burrowing owl core foraging habitat specific to this site.<sup>1</sup> Figure 2 provides the spatial relationship of the core foraging (dark blue in Figure 2) that are to be impacted by the proposed Wistaria Project. Approximately 614 acres of core foraging habitat will be impacted by full build out of the project (Figure 2).

The modeling not only provides spatially explicit estimates of core foraging habitat for burrowing owls, but also assists in targeting similar croplands (which were found to be strong predictors of burrow occupancy) for conservation and management — something that could not be accomplished relying on the generalized and non-specific 200 m buffer mitigation approach. As noted previously, when large data sets are lacking, the 200 m buffer approach,

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<sup>1</sup> The Burrowing Owl Technical Report by AECOM (2014) discusses potential impacts to individuals and burrows.



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can be an adequate surrogate for estimating impacts. In other words, their value is best reserved for sites and circumstances that lack the ability to generate robust site-specific analysis. Additionally, as noted above, we determined that for this site, the quality of the habitat was strongly influenced by crop type (wheat and alfalfa), crop consistency, soils, and proximity to roads.

### ***Regional Population***

The density of owls within the farmed lands of the Imperial Valley is several magnitudes greater than would have occurred in the desert habitats prior to farming. While the abundance of owls is quite high regionally, researchers over the years have also noted that farm-related mortality presents challenges to burrowing owl populations (York et al. 2002, Rosenberg et al. 2004, 2007) and that these factors can and do limit the growth rate of the population.

There are four processes that determine the growth rate of a population: births, deaths, immigration and emigration. When death and emigration exceed birth and immigration there is a negative growth rate, however, when birth and immigration exceed death and emigration the resulting growth rate is positive. Changing the direction (i.e., negative or positive) of one of these processes can have a rather pronounced affect on growth rates. Gervais et al. (2006) and Barclay et al. (2011) working in different parts of the state (Central Valley and San Jose, respectively) with different population size and spatial extent (large vs. small) found that lower survivorship of juvenile and adult had a greater affect on population growth rate than did lower fecundity. Barclay et al. (2011) concluded that for these reasons management that improved adult survival were likely be the most effective at enhancing population growth rates. In that context, the Imperial Irrigation District (IID) has substantially reduced burrowing owl mortality (upwards of 90%) by modifying standard operation and maintenance activities, e.g., drain clearing, by marking and avoiding burrows (pers.com. Bruce Wilcox, IID). IID employs specific measures such as training staff, systematic surveying of all IID infrastructure that are suitable for supporting burrow owl burrows, marking occupied burrows so that IID staff minimize impacting burrows during normal operations; and when feasible, replacing occupied burrows that cannot be avoided with artificial burrows.

### **IMPACTS**

Figure 2 provides the spatial relationship of the core foraging habitats (dark blue in Figure 2) that are to be impacted by the proposed Wistaria Project. Approximately 614 acres of core foraging habitat will be impacted by full build out of the project (Figure 2). The inferences of the model provides a more precise and robust methodology for estimating impacts to core foraging habitat for burrowing owls that use the Wistaria Project site.

Therefore, this analysis determines that the project will result in a significant impact to 614 acres of core foraging habitat for the burrowing owl. The Burrowing Owl Technical Report by AECOM (2014) addresses potential impacts to individuals and burrows.



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## ALTERNATIVE MITIGATION

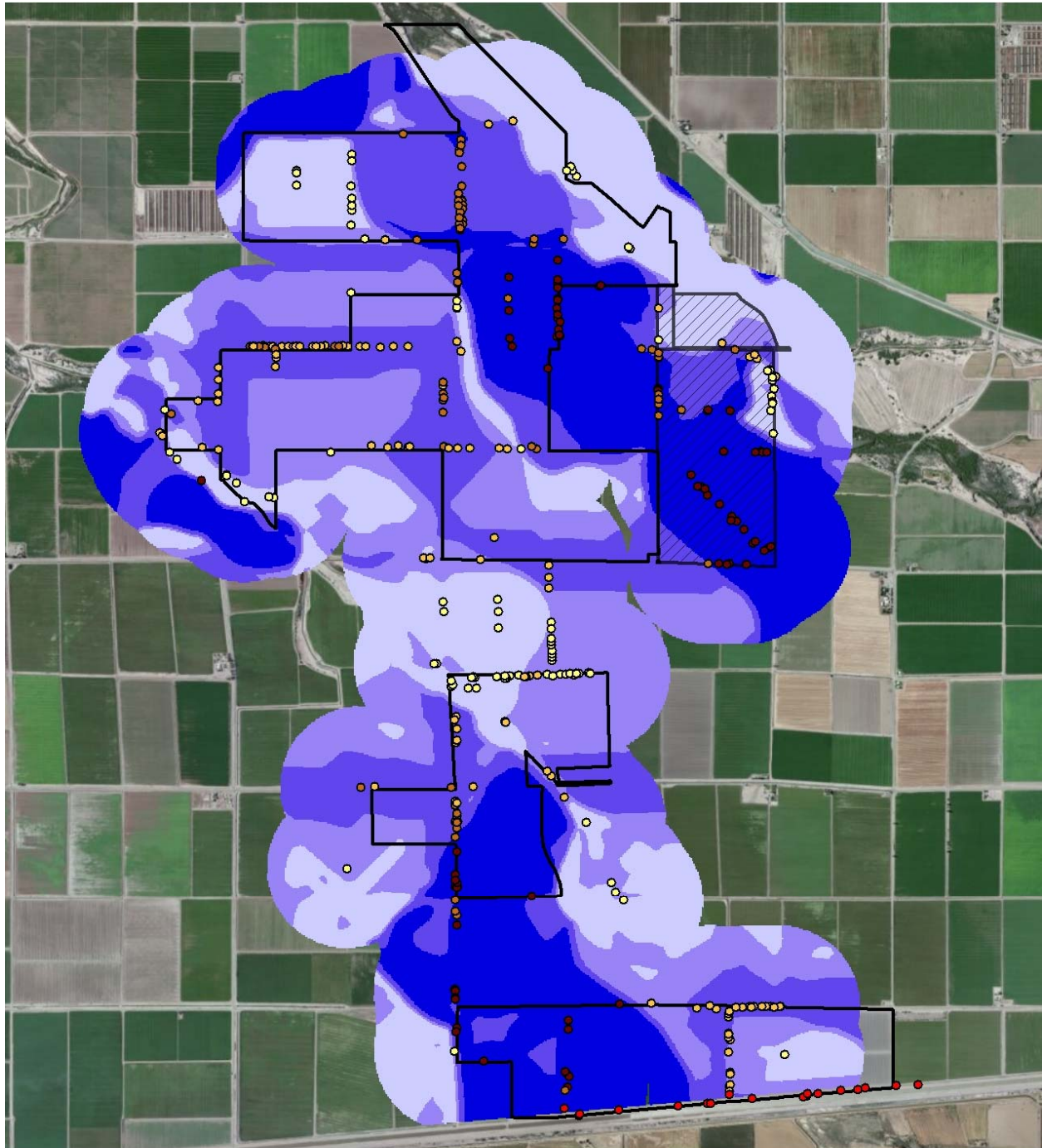
Typical mitigation for impacts to foraging habitat for burrowing owls include dedication of conservation easements and payment of in-lieu fees. However, because the models provide spatially explicit estimates of the core foraging habitat for burrowing owls, they can be used to develop a mitigation strategy that targets important croplands for conservation and management.

Using the modeling information, an alternative mitigation approach that would compensate for loss of core foraging habitat on the project site while also controlling those factors that have been implicated in limiting population growth rate of the regional burrowing owl population can be developed. Linking the modeling results about site-specific impacts with regional data on burrowing owl population dynamics provides an opportunity to develop a mitigation strategy that both proportionally compensates for impacts to foraging habitat and addresses those factors that limit population growth rates of burrowing owl in the Imperial Valley. The proposed mitigation strategy would be based on the following components:

1. Avoid core habitat to the extent practicable, as Project Proponent has already implemented – a direct outcome of the model (see Figure 3);
2. Encourages farmers to grow and retain crops (i.e., wheat and alfalfa) as much as possible that are favorable for burrowing owls – based on the findings of the model;
3. Enter farmed lands that support owls into a program that integrates owl friendly farm practices that reduces mortality of owls– based on evidence from research on burrowing owl population dynamics in the Imperial Valley and elsewhere; and

The spatial model provides a framework for the project to avoid the core foraging habitats when practicable (see figure 3). The Wistaria Project design was modified to reduce impacts to burrowing owl habitat, particularly along the northeastern edge of the original project, which has a high concentration of burrows and core foraging habitat (Figure 3). This resulted in the project reducing impacts to core foraging habitat, and reducing the number of nest burrows directly affected.

While the project can offset impacts through the acquisition of conservation easements or paying in lieu fee to a qualified entity (see EIR for discussion of these elements), this Technical Report will focus on two alternative mitigation strategies that are tied to the results of the model outputs and based on key findings regarding the demographic stressors for population growth in the Imperial Valley, namely adult mortality from standard farming practices. The two key components recommended for an alternative approach for offsetting impacts from the Wistaria Solar Project on core foraging habitat are: 1) a program to reward farmers for growing and maintaining certain “owl friendly” crops; and 2) incorporating “owl friendly” practices into their normal farming operations. These strategies are to be implemented through short-term farm agreements in which farmers enroll into a Burrowing Owl Farm Plan Contract with an implementing entity, such as the Imperial Valley Community Foundation.



Probabilistic estimates of burrowing owl burrow occupancy in 2012, conditioned on survey-level (n=4) detection probabilities and environmental variables, including dominant soil type (n=6), dominant crop cover type (n=3), crop persistence, distance to nearest road, and distance to nearest canal or ditch feature. The dominant crop cover type was determined within a 600-m radius around each burrow. Estimates of occupancy beyond known burrow locations therefore reflect the importance of adjacent crop cover types.

#### Occupancy probability

- 0.02 - 0.34
- 0.35 - 0.45
- 0.46 - 0.68
- 0.69 - 0.95

Wistaria project footprint

Excluded parcels

#### Burrow-specific occupancy rate

- 0.06 - 0.38
- 0.39 - 0.57
- 0.58 - 0.74
- 0.75 - 0.90

Burrows excluded from analysis

1 km



CSP 06/06/14

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The success of a conservation program not only hinges on the validity of the ecological principles that underlie it, but also the acceptance of all affected stakeholders. A number of ecologists have noted over the years the intense polarization and controversy surrounding large carnivore management for example is due in no small part to important stakeholders being largely excluded or marginalized by the state game agencies (e.g., Mark Hebblewhite from University of Montana, Rob Weilgus Washington State University, Rick Hopkins, LOA). Therefore, the success of entering farmers into a program that provides suitable forage for owls and integrates measure to reduce mortality needs to also focus on the diverse needs of the Valley's key stakeholders by:

- Encouraging continued agriculture, which has created this abundant owl population
- Facilitate economic growth, which creates opportunities for people
- Direct solar development to previously disturbed land
  - Reduce sources of GHGs
  - Provide a sustainable source of electricity
  - Contribute to California's RPS goals
  - Provide energy independence
  - Reduce impacts from terrorism (no nuclear explosion or gas explosion)
  - Avoid impacts to natural habitats
- Foremost, protect the owls

The underlying foundation of this alternative mitigation recommendation is not simply the reliance on robust statistical tools, but the integration of the findings from key regional research on the owl's population ecology, and partnering with the innovative approaches championed by Imperial Valley Community Foundation (IVCF). The intersection of all of these factors provides a rare and unique opportunity to shift the paradigm for establishing a conservation program that can serve as a regional model for the owl and other agriculture-associated species that may also co-benefit from implementation of this model.

IVCF is presently encouraging innovation on how the region thinks about owls, in part by soliciting proposals to conduct specific types of research on the owl that will lead to more informed regional conservation. Wistaria Ranch Solar, LLC can leverage IVCF's position within the community for advocating and administering the innovative strategies we recommend here to conserve the owl within the complex matrix of farmland, solar farms and other economic opportunities. These strategies are designed to:

- Develop a program with the Imperial Valley Community Foundation-Burrowing Owl Stewardship and Education Fund (IVCF-BOSEF) that rewards farmers monetarily for registering with a Burrowing Owl Safe Farming Program (BOSFP)
- Develop with IVCF-BOSEF and the farming community on-farm practices that would reduce mortality to owls in active farmland. To the degree feasible, incorporate the best management practices, such as those described in IID's draft Natural Community Conservation Plan and Habitat Conservation Plan



- Develop short-term and renewable land conservation programs with IVCF-BOSEF that provides monetary incentives to farmers that grow crops that are beneficial to the burrowing owl
- Collaborate with IVCF-BOSEF to conduct studies to evaluate long-term population trends and demographic studies to inform adaptive management strategies for the Wistaria burrowing owl mitigation plan

In summary, the two alternative mitigation strategies highlighted in this Technical Report are to enroll farmers into a program that rewards them for short-term farming agreements or contracts, and incorporate a Burrowing Owl Safe Farming Program into their farming operations.

## MITIGATIONS

The crop friendly program would be based on impacts to core foraging habitat identified in Figure 1 and 2 and could in part, be mitigated at a 1:1 ratio by entering farm land into short term farm agreements or contracts that target crops identified by the model as core foraging habitat (e.g., durum wheat, alfalfa and crop consistency being important predictors of owl foraging).

In addition, any farmlands that support suitable habitat (as defined above), and are entered into a Burrowing Owl Friendly Program would be able to discount the mitigation requirement by acquiring 0.7 acres for every acre of impact; this discount would be applied to lands found to support suitable foraging habitat. This approach is supported by evidence in the literature (Gervais et al. 2006, Barclay et al. 2011) regarding mortality in farmed lands and AECOM's own observations on this Wistaria Project. See Table 5 below.

It is important to note that while these surveys were extensive, they still only represent a small number of days for the whole year. Thus, mortality for the site is most certainly higher than these incidental sightings reported by AECOM (2014). Couple these observations with the findings of Gervais 2006 (Central Valley) and Barclay et al. 2011 (San Jose) that reported growth rates were more affected by adult and juvenile survivorship than by fecundity (i.e., ability of an individual to produce offspring).

<b>Table 5. Mitigation based on entering farmers into short-term cropping agreements and/or Burrowing Owl Friendly Program for impacting core foraging habitat (See Figure 1 and 2).</b>				
<b>Impacted Acres</b>	<b>Ratio</b>	<b>Replacement Habitat Acres</b>	<b>Discount for BOFP</b>	<b>Replacement Habitat Acres &amp; BOFB Discount</b>
614	In-kind	614	0.70	430

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Therefore, this approach is to rely, to the maximum extent practicable, on strategies that optimizes the occupancy of owls within existing farmlands and reduces mortality (e.g., shifting the growth rate equation in a measurable and positive way) from farm operations. This allows to the extent possible, for the availability of food resources to be the more limiting factor for owls, than mortality related to farming. These alternative mitigation measures have the capacity to proportionally compensate for impacts to core foraging to a less than significant level. The number of acres enrolled in the farm friendly crop program and Burrowing Owl Safe Program will be based on Table 5. The total number of acres encumbered at any one time (as these are short-term agreements) would depend on whether a property is enrolled in only one or both programs concurrently. Prior to grading, the applicant would be required to provide evidence they have enrolled the appropriate number of acres into one or both programs (see Table 5). Each year the project administrator would provide the County with an accounting demonstrating that a suitable number of acres are enrolled in The Farm Friendly Crop and/or Burrowing Owl Safe Program. The mitigation obligations will run the length of the project. If the project is extended, the applicant for the extension would be required to continue to fund the Farm Friendly Crop and/or Burrowing Owl Safe Program mitigation plan commensurate with the continued project impact or provide comparable mitigation, subject to the approval of the County of Imperial. Once a parcel on the Wistaria Project site has been restored to farmed land, the associated (proportional) mitigation requirements will end.

### **Mitigation 1. Habitat Compensation – Burrowing Owl Friendly Crops**

Table 5 provides the basis if only the farm friendly crops mitigation measure is used. Wistaria Ranch Solar LLC will work with IVCF-BOSEF to develop short-term and renewable land conservation programs and long-term financing plan that provides monetary incentives to farmers who maintain crop consistency and grow crops that are beneficial to the burrowing owl. Wistaria Ranch Solar LLC shall fund an endowment account sufficient to fund a program that enrolls farmers in short-term agreements to predominantly grow wheat and alfalfa. This mitigation is specifically designed to address owl foraging habitat in the Valley by entering into short-term farming agreements.

IVCF-BOSEF would be responsible for identifying farmlands suitable for the program, determine the length of the short-term agreement for each property entered into the program, monitor the effectiveness of the agreement, i.e., that farmers are adhering to the terms of the crop agreements, and take corrective action if agreements are not being suitably adhered to. Farmers who fail to implement the program as agreed upon will not receive the final payment.

While the original program will be based on the results of the statistical models specifically derived for this project, IVCF-BOSEF could modify the approach based on results from their on-going effectiveness monitoring and based on any new evidence of owl ecology that is generated for the Valley. IVCF-BOSEF would coordinate any substantial changes in the program with CDFW.

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## Mitigation 2. Burrowing Owl Safe Program

Table 5 provides the discount applied to compensation for entering farmers enrolling in crop agreements into a Burrowing Owl Safe Program; the proportional mitigation requirements for a farm enrolled in an Owl-Friendly Crop and Owl-Safe Farming Practices Agreement are reduced from 1:1 to 0.70:1.

Wistaria Ranch Solar LLC will collaborate with IVCF-BOSEF to develop a long-term financing plan and shall fund an endowment account sufficient to fund owl-safe farming practices, farmer incentives and effectiveness monitoring. This mitigation is specifically designed to address owl mortality in the Valley by entering into short-term farming agreements. Importantly, these programs will incorporate effectiveness monitoring, i.e., confirmation that farmers are implementing owl-safe farm practices, principles of adaptive management and will reward farmers who adhere to the principles of the program. Farmers who fail to implement the program effectively will not receive the final payment.

The Owl-Safe Farming program is to be developed as a flexible program that allows more farmers to participate than might be expected with the traditional CE approach. This program will allow IVCF and BOSEF to launch a centralized Valley-wide burrowing owl mitigation program that illustrates how farmers, commercial and environmental interests can work collaboratively.

The owl safe program will include the following Best Management Practice's that IID has found to be effective (IID 2001; Bruce Wilcox pers. com.). These include

- Training for farmers and farm employees.
- Surveys of farm roads, ditches, and other potentially suitable areas by qualified biologists or farm employees who have been certified by an IVCF-BOSEF training program
- Marking system that would assist farm employees in avoiding occupied or active burrows
- A strategy to replace occupied burrows that cannot be avoided with artificial burrows where feasible

The Owl-Safe Farming program will also include the following measures:

- Monitoring program administered to measures effectiveness, i.e., are farmers engaging in BMPs
- Adaptive management component that strategically incorporates relevant findings from research funded by the IVCF-BOSEF, IID and others
- Long-term funding



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## Mitigation Summary

This project impact assessment and recommended mitigation program was developed in response to CDFW recent Burrowing Owl Guidelines (2012). The statistically robust analysis was designed to best inform CEQA as the extent of the impact to burrowing owl and their habitat and to develop a mitigation program that is “not a one size fits all approach” that dominated the last 20 years of burrowing owl mitigation. Instead, the recommended mitigation strategy is based on a holistic approach that relies on a robust analysis of impacts, ecology of the owl regionally and the realistic constraints of land use and land ownership for the Valley. This mitigation specifically addresses key limiting factors for burrowing owl population dynamics (e.g., farming mortality) and would likely be more palatable to the farm community, improving its acceptance with key stakeholders.

Other important benefits of the statistical models are that they provide a framework for a-priori hypothesis testing (e.g., focused research funded by IVCF-BOSEF), clearly incorporate principles of adaptive management and, link scales of ecology and conservation. In addition, the recommended mitigation strategy would both increase the visibility of BOSEF and provide an opportunity for BOSEF to serve as burrowing owl mitigation clearing house – a one-stop shop, to facilitate economic growth/renewables in Imperial Valley and reward responsible owl-management practices.

## PHASING

The Project could be constructed over 10 years and Table 6 provides the breakdown of the 17 conditional use permits (CUPs) that comprise the overall Project. This Table provides the acreage estimates of core foraging habitat impacts for each of the 17 CUPs. Prior to ground disturbance, the applicant will need to provide the County a certificate from IVCF, the Plan Administrator, that suitable funding has been provided so that the acres identified in Table 5 are properly enrolled in the Mitigation Programs.

Table 6, provides guidance and assumes full build out of each CUP. If advances in solar technology or economic forces (or any other reason) result in only a portion of the CUP being impacted, then the mitigation acreage would appropriately be scaled to account for the core habitat affected. IVCF as Plan Administrator will be responsible for determining the proportional change in mitigation based on a reduced footprint and the mitigation ratios provided in Table 5.

**Table 6. Estimate of acreage impact of core foraging habitat for the Wistaria Project footprint by CUP. Estimates for the Burrowing Owl Friendly Crop (BOFC) and Burrowing Owl Safe Farm Practices (BOFSP).**

Phase	Total Acres	Impact Acres (Core Foraging Habitat)	BOFC Mitigation (1:1)	BOSFP Discount (0.70:1)
CUP 130036	190.61	123.7	123.7	86.6
CUP 130037	223.66	6.9	6.9	4.8
CUP 130038	162.93	0.0	0.0	0.0
CUP 130039	161.2	7.8	7.8	5.5
CUP 130040	148.5	37.9	37.9	26.6
CUP 130041	153.6	0.0	0.0	0.0
CUP 130042	231.3	0.0	0.0	0.0
CUP 130043	152.1	133.2	133.2	93.2
CUP 130044	79.8	0.0	0.0	0.0
CUP 130045	76.6	28.6	28.6	20.0
CUP 130046	202.2	14.7	14.7	10.3
CUP 130047	131.9	0.4	0.4	0.3
CUP 130048	160	9.1	9.1	6.4
CUP 130049	159.9	1.9	1.9	1.3
CUP 130050	123.5	99.6	99.6	69.7
CUP 130051	241.9	150.2	150.2	105.2
CUP 130052	194	0.0	0.0	0.0
<b>Total</b>	<b>2793.7</b>	<b>614.0</b>	<b>614.0</b>	430.0

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