

**APPENDIX B: PROJECT BACKGROUND
SUPPORTING DOCUMENTATION**

**TABLE B-1
MONTEREY COUNTY LAND USE AND HABITAT DATA**

Potential Suitable Habitat				
Habitat Type (CALVEG) ¹	Square Miles	% County	County Geography	Square Miles
Annual Grassland	1,003	30.3%	Water area ²	491
Mixed Chaparral	532	16.1%	Land area ²	3,281
Coastal Oak Woodland	325	9.8%	Total area	3,772
Blue Oak Woodland	301	9.1%		
Pasture	266	8.0%		
Chamise-Redshank Chaparral	232	7.0%		
Coastal Scrub	224	6.8%		
Urban	82	2.5%		
Vineyard	78	2.4%		
Montane Hardwood	72	2.2%		
Barren	33	1.0%		
Valley Foothill Riparian	28	0.8%		
Montane Hardwood-Conifer	28	0.8%		
Blue Oak-Foothill Pine	22	0.7%		
Closed-Cone Pine-Cypress	20	0.6%		
Redwood	19	0.6%		
Valley Oak Woodland	10	0.3%		
Lacustrine	6	0.2%		
Sierran Mixed Conifer	6	0.2%		
Eucalyptus	4	0.1%		
Saline Emergent Wetland	4	0.1%		
Deciduous Orchard	3	0.1%		
Perennial Grassland	3	0.1%		
Alkali Desert Scrub	3	0.1%		
Riverine	2	0.1%		
Ponderosa Pine	2	<0.1%		
Marine	2	<0.1%		
Estuarine	1	<0.1%		
Wet Meadow	1	<0.1%		
Evergreen Orchard	1	<0.1%		
Desert Wash	<1	<0.1%		
Fresh Emergent Wetland	<1	<0.1%		
Juniper	<1	<0.1%		
Desert Riparian	<1	<0.1%		
Montane Chaparral	<1	<0.1%		
Montane Riparian	<1	<0.1%		
Cropland	<1	<0.1%		
Total land area	3,314		Total land area	3,281
Not suitable:			Not suitable:	
Water, desert, urban ⁵	101		Cultivated cropland ^{3,5}	560.8
			Urban ^{2,5}	72.4
			Roadways, paving, buffers ⁴	15.5
Total potential suitable habitat⁶	3,213		Total potential suitable habitat⁶	2,632

Land Ownership/Jurisdiction		
	Square Miles	% County
Private	2,364	73%
US Forest Service	485	15%
US Bureau of Land Management	295	9%
City/County park	34	1%
Fort Ord Reuse Authority	32	1%
California Dept Parks and Rec	22	1%
State Lands Commission	11	0.34%
California Dept Fish and Wildlife	5	0.15%
Conservancy/land trust	4	0.12%
National Park Service	4	0.12%
US Fish and Wildlife Service	1	0.03%

Farmland Mapping and Monitoring Program ⁷		
	Square Miles	% County
Grazing land	1,660	50.1%
Other land	1,184	35.7%
Prime farmland	260	7.8%
Urban and built-up	91	2.7%
Farmland of statewide importance	69	2.1%
Unique farmland	41	1.2%
Water area	10	0.3%

Notes

1. Source: USFS (2017)
2. Source: US Census (2016)
3. Source: NASS (2012)
4. Source: Caltrans (2010)
5. Urban and cultivated cropland are subtracted because they do not represent ideal habitat, there is little scientific data on species densities in these habitats, and including these would overestimate potential habitat.
6. The lesser of total potential suitable habitat is used to conservatively estimate county species populations.
7. Source: California Department of Conservation (2015)

**Table B-2
Monterey County Total Crop and Livestock Production Value**

	Vegetable Crops (\$)	Fruits & Nuts (\$)	Nursery Crops (\$)	Field Crops (\$)	Seed Crops & Apiary (\$)	Total Crops (\$)	Livestock, Poultry Dairy (LPD) (\$)	Total Crops + LPD (\$)	% LPD
1997	1,635,267,000	420,446,300	134,804,000	12,744,000	7,202,804	2,210,464,104	32,780,000	2,243,244,104	1.5%
1998	1,649,092,000	385,062,000	154,297,000	11,072,000	12,423,385	2,211,946,385	35,463,000	2,247,409,385	1.6%
1999	1,754,923,000	378,666,000	180,822,000	10,206,000	7,744,450	2,332,361,450	36,782,000	2,369,143,450	1.6%
2000	2,216,764,000	451,625,000	194,251,000	11,237,300	8,818,550	2,882,695,850	40,574,000	2,923,269,850	1.4%
2001	2,013,549,000	497,689,000	178,564,000	12,911,400	5,182,680	2,707,896,080	38,456,700	2,746,352,780	1.4%
2002	2,133,570,000	409,055,000	218,679,000	12,926,000	6,060,853	2,780,290,853	31,778,530	2,812,069,383	1.1%
2003	2,544,908,000	446,356,000	240,898,000	13,104,600	6,993,450	3,252,260,050	34,904,720	3,287,164,770	1.1%
2004	2,530,112,000	529,292,718	271,209,000	15,515,000	7,069,800	3,353,198,518	39,220,800	3,392,419,318	1.2%
2005	2,249,474,000	685,553,000	276,235,000	15,477,000	6,083,100	3,232,822,100	40,189,000	3,273,011,100	1.2%
2006	2,386,801,000	699,260,000	339,225,000	16,858,000	9,665,000	3,451,809,000	38,267,000	3,490,076,000	1.1%
2007	2,516,405,000	900,595,000	342,125,000	14,442,000	7,365,300	3,780,932,300	42,355,000	3,823,287,300	1.1%
2008	2,530,876,000	906,717,000	326,105,000	14,456,000	8,401,600	3,786,555,600	40,235,000	3,826,790,600	1.1%
2009	2,631,763,000	1,042,685,000	294,572,000	14,972,000	9,352,200	3,993,344,200	40,374,000	4,033,718,200	1.0%
2010	2,677,072,000	987,693,000	266,121,000	15,230,000	10,226,000	3,956,342,000	49,893,000	4,006,235,000	1.2%
2011	2,596,683,000	914,685,000	260,703,000	16,824,000	9,632,000	3,798,527,000	54,468,000	3,852,995,000	1.4%
2012	2,691,152,000	1,057,684,000	307,543,000	19,338,000	8,754,000	4,084,471,000	53,126,000	4,137,597,000	1.3%
2013	2,833,775,000	1,159,589,000	312,346,000	19,990,000	8,998,000	4,334,698,000	45,024,000	4,379,722,000	1.0%
2014	3,098,138,000	1,033,798,000	286,577,000	18,724,000	5,466,000	4,442,703,000	64,286,000	4,506,989,000	1.4%
2015	3,261,521,000	1,012,977,000	313,689,000	20,748,000	4,980,000	4,613,915,000	91,228,000	4,705,143,000	1.9%
2016	2,817,031,000	1,056,777,000	276,423,000	20,947,000	4,429,000	4,175,607,000	80,465,000	4,256,072,000	1.9%

Source: Monterey County Office of Agricultural Commissioner Crop Reports 1997-2016 (Monterey County 2017b)

Reported Wildlife Damage Value (\$)

Monterey Wildlife Damage Reported Confirmed

CA: 01/01/1997 to 12/31/2016

Includes T&E
Projects

CALENDER YEAR	SPECIES	AGRICULTURE FIELD CROPS	AGRICULTURE LIVESTOCK	AGRICULTURE OTHER	HUMAN HEALTH	NATURAL RESOURCE	PROPERTY	TOTAL DAMAGES
1997	BOBCATS		\$305			\$75		\$380
	COOTS, AMERICAN						\$2,000	\$2,000
	COYOTES		\$87,960			\$75	\$51,300	\$139,335
	GEESE, CANADA	\$12,000						\$12,000
	LIONS, MOUNTAIN (COUGAR)		\$1,580					\$1,580
1997 Total		\$12,000	\$89,845			\$150	\$53,300	\$155,295
1998	BEAVERS			\$1,000			\$200	\$1,200
	BOBCATS			\$80				\$80
	COYOTES		\$48,138	\$160			\$10,840	\$59,138
	FOXES, RED				\$100			\$100
	HOGS, FERAL			\$10,000			\$250	\$10,250
	LIONS, MOUNTAIN (COUGAR)		\$2,200					\$2,200
	MUSKRATS, z-(OTHER)						\$250	\$250
	OPOSSUMS, VIRGINIA			\$150			\$100	\$250
	RACCOONS			\$100		\$200	\$200	\$500
	SKUNKS, STRIPED			\$200			\$1,380	\$1,580
	SQUIRRELS, GROUND, OTHER			\$2,700			\$350	\$3,050
	1998 Total			\$50,338	\$14,390	\$100	\$200	\$13,570
1999	BEARS, BLACK		\$100					\$100
	BEAVERS						\$125,000	\$125,000
	BOBCATS						\$150	\$150
	COYOTES		\$48,652				\$680	\$49,332
	DOGS, FERAL/FREE RANGING & HYBRIDS				\$200			\$200
	FOXES, RED						\$250	\$250
	HOGS, FERAL	\$4,000				\$5,000	\$925	\$9,925
	LIONS, MOUNTAIN (COUGAR)		\$9,749				\$4,400	\$14,149
	MUSKRATS, z-(OTHER)						\$200	\$200
	RACCOONS			\$40				\$40
	SKUNKS, STRIPED		\$225				\$25	\$250
	TURKEY, WILD (ALL)						\$100	\$100
	WEASELS (ALL)					\$1,000	\$100	\$1,000
1999 Total		\$4,000	\$58,726	\$40	\$200	\$6,000	\$131,730	\$200,696
2000	BADGERS						\$100	\$100
	BEAVERS						\$2,000	\$2,000
	BLACKBIRDS, RED-WINGED						\$100	\$100
	BLACKBIRDS, z-(MIXED SPECIES)			\$125,000				\$125,000
	BOBCATS		\$290				\$600	\$890
	COOTS, AMERICAN						\$10,000	\$10,000
	COYOTES		\$36,605	\$1,000			\$6,830	\$44,435
	CROWS, AMERICAN	\$500						\$500
	DOGS, FERAL/FREE RANGING & HYBRIDS		\$17,400					\$17,400
	FOXES, GRAY						\$50	\$50
	GOPHERS, POCKET (ALL)						\$100	\$100
	GULLS, HERRING						\$600	\$600
	HOGS, FERAL	\$1,400	\$600	\$132,300		\$1,000	\$4,900	\$140,200
	LIONS, MOUNTAIN (COUGAR)		\$13,604				\$3,400	\$17,004
	RACCOONS		\$175			\$30	\$25	\$230
	SKUNKS, STRIPED		\$25				\$25	\$50
	VULTURES, TURKEY						\$100	\$100
WEASELS (ALL)		\$105					\$105	
2000 Total		\$1,900	\$68,804	\$258,300		\$1,030	\$28,830	\$358,864
2001	BADGERS						\$100	\$100
	BEAVERS						\$2,950	\$2,950
	BOBCATS		\$10				\$100	\$110
	COOTS, AMERICAN						\$10,000	\$10,000
	COYOTES		\$164,771				\$1,400	\$166,171
	CROWS, AMERICAN	\$1,000						\$1,000
	DOGS, FERAL/FREE RANGING & HYBRIDS		\$800					\$800
	FOXES, RED		\$50				\$100	\$150
	GEESE, CANADA						\$20,300	\$20,300
	HOGS, FERAL	\$37,200	\$5,500	\$8,200			\$12,200	\$63,100
	LIONS, MOUNTAIN (COUGAR)		\$2,460					\$2,460
	RABBITS, COTTONTAIL						\$50	\$50
	RACCOONS			\$1,050			\$125	\$1,175
	SKUNKS, STRIPED		\$20					\$20
2001 Total		\$38,200	\$173,611	\$9,250			\$47,325	\$268,386
2002	BATS (ALL)						\$300	\$300
	BEARS, BLACK						\$500	\$500
	BOBCATS		\$310					\$310
	COYOTES		\$29,925			\$50	\$2,490	\$32,465
	DEER, MULE						\$26,000	\$26,000
	DEER, z-(OTHER)			\$400			\$250	\$650
	DOGS, FERAL/FREE RANGING & HYBRIDS		\$2,400				\$550	\$2,950
	EAGLES, GOLDEN		\$400					\$400
	ELK, WAPITI (WILD)	\$22,500						\$22,500
	FOXES, RED						\$150	\$150
	GEESE, CANADA	\$4,000						\$4,000
	GOPHERS, POCKET (ALL)	\$500					\$325	\$825
	HARES, JACKRABBITS (ALL)						\$600	\$600
	HOGS, FERAL	\$13,500		\$500			\$20,100	\$34,100
	LIONS, MOUNTAIN (COUGAR)		\$4,860				\$550	\$5,410
	RABBITS, COTTONTAIL	\$500						\$500
	RACCOONS		\$130	\$100			\$5,640	\$5,870
SKUNKS, STRIPED						\$150	\$150	
SQUIRRELS, GROUND, OTHER				\$5,250		\$17,250	\$22,500	
WEASELS (ALL)		\$100					\$100	
2002 Total		\$41,000	\$38,125	\$6,250		\$50	\$74,855	\$160,280
2003	BADGERS	\$2,000						\$2,000

Monterey Wildlife Damage Reported Confirmed

CA: 01/01/1997 to 12/31/2016

Includes T&E
Projects

CALENDER YEAR	SPECIES	AGRICULTURE FIELD CROPS	AGRICULTURE LIVESTOCK	AGRICULTURE OTHER	HUMAN HEALTH	NATURAL RESOURCE	PROPERTY	TOTAL DAMAGES
	BLACKBIRDS, RED-WINGED	\$600						\$600
	BOBCATS		\$300	\$250			\$100	\$650
	COYOTES		\$74,055	\$250			\$92,650	\$166,955
	CROWS, AMERICAN			\$7,000				\$7,000
	DOGS, FERAL/FREE RANGING & HYBRIDS		\$700					\$700
	FOXES, RED						\$100	\$100
	GEESE, CANADA	\$25,000			\$20,000		\$10,000	\$55,000
	HOGS, FERAL	\$2,500		\$2,000			\$7,000	\$11,500
	LIONS, MOUNTAIN (COUGAR)		\$8,200				\$2,500	\$10,700
	MEADOWLARKS, WESTERN	\$600						\$600
	OPOSSUMS, VIRGINIA						\$50	\$50
	RACCOONS					\$4,800	\$1,055	\$5,855
	SKUNKS, STRIPED		\$32				\$150	\$182
	STARLINGS, EUROPEAN	\$600						\$600
2003 Total		\$31,300	\$83,287	\$9,500	\$24,800		\$113,605	\$262,492
	2004 BADGERS						\$50	\$50
	BOBCATS		\$1,000					\$1,000
	COYOTES		\$25,680				\$7,050	\$32,730
	DEER, MULE				\$38,000			\$38,000
	DOGS, FERAL/FREE RANGING & HYBRIDS		\$1,075					\$1,075
	FOXES, GRAY		\$10					\$10
	FOXES, RED		\$300					\$300
	GEESE, CANADA	\$12,000			\$4,000		\$26,100	\$42,100
	GULLS, WESTERN				\$3,100			\$3,100
	HOGS, FERAL	\$1,000	\$125	\$76,200			\$8,406	\$85,731
	LIONS, MOUNTAIN (COUGAR)		\$1,995		\$100		\$100	\$2,195
	OPOSSUMS, VIRGINIA						\$170	\$170
	RACCOONS						\$735	\$735
	SKUNKS, STRIPED				\$200		\$95	\$295
	SNAKES, POISONOUS (ALL)						\$600	\$600
	WOODPECKERS, z-(OTHER)						\$7,350	\$7,350
2004 Total		\$13,000	\$30,185	\$76,200	\$45,400		\$50,656	\$215,441
	2005 BOBCATS		\$915				\$50	\$965
	COOTS, AMERICAN				\$1,300		\$13,500	\$14,800
	COYOTES		\$29,110		\$75		\$5,700	\$34,885
	DEER, MULE						\$500	\$500
	DOGS, FERAL/FREE RANGING & HYBRIDS		\$150					\$150
	EAGLES, GOLDEN		\$400					\$400
	GEESE, CANADA				\$5,000		\$16,000	\$21,000
	GULLS, WESTERN				\$1,000		\$2,000	\$3,000
	HOGS, FERAL	\$1,000	\$475	\$7,000			\$2,725	\$11,200
	LIONS, MOUNTAIN (COUGAR)		\$6,250				\$900	\$7,150
	RACCOONS			\$500			\$50	\$550
	SKUNKS, STRIPED						\$550	\$550
	SWINE, FERAL			\$2,250				\$2,250
2005 Total		\$1,000	\$37,300	\$9,750	\$7,375		\$41,975	\$97,400
	2006 BOBCATS						\$75	\$75
	COOTS, AMERICAN				\$8,300		\$118,000	\$126,300
	COYOTES		\$21,775				\$1,450	\$23,225
	ELK, WAPITI (WILD)			\$5,000				\$5,000
	FOWL, PEA						\$100	\$100
	FOXES, RED		\$2,230					\$2,230
	GEESE, CANADA				\$2,000			\$2,000
	GULLS, WESTERN						\$3,000	\$3,000
	HARES, JACKRABBITS (OTHER)			\$100				\$100
	HERONS, GREAT BLUE			\$500				\$500
	LIONS, MOUNTAIN (COUGAR)		\$1,800				\$1,500	\$3,300
	RACCOONS		\$225	\$100			\$50	\$375
	SQUIRRELS, GROUND, CALIFORNIA						\$100	\$100
	SWINE, FERAL	\$81,000		\$520			\$100	\$81,620
2006 Total		\$81,000	\$26,030	\$6,220	\$10,300		\$124,375	\$247,925
	2007 BOBCATS		\$500				\$575	\$1,075
	COOTS, AMERICAN						\$96,300	\$96,300
	COYOTES		\$30,585				\$860	\$31,445
	DOGS, FERAL, FREE-RANGING AND HYBRIDS		\$435				\$100	\$535
	FOXES, GRAY						\$100	\$100
	GEESE, CANADA						\$10,535	\$10,535
	GULLS, WESTERN						\$3,000	\$3,000
	LIONS, MOUNTAIN (COUGAR)		\$5,250				\$875	\$6,125
	RABBITS, COTTONTAIL						\$200	\$200
	RACCOONS						\$400	\$400
	SWALLOWS, CLIFF						\$200	\$200
	SWINE, FERAL	\$2,200	\$6,500	\$650				\$9,350
	TURKEYS, WILD			\$500				\$500
	WEASELS (OTHER)		\$120					\$120
2007 Total		\$2,200	\$43,390	\$1,150			\$113,145	\$159,885
	2008 COOTS, AMERICAN						\$351,300	\$351,300
	COYOTES	\$44,876	\$36,441				\$3,625	\$84,942
	GULLS, CALIFORNIA	\$40,800						\$40,800
	GULLS, WESTERN	\$40,800					\$3,000	\$43,800
	HAWKS, RED-TAILED						\$1,500	\$1,500
	LIONS, MOUNTAIN (COUGAR)		\$2,085					\$2,085
	SWINE, FERAL	\$135,000						\$135,000
	WEASELS, LONG-TAILED		\$35					\$35
2008 Total		\$261,476	\$38,561				\$359,425	\$659,462
	2009 BADGERS						\$500	\$500
	BOBCATS						\$800	\$800

Monterey Wildlife Damage Reported Confirmed

CA: 01/01/1997 to 12/31/2016

Includes T&E
Projects

CALENDER YEAR	SPECIES	AGRICULTURE FIELD CROPS	AGRICULTURE LIVESTOCK	AGRICULTURE OTHER	HUMAN HEALTH	NATURAL RESOURCE	PROPERTY	TOTAL DAMAGES
	COOTS, AMERICAN						\$64,300	\$64,300
	COYOTES		\$37,875				\$1,750	\$39,625
	DEER, BLACK-TAILED						\$225	\$225
	DOGS, FERAL, FREE-RANGING AND HYBRIDS		\$150					\$150
	EAGLES, GOLDEN		\$785				\$500	\$1,285
	ELK, WAPITI (WILD)	\$500						\$500
	FINCHES, HOUSE						\$8,000	\$8,000
	FOXES, RED		\$250					\$250
	GEESE, CANADA	\$47,000					\$6,000	\$53,000
	GULLS, CALIFORNIA						\$5,000	\$5,000
	GULLS, WESTERN						\$1,009,000	\$1,009,000
	LIONS, MOUNTAIN (COUGAR)		\$9,025				\$1,800	\$10,825
	MULTIPLE SPECIES	\$32,000		\$18,000				\$50,000
	OWLS, GREAT HORNED						\$50	\$50
	PIGEONS, FERAL (ROCK)						\$2,620	\$2,620
	RACCOONS		\$200				\$500	\$700
	SKUNKS, STRIPED					\$500	\$350	\$850
	SWINE, FERAL	\$1,500			\$1,700			\$3,200
2009 Total		\$81,000	\$48,285	\$20,200			\$1,101,395	\$1,250,880
	2010 BATS (OTHER)						\$100	\$100
	BOBCATS		\$150					\$150
	COOTS, AMERICAN						\$62,800	\$62,800
	COYOTES		\$41,065	\$550			\$700	\$42,315
	DEER, BLACK-TAILED			\$2,000			\$125	\$2,125
	GULLS, WESTERN						\$1,003,000	\$1,003,000
	LIONS, MOUNTAIN (COUGAR)		\$7,400				\$1,052	\$8,452
	NON-WILDLIFE						\$100	\$100
	RAVENS, COMMON					\$77,089		\$77,089
	SWINE, FERAL			\$800				\$800
2010 Total			\$48,615	\$3,350		\$77,089	\$1,067,877	\$1,196,931
	2011 BOBCATS						\$500	\$500
	COOTS, AMERICAN	\$4,000					\$74,000	\$78,000
	COYOTES		\$40,010				\$1,650	\$41,660
	DEER, BLACK-TAILED	\$500						\$500
	FOXES, RED		\$275					\$275
	GULLS, WESTERN						\$1,005,500	\$1,005,500
	LIONS, MOUNTAIN (COUGAR)		\$4,890					\$4,890
	RACCOONS			\$8,100			\$1,600	\$9,700
	SQUIRRELS, GROUND, CALIFORNIA	\$1,000						\$1,000
	SWALLOW, CLIFF						\$63,500	\$63,500
	SWINE, FERAL	\$200		\$30,000				\$30,200
2011 Total		\$5,700	\$45,175	\$38,100			\$1,146,750	\$1,235,725
	2012 BOBCATS		\$322				\$435	\$757
	COOTS, AMERICAN						\$26,500	\$26,500
	COYOTES		\$48,834	\$10,000			\$370	\$59,204
	FOXES, GRAY		\$80					\$80
	LIONS, MOUNTAIN (COUGAR)		\$4,620				\$900	\$5,520
	RACCOONS		\$100				\$3,000	\$3,100
	SKUNKS, STRIPED						\$135	\$135
	SNAKES, RATTLESNAKES, SOUTHERN PACIFIC						\$850	\$850
	SWINE, FERAL	\$5,679	\$1,100					\$6,779
	TURKEYS, WILD			\$250				\$250
2012 Total		\$5,679	\$55,056	\$10,250			\$32,190	\$103,175
	2013 BOBCATS		\$2,047	\$540			\$200	\$2,787
	COOTS, AMERICAN						\$50,000	\$50,000
	COYOTES		\$53,140				\$6,210	\$59,350
	GULLS, WESTERN						\$1,009,000	\$1,009,000
	HAWKS, RED-TAILED						\$250	\$250
	LIONS, MOUNTAIN (COUGAR)		\$1,164					\$1,164
	MULTIPLE SPECIES						\$1,000,000	\$1,000,000
	RAVENS, COMMON					\$925,070		\$925,070
	SKUNKS, STRIPED					\$600,000	\$285	\$600,285
	SNAKES, RATTLESNAKES, SOUTHERN PACIFIC						\$965	\$965
	SWALLOW, CLIFF						\$750	\$750
	SWINE, FERAL	\$163,704	\$1,571	\$14,453			\$66,000	\$245,728
	TURKEYS, WILD			\$800				\$800
2013 Total		\$163,704	\$57,922	\$15,793		\$1,525,070	\$2,133,660	\$3,896,150
	2014 BOBCATS		\$2,310				\$1,350	\$3,660
	COOTS, AMERICAN						\$38,000	\$38,000
	COYOTES		\$51,724				\$4,925	\$56,649
	DEER, BLACK-TAILED			\$10,000				\$10,000
	DOGS, FERAL, FREE-RANGING AND HYBRIDS		\$3,033					\$3,033
	FINCHES, HOUSE						\$3,000	\$3,000
	FOXES, GRAY			\$1,700				\$1,700
	GULLS, WESTERN						\$9,000	\$9,000
	LIONS, MOUNTAIN (COUGAR)		\$3,080				\$70	\$3,150
	SKUNKS, STRIPED			\$4			\$400	\$404
	SQUIRRELS, GROUND, CALIFORNIA						\$300	\$300
	SWINE, FERAL	\$331,494	\$406				\$4,000	\$335,900
	TURKEYS, WILD						\$200	\$200
	WEASELS, LONG-TAILED		\$50					\$50
2014 Total		\$331,494	\$60,602	\$14,704			\$58,245	\$465,045
	2015 BOBCATS		\$1,902				\$50	\$1,952
	COOTS, AMERICAN						\$59,500	\$59,500
	COYOTES	\$4,755	\$9,497				\$12,900	\$27,152
	DOMESTIC ANIMAL (PET OR LIVESTOCK)		\$112				\$900	\$1,012
	GULLS, WESTERN						\$1,009,000	\$1,009,000

Monterey Wildlife Damage Reported Confirmed

CA: 01/01/1997 to 12/31/2016

Includes T&E
Projects

CALENDER YEAR	SPECIES	AGRICULTURE FIELD CROPS	AGRICULTURE LIVESTOCK	AGRICULTURE OTHER	HUMAN HEALTH	NATURAL RESOURCE	PROPERTY	TOTAL DAMAGES
	LIONS, MOUNTAIN (COUGAR)		\$2,576				\$200	\$2,776
	MULTIPLE SPECIES				\$50,000,000		\$5,000,000	\$55,000,000
	PIGEONS, BAND-TAILED	\$30,000						\$30,000
	RACCOONS		\$500					\$500
	SWINE, FERAL	\$49,755	\$2,839	\$5,000				\$57,594
2015 Total		\$84,510	\$17,427	\$5,000	\$50,000,000		\$6,082,550	\$56,189,486
	2016 BADGERS						\$240	\$240
	BIRDS, UNIDENTIFIABLE	\$42,970						\$42,970
	BOBCATS		\$444					\$444
	COOTS, AMERICAN					\$20,000		\$20,000
	COYOTES		\$36,294				\$2,275	\$38,569
	DEER, BLACK-TAILED						\$25	\$25
	EAGLES, GOLDEN		\$250					\$250
	HAWKS, RED-TAILED		\$25					\$25
	LARKS, HORNED	\$107,424						\$107,424
	LIONS, MOUNTAIN (COUGAR)		\$8,436				\$1,450	\$9,886
	MICE, HOUSE			\$300				\$300
	MOLES (ALL)					\$200		\$200
	RACCOONS		\$657	\$4,500			\$150	\$5,307
	RATS, NORWAY					\$150		\$150
	SKUNKS, STRIPED						\$35	\$35
	SQUIRRELS, GROUND, CALIFORNIA			\$175				\$175
	SWINE, FERAL	\$9,223	\$4,470	\$3,100			\$14,550	\$31,343
	WOODPECKERS, ACORN						\$23,250	\$23,250
2016 Total		\$159,617	\$50,576	\$8,075			\$62,325	\$280,593
Grand Total		\$1,318,780	\$1,121,860	\$506,523	\$50,088,175	\$1,609,590	\$12,837,783	\$67,482,710

Direct Control Methods

LETHAL CONTROL METHODS

The lethal control of animals by APHIS-WS is authorized under APHIS-WS Directive 2.505 (USDA 2017f). A variety of methods for removing a target animal species are available in California. Those methods and their descriptions are presented below and are summarized from USDA 2015a: Appendix C [Wildlife Damage Management Methods Available for Use in California]). These descriptions are provided for disclosure purposes. Monterey County would not be responsible for determining the methods to be used. A formal risk assessment of APHIS-WS wildlife damage management methods documented low levels of risk associated with APHIS-WS personnel use of direct control methods. No public safety incidents are known to have been reported to the APHIS-WS program (USDA 2015a: 76). The methods that have been used in Monterey County from 1997 to 2016 are identified in the take tables USDA 2017(a), which are provided at the end of Appendix C of this Draft EIR.

PHYSICAL CAPTURE AND CONTROL METHODS OVERVIEW

APHIS-WS Directive 2.450 (USDA 2017f) sets forth the guidelines for the use of certain types of capture devices by APHIS-WS field specialists. Policy 4 directs that the use of all traps, snares (cable device), and other capture devices must comply with applicable federal, state, and local laws and regulations; traps and trapping devices are not to be used unless appropriate authorization is granted by the landowner or designee; and all exceptions must be authorized by the director. Trapping regulations for California are specified in Section 465.5 of the California Fish and Game Code, and County-funded APHIS-WS activities in the county must adhere to those regulations.

WS Directive 2.450 (USDA 2017f) requires that appropriate warning signs be posted on main entrances or commonly used access points to areas where traps or snares are in use. Signs must be routinely checked by APHIS-WS field specialists to ensure they are present, obvious, and readable. Appropriate notification signs must be posted within the direct line of sight of mountain lion foot-snare device sets. Capture devices are to be set where they would minimize the public's view of captured animals. In California, pursuant to Fish and Game Code Section 465.5, traps must be checked at least once daily, and each time traps are checked, all trapped animals must be removed.

Except in limited cases where CDFW makes an individual exemption, CDFW does not allow the relocation of wildlife causing damage. Relocation of wildlife known to cause resource damage in one area does not correct the damaging behavior and can spread the problem to a new area. Relocation can also spread disease to other wildlife and domestic species. CDFW dictates that the type of disposition of all wildlife captured for resource protection be euthanasia, unless it grants an individual exemption. Captured wildlife may be euthanized using a handgun or rifle, or by chemical means.

The types of capture methods are protective of threatened and endangered species. In the unlikely event a protected species is captured (e.g., in a trap, snare, or cage), APHIS-WS is required to make efforts to release it unharmed, unless the animal is injured and the field specialist has determined that it would not likely survive if released. Incidents of nontarget animal deaths are extremely low. This is due to the techniques used by the APHIS-WS field specialist to ensure that the correct location(s) for the target species is identified.

Padded Leg-Hold Traps

Padded leg-hold traps are used to capture animals such as coyote and bobcat. These traps are the most versatile and widely used tool for capturing these species. The padded leg-hold trap can be set under a wide variety of conditions. In some situations a "draw station," such as a carcass or large piece of meat, is used to attract target animals. In this approach, one to several traps are placed in the vicinity of the draw station. APHIS-WS program policy prohibits placement of traps closer than 30 feet to the draw station. This provides protection to nontarget animals. These traps usually permit the release of nontarget animals. In California, padded leg-hold traps are used only for the protection of public health and safety and threatened and endangered species. They may not be used to capture animals for agricultural resources protection.

Cage Traps

A variety of cage traps are used in different wildlife damage control efforts. The most commonly known cage traps used in the current program are box traps, which are usually rectangular, made from wood or heavy gauge mesh wire. These traps are used to capture animals alive and can often be used where many lethal or more dangerous tools would be too hazardous. Cage traps usually work best when baited with foods attractive to the target animal. They are used to capture animals ranging in size from mice to deer, but are usually impractical in capturing most large animals. They are virtually ineffective for coyotes.

Cage traps are well suited for use in residential areas, and are the primary management tool used to remove small mammals such as raccoons, skunks, and opossums in urban areas. Traps are placed in the shade whenever feasible, and in California they must be checked at least once daily; each time traps are checked, all trapped animals must be removed, pursuant to California Fish and Game Code Section 465.5. Checking cage traps frequently is done to ensure that captured animals are not subjected to extreme environmental conditions. Some animals fight to escape from cage traps and become injured.

There are some animals that avoid cage traps and others that become "trap happy" and purposely get captured to eat the bait, making the trap unavailable to catch other animals.

Snares

Snares made of wire or cable are among the oldest existing control tools. They can be used effectively to catch most species but are most frequently used to capture coyotes. They have limited application but are effective when used under proper conditions. They are much lighter and easier to use than padded leg-hold traps and are not generally affected by inclement weather.

Snares may be employed as both lethal or live-capture devices depending on how and where they are set. Snares set to capture an animal by the neck are usually lethal but stops can be applied to the cable to make the snare a live-capture device. Snares positioned to capture the animal around the body can be useful live-capture devices. Also, most snares incorporate a breakaway feature to release nontarget wildlife and livestock. These snares can be effectively used wherever a target animal moves through a restricted lane of travel (e.g., crawls under fences, trails through vegetation, or den entrances). When an animal moves forward into the loop formed by the cable, the noose tightens and the animal is held.

The foot or leg snare is a spring-powered nonlethal device, activated when an animal places its foot on the trigger. In some situations, using snares to capture wildlife is impractical due to the behavior or animal morphology of the animal, or the location of many wildlife conflicts. Snares

must be set in locations where the likelihood of capturing nontarget animals is minimized. The APHIS-WS program uses a leg snare with a built-in pan tension device that can be set to exclude capturing animals lighter than the target animal.

The catch-pole snare is used to capture or safely handle problem animals. This device consists of a hollow pipe with an internal cable or rope that forms an adjustable noose at one end. The free end of the cable or rope extends through a locking mechanism on the end opposite of the noose. By pulling on the free end of the cable or rope, the size of the noose is reduced sufficiently to hold an animal. Catch poles are used primarily to remove live animals from traps without danger to or from the captured animal.

The Collarum is a nonlethal, spring-powered, modified neck snare device that is primarily used to capture coyotes. It is activated when the animal bites and pulls a cap with an attractive lure, whereby the snare is projected from the ground up and over its head. As with other types of snares, the use of the Collarum device to capture coyotes is greatly dependent upon finding a location where coyotes frequently travel where the device can be set. Collarums must also be set in locations where the likelihood of capturing nontarget animals is minimized.

A number of specialized "quick-kill" traps are used in wildlife damage management work. A Conibear is an example of such a trap and is used mostly in shallow water or underwater to capture beaver. The Conibear consists of a pair of rectangular wire frames that close like scissors when triggered, killing the captured animal with a quick body blow. In Monterey County, Conibear traps have only been used for beaver and squirrel, and has not been used since 2001. Other examples include snap-traps, such as those commonly used for small rodents such as rats and mice.

Hunting Dogs

Trained dogs are used primarily to locate, pursue, or decoy animals. Training and maintaining suitable dogs requires considerable skill, effort, and expense. There must be sufficient need for dogs to make the effort worthwhile.

Shooting

Shooting is frequently performed in conjunction with calling particular predators such as coyotes, bobcats, and fox. Trap-wise coyotes are often vulnerable to calling. Shooting is limited to locations where it is legal and safe to discharge firearms. Shooting may be ineffective for controlling damage by some species and may actually be detrimental to control efforts. Shooting is used selectively for target species but may be relatively expensive because of the staff hours required. The use of no-lead ammunition is required under California Fish and Game Code (Section 3004.5(b)).

Aerial Shooting

The Airborne Hunting Act (Shooting from Aircraft Act) enacted by Congress in 1971 was added to the Fish and Wildlife Act of 1956 (Section 742j-1) and allows shooting animals from aircraft for certain reasons, including protection of wildlife, livestock, and human life as authorized by a federal- or state-issued license or permit. Shooting from aircraft is a commonly used coyote damage management method in some states. Aerial shooting has not been used in Monterey County since 1998 and would not be used in Monterey County as part of the services provided by APHIS-WS if the agreement is renewed.

Chemicals

Pesticides have been developed to reduce wildlife damage and are used because of their efficiency. Most chemicals are aimed at a specific target species, and suitable chemicals are not available for most animals. All pesticides used or recommended by the APHIS-WS program are registered with, and regulated by, the US Environmental Protection Agency and the Department of Pesticide Regulation. APHIS-WS is required to use all chemicals according to label directions as required by these agencies and in accordance with WS Directive 2.401 (USDA 2017f), which identifies steps that must be implemented to minimize risk to the environment and the public. Warning signs must be posted. The directive prohibits APHIS-WS from conducting operational activities involving pesticide use on private property where other persons are known to be using the same or a similar pesticide(s) intended for control of the same target species. Pesticides have not been used as a method of control in Monterey County during the last 20 years.

Fumigants or gases may be used to reduce burrowing wildlife by placing cartridges in the active burrows of target animals (sometimes referred to as denning), which results in oxygen depletion and carbon monoxide poisoning. Denning has not been used in Monterey County since 2001.

Sodium cyanide is used in the M-44, a spring-activated, baited ejector device developed specifically to kill coyotes and other canine predators. It has not been used in Monterey County since 1998. The M-44 was banned in California in 2014 except as authorized on sovereign tribal lands, of which there are none in Monterey County.¹

Immobilizing and Euthanizing Drugs

Several chemicals are authorized for immobilization and euthanasia by APHIS-WS. WS Directive 2.430 (USDA 2017f) identifies approved drugs and sets forth requirements for using these substances, most of which are regulated by state and federal law (including the US Food and Drug Administration and the Drug Enforcement Administration) because of their potential hazard to animals or humans. Within APHIS-WS, only properly trained personnel are certified to possess and use approved immobilizing and euthanizing agents. In urban and suburban locations, chemical techniques can be more appropriate for euthanizing wildlife. Chemical capture methods require specialized training and skill.

NONLETHAL CONTROL METHODS

APHIS-WS may recommend nonlethal control methods to resource owners. Those methods, descriptions, and their associated limitations are presented below and are summarized from USDA 2015a: Appendix C [Wildlife Damage Management Methods Available for Use in California]]. Some nonlethal methods are appropriate and may be safely used by resource owners (e.g., animal husbandry practices, exclusion [fencing/penning], and frightening devices (e.g., lights). However, some methods must be used only by trained professionals (e.g., pyrotechnics). Some nonlethal methods have the potential to result in unintentional effects on species that are protected by federal and/or state law. As with lethal methods, Monterey County would not be responsible for determining the nonlethal methods to be used.

¹ In OIG's 2014 audit of APHIS-WS, which is summarized in Section 2.0, Project Description, the audit report specifically noted: "The State of California banned the use of M-44 devices. While we were conducting site visits in California, we examined the hazardous materials records of WS' State and district offices, and of its field specialists. In addition, we conducted a physical inventory of WS' State, districts, and field specialists' hazardous materials inventories. We determined that WS in California did not use or maintain M-44 devices." (USDA 2015b: 9)

RESOURCE MANAGEMENT

Resource management includes a variety of practices that may be used by agriculture producers to reduce their exposure to potential wildlife depredation losses. Implementation of these practices is appropriate when the potential for depredation can be reduced without significantly increasing the cost of production or diminishing the resource owner's ability to achieve land management and production goals. Changes in resource management are recommended through the technical assistance extended to producers when the change appears to present a continuing means of averting losses.

Animal Husbandry

This general category includes modifications in the level of care and attention given to livestock, shifts in the timing of breeding and births, selection of less vulnerable livestock species to be produced, and the introduction of human custodians or guarding animals to protect livestock.

The level of care or attention given to livestock may range from daily to seasonal. Generally, as the frequency and intensity of livestock handling increases, so does the degree of protection. In operations where livestock are left unattended for extended periods, the risk of depredation is greatest. The risk of depredation can be reduced when operations permit nightly gathering so that livestock are inaccessible during the hours when predators are most active. This risk diminishes as age and size increase and can be minimized by holding expectant females in pens or sheds to protect births and by holding newborn livestock in pens for the first two weeks. Shifts in breeding schedules can also reduce the risk of depredation by altering the timing of births to coincide with the greatest availability of natural prey to predators or to avoid seasonal concentrations of migrating predators such as golden eagles.

The use of human custodians and guarding animals can also provide significant protection in some instances. The presence of herders to accompany bands of sheep on an open range may help ward off predators. Guard dogs have also proven successful in many sheep and goat operations. The supply of proven guarding dogs is generally quite limited, requiring that most people purchase and rear a pup. Therefore, there is usually a four- to eight-month period of time necessary to raise a guarding dog before it becomes an effective deterrent to predators. Because 25 to 30 percent of dogs are not successful, there is a reasonable chance that the first dog raised as a protector will not be useful. The effectiveness of guarding dogs may not be sufficient in areas where there is a high density of predators, where livestock widely scatter to forage, or where dog-to-livestock ratios are less than recommended. Guarding dogs often harass and kill nontarget wildlife.

Altering animal husbandry to reduce wildlife damage has many limitations. Nightly gathering may not be possible where livestock are in many fenced pastures and where grazing conditions require livestock to scatter. Hiring extra herders, building secure holding pens, and adjusting the timing of births is usually expensive. Furthermore, the timing of births may be related to weather or seasonal marketing of young livestock. The expense associated with a change in husbandry practice may exceed the savings.

Habitat Management

Some habitat can be managed to not produce or attract certain wildlife species. For example, when depredation cannot be avoided by careful crop selection or modified planting schedules, lure crops can sometimes be used to mitigate the loss potential. Lure crops are planted or left for consumption by wildlife as an alternative food source. This approach provides relief for critical

crops by sacrificing less important or specifically planted fields. For lure crops to be successful, frightening techniques may be necessary in fields where crops are to be protected; wildlife should not be disturbed in sacrificial fields.

Limitations of habitat management as a method of reducing wildlife damage are determined by the characteristics of the species involved, the nature of the damage, economic feasibility, and other factors. Also, legal constraints may preclude altering particular habitats, particularly those that support threatened and endangered species, California species of special concern, critical habitat, or rare plants.

Establishing lure crops is expensive, requires considerable time and planning to implement, and may attract other unwanted species to the area, causing additional wildlife damage problems. Also, there are potential legal consequences regarding hunting near lure crops, which must be considered before lure crops or alternate foods are used.

Urban Design

Change in the architectural design of a building or a public space can often help to avoid potential wildlife damage. For example, selecting species of trees and shrubs that are not attractive to wildlife can reduce the likelihood of potential wildlife damage to parks, public spaces, or residential areas. Similarly, incorporating devices into architectural design that exclude wildlife can significantly reduce potential problems. Grids or screens that prevent birds from entering are an example.

Architectural changes are often more feasible if considered during the design stage, rather than after a facility is built. The consideration of wildlife conflicts is frequently overlooked in the construction of new buildings and facilities. Modifying structures or public spaces to remove the potential for wildlife conflicts is often impractical because of economics or the presence of other nearby habitat features that attract wildlife.

PHYSICAL EXCLUSION

Physical exclusion methods restrict the access of wildlife to resources. These methods, including fences, sheathing, tree protectors, and entrance barricades, provide a means of appropriate and effective prevention of wildlife damage in many situations.

Fences are widely used to prevent damage to farm crops caused by rabbits and other wildlife. Predator exclusion fences constructed of woven wire or multiple strands of electrified wire are also effective in some areas, but fencing does have limitations. Even an electrified fence is not predator proof and the expense may exceed the benefit in most cases. Herd animals such as sheep may be protected through fencing/penning, as has been demonstrated in Marin County.

If large areas are fenced, the predators have to be removed from the enclosed area to make it useful. Some fences inadvertently trap, catch, or affect the movement of nontarget wildlife. It is not uncommon for coyotes to use fences to trap deer or antelope. As such, fencing large areas could result in unintended consequences on wildlife migratory corridors. Fencing may not be practical or legal in some areas (e.g., restricting access to public land). Predators deterred by fencing may move to another area where they could create new problems or exacerbate an existing one (i.e., predation would not necessarily be controlled, just relocated).

Entrance barricades of various kinds are used to exclude bobcats, coyotes, foxes, opossums, raccoons, or skunks from dwellings, storage areas, gardens, or other areas. Metal flashing may be used to prevent entry of small rodents into buildings.

Sheathing or tree protectors can be used in some situations to avoid damage to trees but may be impractical where there are numerous plants to protect.

Deterrents

Deterrents may effectively alter the behavior of the target animal to eliminate or reduce the potential for loss or damage to property. Most deterrent methods are used for birds. An important consideration for deterrent use is safety; some methods should be used only by trained professionals. In addition, some methods have a potential to affect nesting avian species.

Frightening Devices

The success of frightening methods depends on an animal's fear of and subsequent aversion to offensive stimuli. Once animals become habituated to a stimulus, they often resume their damaging activities. Persistent effort is usually required to consistently apply frightening techniques and then vary them sufficiently to prolong their effectiveness. Over time, some animals learn to ignore commonly used scare tactics. In many cases, animals frightened from one location become a problem at another. The effects of frightening devices on nontarget wildlife need to be considered. For example, special-status birds or birds protected under the Migratory Bird Treaty Act (MBTA) may be disturbed or frightened from nesting sites.

Electronic Distress Sounds

Distress and alarm calls of various animals have been used singly and in conjunction with other scaring devices to successfully scare or harass animals. Many of these sounds are available in digital format. Animals react differently to distress calls; their use depends on the species and the problem. Calls may be played for short (few seconds) bursts, for longer periods, or even continually, depending on the severity of damage and relative effectiveness of different treatment or "playing" times. Some artificially created sounds also repel birds in the same manner as recorded "natural" distress calls. Calls are played back to the animals from either fixed or mobile equipment in the immediate or surrounding area of the problem.

Propane Exploders

Propane exploders operate on propane gas and are designed to produce loud explosions at controllable intervals. They are strategically located (elevated above the vegetation, if possible) in areas of high wildlife use to frighten wildlife from the problem site. Because animals are known to habituate to sounds, exploders must be moved frequently and used in conjunction with other scare devices. Exploders can be left in an area after dispersal is complete to discourage animals from returning. Similar to frightening devices, the effects of propane exploders on nontarget wildlife need to be considered. For example, special-status birds or birds protected under the MBTA may be disturbed or frightened from nesting sites.

Pyrotechnics

Pyrotechnic devices, such as shell crackers or scare cartridges fired from a shotgun, noise bombs, whistle bombs, racket bombs, rocket bombs fired from a flare pistol firecrackers, rockets, and Roman candles, are used for dispersing animals. These methods are primarily used to disperse birds in crop fields. As with frightening devices and propane exploders, the effects of pyrotechnics

on nontarget wildlife need to be considered. For example, special-status birds or birds protected under the MBTA may be disturbed or frightened from nesting sites.

Lights

A variety of lights, including strobe, barricade, and revolving units, can be used with mixed results to frighten birds. Brilliant lights, similar to those used on aircraft, are most effective in frightening night-feeding birds. These extremely bright-flashing lights have a blinding effect. Flashing amber barricade lights, like those used at construction sites, and revolving or moving lights may also frighten birds. However, most birds rapidly become accustomed to such lights and their long-term effectiveness is questionable. In general, the type of light, the number of units, and their location are determined by the size of the area to be protected and by the power source available.

Harassment

Scaring and harassment techniques to frighten animals are probably the oldest methods of combating wildlife damage. A number of sophisticated techniques have been developed to scare or harass wildlife from an area. The use of noise-making devices is the most popular and commonly used; however, other methods, including aerial hazing and visual stimuli, are also used. Harassment using vehicles, people, falcons, or dogs is used to frighten predators or birds from the immediate vicinity. Boats, planes, automobiles, and all-terrain vehicles are used as harassment methods. As with other wildlife damage management efforts, these techniques tend to be more effective when used collectively in a varied regime rather than individually.

Chemical Repellents

Chemical repellents are compounds that prevent consumption of food items or use of an area. They operate by producing an undesirable taste, odor, feel, or behavior pattern. Effective and practical chemical repellents need to be nonhazardous to wildlife; nontoxic to plants, seeds, and humans; resistant to weathering; easily applied; reasonably priced; and capable of providing good repelling qualities. The reaction of different animals to a single chemical formulation varies, and for any species there may be variations in repellency between different habitat types. Chemical repellents are strictly regulated, and suitable repellents are not available for many wildlife species or wildlife damage situations.

Modification of Human Behavior

Many wildlife species adapt well to human settlements and activities, but their proximity to humans may result in damage to structures or threats to public health and safety. APHIS-WS field specialists may recommend alteration of human behavior to resolve potential conflicts between humans and wildlife. For example, APHIS-WS may recommend the elimination of feeding of wildlife that occurs in residential areas. Eliminating wildlife feeding and handling can reduce potential problems, but many people who are not directly affected by problems caused by wildlife enjoy wild animals and engage in activities that encourage their presence. It is difficult to consistently enforce no-feeding regulations and effectively educate all people concerning the potential liabilities of feeding wildlife.