

Demographic Parameters of the California Spotted Owl
on the Lassen National Forest,
Preliminary Results (1990-1992)

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Project Supervisor: Jennifer A. Blakesley
Principal Investigator: Dr. Cynthia J. Zabel

Pacific Southwest Forest and Range Experiment Station
Redwood Sciences Laboratory
1700 Bayview Drive
Arcata, CA 95521

All of the following data were collected on or adjacent to the Lassen National Forest; even though a few sites occur outside the Forest boundaries, the following tables all say "on the Lassen National Forest". Owls at Gold Run Creek and Gold Run Creek East were found on BLM land in 1990 and 1991. The owls at Dyer Mountain have been found within an 80 acre parcel of land which was traded to a private timber company (Roseburg) between the 1990 and 1991 field seasons. The Last Chance campground spotted owls were also on Roseburg land, as were the Rocky Point SOHA owls in 1992. The Roop Mt owls were on land managed by Beatty and Associates. The Baxter Creek owls were on non-commercial private land in 1992. Wheeler Sheep Camp is in the Greenville Ranger District of the Plumas National Forest. The Willow Lake SOHA overlaps Lassen Volcanic National Park and the Lassen National Forest; the owls have been found within the Park each year. All other sites occur within the Almanor and Eagle Lake Ranger Districts of the Lassen National Forest, with the exception of the Heart Lake SOHA, which is in the Hat Creek District.

Table 1A. Location and social status of California spotted owls at 75 sites on the Lassen National Forest, 1990, 1991 and 1992.

SITE NAME	LOCATION			SOCIAL STATUS ^a		
	ELEV	UTM E	UTM N	1990	1991	1992
ALDER CREEK SOHA	4640	629300	4452400	N.S.	PAIR	PAIR
ASHURST MOUNTAIN	6420	669900	4512500	MRS	N.S.	N.S.
BATHTUB LAKE	6000	643800	4493800	N.S.	PAIR	N.S.
BAXTER CREEK SOHA	5460	701200	4465800	PAIR	PAIR	PAIR
BEAR FLAT IGA	6560	703700	4461700	N.S.	MRFP	0
BENNER CREEK SOHA	6120	646900	4474100	PAIR	PAIR	PAIR
BIG BEND SOHA	4080	622300	4458800	MPFP	MPFP	N.S.
BOGARD BUTTE SOHA	5760	658800	4497200	PAIR	PAIR	PAIR
BUTT CREEK	5440	638700	4447400	PAIR	MRFR	PAIR
BUTT MOUNTAIN NORTH	5980	635800	4454500	PAIR	PAIR	PAIR
BUTT MOUNTAIN WEST	5790	633900	4452900	PAIR	PAIR	PAIR
CAIRN BUTTE SOHA	6280	682800	4461900	PAIR	PAIR	PAIR
CARIBOU PEAK	6600	653500	4488800	PAIR	PAIR	PAIR
CARTER CREEK	5040	636000	4456200	N.S.	N.S.	PAIR
CHRISTIE HILL	5700	625800	4470300	FRS	MRFR	PAIR
COLD CREEK	5480	618400	4465500	PAIR	PAIR	PAIR
CONE LAKE	6620	653700	4490500	N.S.	MR	N.S.
COPPERVALE/101	5660	678900	4465900	PAIR	PAIR	PAIR
CRAZY HARRY GULCH	5730	680700	4471800	PAIR	PAIR	PAIR
CUB CREEK SOHA	5760	628900	4447300	MRS	PAIR	MPFP
CUMMINGS SOHA	6200	659900	4483600	TX	TX	TX
DYER MOUNTAIN	5480	666000	4455000	PAIR	PAIR	PAIR
EAGLE ROCKS	5720	636000	4447300	N.S.	MRFP	PAIR
ELAM CREEK EAST	5240	633900	4455300	N.S.	N.S.	PAIR
ELAM CREEK SOHA	5120	631300	4453900	PAIR	PAIR	PAIR
FANANI MEADOW	5600	643000	4451900	MRFP	PAIR	MRS
FLEISCHMANN LAKE	5310	644100	4472700	PAIR	MR	PAIR
GOLD RUN CREEK	6000	693300	4466300	PAIR	PAIR	PAIR
GOLD RUN EAST	5960	693600	4466300	N.S.	FP	0
GRIZZLY CREEK SOHA	4200	649100	4436900	PAIR	PAIR	PAIR
GURNSEY CREEK	4920	631800	4463200	N.S.	MRFP	PAIR
HAMILTON MT. SOHA	6200	333900	4466300	PAIR	PAIR	PAIR
HAMPTON BUTTE	5480	618400	4468500	MPFP	MP	N.S.
HEART LAKE SOHA	5310	615400	4479700	PAIR	PAIR	MR
HOLE IN GROUND SOHA	4940	621000	4463400	PAIR	PAIR	PAIR
HOMER LAKE	5940	673100	4455200	MP	N.S.	N.S.
HUMBOLDT SUMMIT	7080	633800	4445500	MRFP	FP	N.S.
JENNIE MT SOHA	5720	660200	4473300	TX	TX	PAIR
KAY TIMBER SALE	5000	645900	4438900	PAIR	PAIR	PAIR
KEDDIE RIDGE SOHA	6500	670700	4455600	N.S.	MPFP	N.S.
KEDDIE RIDGE T. SALE	5670	679400	4452600	PAIR	PAIR	N.S.
LAST CHANCE CAMPGROUND	5530	653400	4469200	N.S.	PAIR	PAIR
LAST CHANCE CREEK	6700	649600	4473900	N.S.	MR	PAIR

Table 1A (cont.)

SITE NAME	LOCATION			SOCIAL STATUS ^a		
	ELEV	UTM E	UTM N	1990	1991	1992
LITTLE GRIZZLY CAMPGRND	5280	642700	4444300	N.S.	PAIR	PAIR
LOCHERMAN SOHA	5280	642500	4464300	PAIR	PAIR	PAIR
LOGAN MOUNTAIN	6490	674600	4501700	MRFR	N.S.	N.S.
LONGVILLE	4760	650500	4443900	N.S.	PAIR	PAIR
LOST TOM TIMBER SALE	6270	640600	4443700	PAIR	PAIR	PAIR
MARTIN CREEK SOHA	5620	619300	4469200	PAIR	PAIR	PAIR
MILL CREEK	4850	620700	4460800	N.S.	PAIR	PAIR
MILLER RAVINE	5600	644400	4440600	MP	MP	MR
MOONLIGHT PASS	5350	680800	4458800	PAIR	PAIR	N.S.
MORGAN MT. SOHA	5280	624300	4467800	MRFP	PAIR	PAIR
MOSQUITO SPRINGS	5600	640800	4470000	PAIR	PAIR	PAIR
MUD CREEK SOHA	6260	652000	4472400	PAIR	TX	PAIR
PACIFIC CREST TRAIL	6120	632400	4448700	MPFP	MPFR	PAIR
PEACOCK POINT NORTH	5620	644500	4440400	MRFR	MRFR	N.S.
PEACOCK POINT SOHA	5150	643500	4438600	PAIR	MRFP	PAIR
PEGLEG MT. SOHA	6320	674200	4475600	PAIR	MRFP	PAIR
PHILBROOK SOHA	5650	633100	4433900	PAIR	PAIR	PAIR
REESE FLAT SOHA	5180	640300	4423700	MPFP	MRFP	MP
RICE CREEK	5860	631800	4467600	MP	PAIR	PAIR
ROCK CREEK	6040	657000	4473300	TX	TX	PAIR
ROCKY POINT SOHA	5240	655700	4449300	PAIR	PAIR	PAIR
ROOP MOUNTAIN	6500	658400	4484600	N.S.	N.S.	PAIR
RUFFA RANCH	6640	653200	4450000	N.S.	MRFP	0
SCENIC LOOP	5960	681500	4468700	PAIR	PAIR	PAIR
SHANGHAI CREEK	6000	640100	4450100	MRFP	MRFR	0
SHANGHAI NORTH	5980	641200	4451800	N.S.	N.S.	PAIR
SODA RIDGE SOHA	4645	647900	4433800	MR	MRFP	N.S.
SQUIRREL CREEK	4760	647100	4436000	N.S.	MP	N.S.
STAR BUTTE SOHA	6180	657500	4477400	TX	TX	TX
SUSAN RIVER SOHA	5580	678300	4474000	PAIR	PAIR	PAIR
TURNER MOUNTAIN	5760	615000	4463900	MR	PAIR	PAIR
TWIN TIMBER SALE	5880	615800	4475800	PAIR	MRFR	PAIR
UPPER STEPHENS MDW	6610	656700	4491300	PAIR	TX	N.S.
UPPER YELLOW CREEK	5600	640100	4445300	PAIR	PAIR	PAIR
WARNER TIMBER SALE	5200	644400	4469800	MRFR	PAIR	PAIR
WHEELER SHEEP CAMP	6720	701000	4461200	N.S.	N.S.	PAIR
WILD CATTLE MT. SOHA	5200	629500	4467100	PAIR	PAIR	PAIR
WILDLIFE	5860	665800	4485000	TX	TX	MP
WILLARD CREEK SOHA	6200	686300	4462100	MPFP	MPFP	N.S.
WILLOW LAKE SOHA	5740	637600	4474900	PAIR	PAIR	PAIR
WILLOW LAKE SOUTH	5520	640300	4473300	PAIR	PAIR	PAIR
WILSON MEADOW	5510	622400	4470700	MPFR	0	0

- ^a KEY: MR = MALE RESIDENT (detected at least 2 times, separated by a week)
MP = MALE PRESENT
FR = FEMALE RESIDENT (detected at least 2 times, separated by a week)
FP = FEMALE PRESENT
PAIR = MALE AND FEMALE RESIDENT, FOUND TOGETHER AT LEAST TWICE
S = RESIDENT OWL IS CONFIRMED TO BE SINGLE (no owl of the opposite sex
detected after 6 visits)
TX = TELEMETRY SITE; NOT USED FOR DEMOGRAPHICS
N.S. = NOT SURVEYED
O = SURVEYED AND NO OWLS DETECTED

Table 1B. Summary of social status of California spotted owls on the Lassen National Forest, 1990, 1991 and 1992.

SOCIAL STATUS	1990	1991	1992
PAIR	39	44	56
SINGLE MALE	2	0	1
SINGLE FEMALE	1	0	2
MALE & FEMALE RESIDENT/PRESENT	13	17	1
MALE RESIDENT/PRESENT	5	6	4
FEMALE RESIDENT/PRESENT	0	2	0
TOTAL SITES WITH OWLS DETECTED	60	69	64

Table 2. Sex and age class distribution of California spotted owls identified to age class on the Lassen National Forest, 1990, 1991 and 1992.

Sex	Age Class	1990		1991		1992	
		N	%	N	%	N	%
Male	Adult	38	86.4	55	93.2	52	88.1
	Subadult	6	13.6	4	6.8	7	11.9
	Combined	44	100.0	59	100.0	59	100.0
Female	Adult	32	82.1	48	92.3	52	92.9
	Subadult	7	17.9	4	7.7	4	7.1
	Combined	39	100.0	52	100.0	56	100.0
Both	Adult	70	84.3	103	92.8	104	90.4
	Subadult	13	15.7	8	7.2	11	9.6
	Combined	83	100.0	111	100.0	115	100.0

Table 3. Proportion of female California spotted owls nesting on the Lassen National Forest, 1990, 1991 and 1992.

YEAR	Females checked for nesting			
	Age Class	n	Proportion Nesting	
			p	(95% CI)
1990	Adult	21	0.76	(0.58 - 0.95)
	Subadult	4	0.00	
	Total	25	0.64	(0.45 - 0.83)
1991	Adult	28	0.39	(0.21 - 0.58)
	Subadult	2	0.00	
	Total ^a	31	0.35	(0.18 - 0.53)
1992	Adult	37	0.97	(0.92 - 1.00)
	Subadult	1	1.00	
	Total	38	0.97	(0.92 - 1.00)

^aTotals are the sum of adults, subadults, and owls of unknown age class.

Table 4. Proportion of nesting female California spotted owls which fledged young on the Lassen National Forest, 1990, 1991 and 1992.

YEAR	Age Class	Number Nesting (n)	Proportion of Nesting Females Which Fledged Young	
			p	(95% CI)
1990	Adult	16	0.69 (0.45 - 0.92)	
	Subadult	0		
	Total	16	0.69 (0.45 - 0.92)	
1991	Adult	11	0.55 (0.24 - 0.85)	
	Subadult	0		
	Total	11	0.55 (0.24 - 0.85)	
1992	Adult	36	0.92 (0.83 - 1.00)	
	Subadult	1	0.00	
	Total	37	0.89 (0.79 - 0.99)	

Table 5. Proportion of female California spotted owls checked for reproduction by 15 July which fledged young on the Lassen National Forest, 1990, 1991 and 1992.

YEAR	Age Class	Number Checked (n)	Proportion of All Females Checked Which Fledged Young	
			p	(95% CI)
1990	Adult	28	0.46	(0.28 - 0.65)
	Subadult	4	0.00	
	Total	34 ^a	0.38	(0.22 - 0.55)
1991	Adult	35	0.23	(0.09 - 0.37)
	Subadult	3	0.00	
	Total	39 ^a	0.21	(0.08 - 0.33)
1992	Adult	49	0.92	(0.84 - 1.00)
	Subadult	2	0.50	(0.00 - 1.00)
	Total	51	0.90	(0.82 - 0.98)

^aTotals are the sum of adults, subadults, and owls of unknown age class.

Table 6. Fecundity of California spotted owls checked for reproduction by 15 July on the Lassen National Forest, 1990, 1991 and 1992. Fecundity is defined as the mean number of female young fledged per female.

YEAR	Age Class	Number Checked (n)	Mean Number of Female Young / Female	
			x	(95% CI)
1990	Adult	28	0.32	(0.18 - 0.47)
	Subadult	4	0	
	Total ^a	34	0.26	(0.14 - 0.39)
1991	Adult	35	0.19	(0.06 - 0.31)
	Subadult	3	0	
	Total ^a	39	0.17	(0.06 - 0.28)
1992	Adult	49	1.09	(0.95 - 1.23)
	Subadult	2	0.25	(0.00 - 0.74)
	Total	51	1.06	(0.92 - 1.20)

^aTotals are the sum of adults, subadults, and owls of unknown age class.

Table 7. Productivity of California spotted owls checked for reproduction by 15 July on the Lassen National Forest, 1990, 1991 and 1992. Productivity is defined as the mean number of female young fledged per female that fledged young.

YEAR	Age Class	No. Females Successful	Mean Number of Female Young / Female	
			x	(95% CI)
1990	Adult	13	0.69	(0.55 - 0.83)
	Subadult	0	0	
	Total	13	0.69	(0.55 - 0.83)
1991	Adult	8	0.81	(0.63 - 0.99)
	Subadult	0	0	
	Total	8	0.81	(0.63 - 0.99)
1992	Adult	45	1.19	(1.08 - 1.30)
	Subadult	1	0.50	
	Total	46	1.17	(1.06 - 1.29)

Table 8a. Empirical survival and inter-site movement rates of California spotted owls on the Lassen National Forest between 1990 and 1991. Owls that moved are a subset of owls that survived.

Sex	Age Class	Number Banded 1990	Survival			Movements		
			s	p	(95% CI)	m	p	(95% CI)
Male	Adult	18	14	0.78	(0.58 - 0.98)	0	0.00	
	Subadult	4	3	0.75	(0.26 - 1.00)	0	0.00	
	Total ^a	23	18	0.78	(0.61 - 0.95)	0	0.00	
Female	Adult	25	21	0.84	(0.69 - 0.99)	0	0.00	
	Subadult	3	1	0.33	(0.00 - 0.99)	1	1.00	
	Total ^a	29	23	0.79	(0.64 - 0.94)	1	0.04	(0.00 - 0.13)
Both	Adult	43	35	0.81	(0.70 - 0.93)	0	0.00	
	Subadult	7	4	0.57	(0.18 - 0.97)	1	0.25	(0.00 - 0.74)
	Total ^a	52	41	0.79	(0.68 - 0.90)	1	0.02	(0.00 - 0.07)

^aTotals are the sum of adults, subadults, and owls of unknown age class. One subadult female moved from CHRISH to MORGAN (3 km).

Table 8b. Empirical survival rates of California spotted owls on the Lassen National Forest between 1991 and 1992.

Sex	Age Class	Number Banded 1991	Survival			Movements		
			s	p	(95% CI)	m	p	(95% CI)
Male	Adult	33	27	0.82	(0.68 - 0.95)	1	0.04	(0.00 - 0.11)
	Subadult	4	3	0.75	(0.26 - 1.00)	2	0.67	(0.01 - 1.00)
	Total	37	30	0.81	(0.68 - 0.94)	3	0.10	(0.00 - 0.21)
Female	Adult	39	34	0.87	(0.77 - 0.98)	1	0.03	(0.00 - 0.09)
	Subadult	3	3	1.00		0	0.00	
	Total	42	37	0.88	(0.78 - 0.98)	1	0.03	(0.00 - 0.08)
Both	Adult	72	61	0.85	(0.76 - 0.93)	2	0.03	(0.00 - 0.08)
	Subadult	7	6	0.86	(0.58 - 1.00)	2	0.33	(0.00 - 0.75)
	Total	79	67	0.85	(0.77 - 0.93)	4	0.06	(0.00 - 0.12)

One adult pair moved from BUTTMN to CARTER (1 km). Two subadult males moved: FANANI to SHANOR (2 km) and BEARFL to WHEELLE (3 km).

JUVENILE SURVIVAL

22 Juveniles were banded in 1990; 1 female was recaptured in 1991, 35 km away, mated to a transmittered owl ("Reno"), whose mate is known to have died in December 1990. A female 1990 juvenile was recaptured in 1992 on the Plumas National Forest, 23 km from its natal site.

13 Juveniles were banded in 1991; 2 were dead before the end of the field season. Two were resighted on the Plumas National Forest in 1992 (1 male, 1 female) but were not recaptured. The male moved 47 to 85 km from his natal site. The female moved 18 to 72 km from her natal site. The female was paired and produced 1 offspring in 1992; the male was solitary.

72 Juveniles were banded in 1992. In addition, 5 juveniles were captured and taken to UC Davis by Peter Hodum for a study of spotted owl energetics. One juvenile was found in the field with a broken leg and was taken to UC Davis for rehabilitation. It died in captivity.