Table 1. Mean numbers (+SD, N) of estimated locations per individual fisher per year across all years of study and 2014 organized by location method. Means are for individual fishers who were followed using each particular method. GPS collars were not used on females prior to 2015. The research was conducted on or near the Stirling Management area owned by Sierra Pacific Industries and located in the Northern Sierra and Southern Cascade Mountains of Northern California.

Sex	Year	All Locations	Triangulations	Walk ins	GPS	All Argos	Argos LC 2+3
Female	All Years	66 ± 95, 131	52 ± 49, 128	6 ± 4, 86	543 ± 152, 2		
	2015	138 ± 172, 29	96 ± 66, 29	5 ± 3, 19	543 ± 152, 2		
Male	All Years	262 ± 456, 69	14 ± 18, 17	2 ± 2, 11	734 ± 1073, 7	215 ± 237, 59	48 ± 21, 59
	2015	310 ± 402, 9	3 ± 0, 2		1332 ± 0, 1	181 ± 126, 8	24 ± 61, 8

Table 2. Classes for Argos locations of male fishers, error predicted by Argos services for locations in those classes, our mean observed error, standard deviation (St Dev), minimum error observed, the maximum error observed and the total number of location estimates for each location class across all years (2009-2012) on the Stirling Management Area of Sierra Pacific Industries in the Northern Sierra Nevada and Southern Cascade Mountains of northern California. Data are from 17 tags at 26 locations.

Location Class	Predicted error	Mean (m)	Standard Deviation	Minimum (m)	Maximum (m)	n
3	<250 m	196	248	10	2482	431
2	250 – 500 m	458	461	10	3630	242
1	500 – 1500 m	1387	1227	34	6439	123
0	>1500m	2566	1730	58	7055	30
A	none	811	1128	10	6061	192
B	none	1289	1788	17	8744	349

Table 3. Mean areas (± SD) for 95% fixed kernel utilization distributions (UD) of fishers followed with telemetry for ≥ 6 months on Stirling in 2011-2014 using different smoothing parameters and Silverman's K2. All females followed were adults but 3 males in 2012 were juveniles and 1 in 2014.

		Mean UD + SD (km^2), N	
Smoothing parameter (m)	Year	Females	Males
750	2010	17 ± 7, 6	67 ± 6, 3
	2011	28 ± 6, 7	114 ± 20, 3
	2012	17 ± 5, 12	56 ± 45, 9
	2013	15 ± 5, 13	46 ± 27, 3
	2014	16 ± 4, 13	63 ± 33, 3
	2015	15 ± 3, 19	40 ± 9, 3
1000	2010	22 ± 8, 6	97 ± 7, 3
	2011	37 ± 8, 7	143 ± 24, 3
	2012	22 ± 8, 12	75 ± 59, 9
	2013	18 ± 6, 13	63 ± 33, 3
	2014	19 ± 5, 13	77 ± 41, 3
	2015	18 ± 4, 19	57 ± 15, 3
1500	2010	32 ± 12, 6	153 ± 34, 3
	2011	56 ± 11, 7	189 ± 30, 3
	2012	30 ± 14, 12	108 ± 84, 9
	2013	24 ± 8, 13	94 ± 45, 3
	2014	25 ± 7, 13	100 ± 53, 3
	2015	23 ± 5, 19	88 ± 27, 3

Table 4. Total number of trap nights, fisher captures, individuals, females, males, new fishers, and capture percentage during fall trapping of years 2012-2015 on the Stirling district of Sierra Pacific Industries in the Northern Sierra Nevada and Southern Cascade Mountains of northern California.

Year	Trap Nights	# Total Fisher Captures	# Individuals Captures	Total Females	Total Males	# New Fishers Captured	Capture %
2012	2279	43	29	17	12	14	1.89%
2013	3172	34	22	17	5	8	1.07%
2014	2792	53	32	23	9	15	1.90%
2015	2865	84	46	33	13	25	2.93%

Table 5. Number and percentage of total non-target carnivores captured during fall trapping of 2014 on the Stirling district of Sierra Pacific Industries in the Northern Sierra Nevada and Southern Cascade Mountains of northern California.

Species	Number	Percent of non-Targets
Ringtail *(Bassariscus astutus)*	22	15.5%
Opossum *(Didelphis virginianus)*	14	9.9%
Striped Skunk *(Mephitis mephitis)*	1	0.7%
Raccoon *(Procyon lotor)*	1	0.7%
Spotted Skunk *(Spilogale gracilis)*	50	35.2%
Grey Fox *(Urocyon cinereoargenteus)*	54	38.0%
Total	**142**	

Table

Table 6. Model selection comparison for 14 models of survival from a known fates analysis in program MARK based on monthly fates of reintroduced fishers and their offspring in the Northern Sierra Nevada of California, December 2009 – December 2015.

Model	AICc	Δ AICc	w	likelihood	K	Deviance
Age + Reproductive Season[a]	231.304	0.000	0.543	1.000	4	136.913
Age × Sex	233.730	2.426	0.161	0.297	6	135.306
Age	234.938	3.634	0.088	0.163	3	142.559
Age + Reproductive Season[b]	235.346	4.042	0.072	0.133	8	132.878
Control (Null)	235.382	4.079	0.071	0.130	1	147.018
Sex	236.892	5.589	0.033	0.061	2	146.522
Age by Year	237.427	6.123	0.025	0.047	6	139.004
Sex × Year	241.819	10.516	0.003	0.005	14	127.146
Year	241.998	10.694	0.003	0.005	7	141.554
Month	244.197	12.893	0.001	0.002	12	133.604
Sex × Month	249.243	17.939	0.000	0.000	24	113.984
Sex × Age	252.096	20.792	0.000	0.000	22	120.979
Month × Year	328.299	96.995	0.000	0.000	73	87.555
Sex × Month × Year	465.296	233.992	0.000	0.000	145	54.144

[a]Sexes Unequal
[b]Sexes Equal

Table 7. The number of females that were radio-tracked, the number that denned, the percent of females that denned, the minimum number of kits known to have been produced (Min # kits), the mean minimum litter size (Litter Size ± 95% CI), the ratio of kits known to have been produced to females (Kits/Female), the number of natal dens found, and the number of maternal dens found for females tracked in 2010-2014 on the Stirling Management Area of Sierra Pacific Industries in the northern Sierra Nevada and southern Cascade Mountains of northern California.

Metric	2010	2011	2012	2013	2014	2015	Total
Females	8	9	10	11	7	18	63
Females denned	5	7	9	9	6	14	50
% Denned	63%	78%	90%	82%	86%	78%	79%
Min # kits	4	13	14	17	8	21	77
Kits in fall	1	8	17	13	12	21	72
Died in Den	2	1	2	1	2	1	9
Kits Died Den	2	3	3	2	2	1	13
Litter Size	1	2.2	1.8	1.9	1.6	1.9	1.7
Juvenile Spring:Fall	0.25	0.62	1.21	0.76	1.50	1.00	0.9
Kits/Female	0.5	1.4	1.4	1.5	1.1	1.2	1.2
Natal Dens	5	7	9	9	2	14	46
Maternal Dens	23	13	19	16	1	30	102

Table 8. Numbers of den trees by species for natal and maternal dens from 2010 to 2015, and by condition of the den tree (live tree, standing snag, or other [e.g., downed log or debris pile]) on the Stirling Management Area of Sierra Pacific Industries in the Northern Sierra Nevada and Southern Cascade Mountains of northern California.

	Natal			Maternal			
Tree Species	Live tree	Snag	Other	Live tree	Snag	Other	**Total**
Big Leaf Maple *(Acer macrophyllum)*	0	0	0	0	1	0	**1**
Black oak *(Quercus kelloggii)*	23	1	0	35	12	1	**72**
Douglas Fir *(Pseudotsuga menziesii)*	1	1	0	3	10	0	**15**
Incense Cedar *(Calocedrus decurrens)*	2	4	0	3	7	0	**16**
Canyon live oak *(Quescus chrysolepis)*	0	0	0	1	0	0	**1**
Multiple trees	0	0	0	1	0	0	**1**
Ponderosa Pine *(Pinus ponderosa)*	1	2	0	2	1	2	**8**
Sugar Pine *(Pinus lambertiana)*	0	1	0	1	1	0	**3**
Tanoak *(Notholithocarpus densiflorus)*	4	0	0	1	2	0	**7**
White Fir *(Abies concolor)*	3	1	0	1	5	0	**10**
Unidentified Conifer	1	1	0	0	9	3	**14**
Total	**35**	**11**	**0**	**48**	**48**	**6**	**148**

Table 9 – Non-invasive. Derived posterior parameter estimates of annual population density, abundance, and population growth of fishers in the Klamath. Parameters are presented as median [95% credible interval].

Year	Density (fishers/100 km^2)	Abundance	Lambda
2006	6.64 [4.94, 8.35]	39 [29, 49]	-
2007	6.64 [4.94, 8.18]	39 [29, 48]	1 [0.71, 1.35]
2008	6.99 [5.62, 8.69]	41 [32, 50]	1.06 [0.78, 1.4]
2009	6.47 [5.11, 8.18]	38 [29, 47]	0.92 [0.67, 1.2]
2010	5.79 [4.43, 7.33]	34 [26, 43]	0.91 [0.64, 1.21]
2011	6.47 [5.11, 8.18]	38 [28, 46]	1.09 [0.78, 1.45]
2012	6.3 [4.94, 8.18]	37 [27, 46]	0.98 [0.72, 1.33]
2013	6.99 [5.62, 8.69]	41 [32, 50]	1.11 [0.81, 1.49]

Figure 1. Locations in northern California of the Stirling Management Area of Sierra Pacific Industries and the Eastern Klamath Study Area on the California-Oregon border.

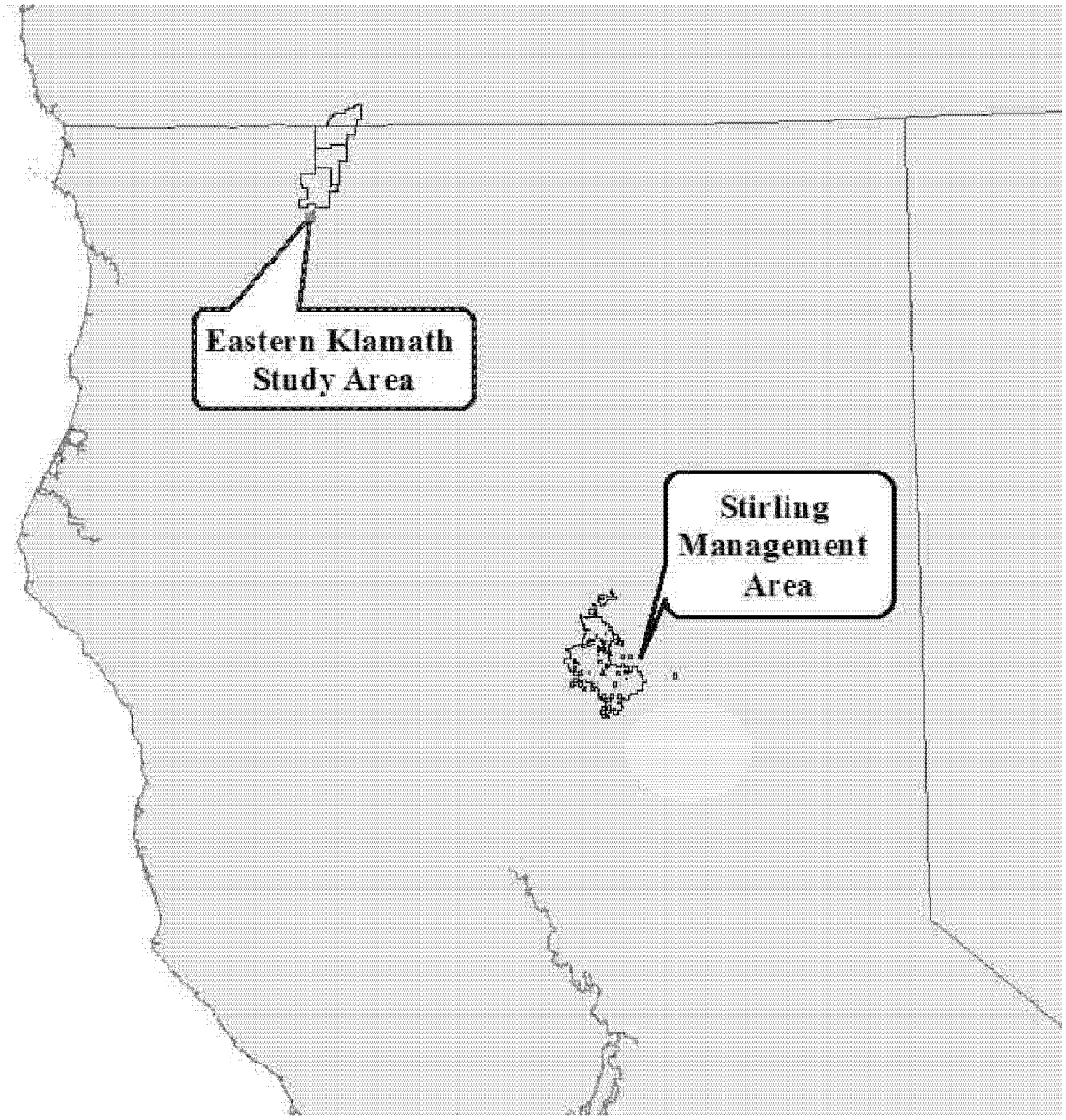
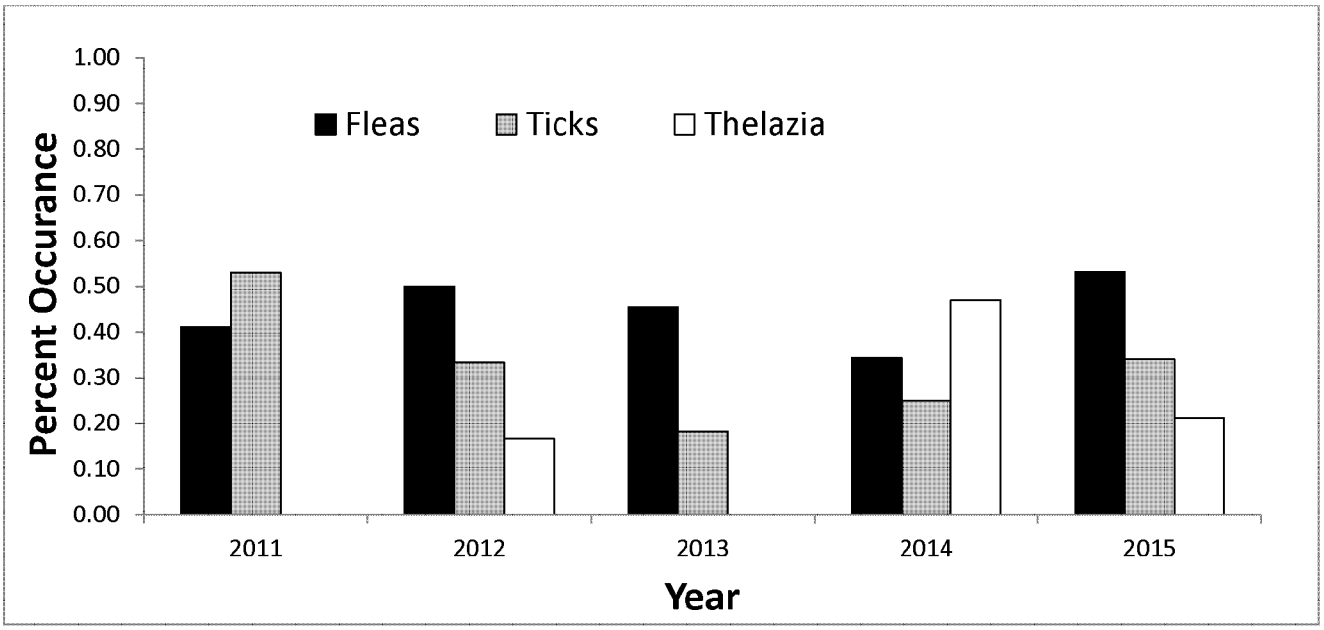


Figure 2. Occurrence of 3 taxa of ectoparasites found on fishers from 2011-2015. Data includes only fishers captured on the Stirling Management Area of Sierra Pacific Industries in the Northern Sierra Nevada and Southern Cascade Mountains of northern California. (a) Occurrence of parasites on fishers on Stirling by year and taxon. (b) Percentage of fishers on Stirling by year infected with any (at least one parasite of any species), 1, 2, or 3 of the most common ectoparasites by year.

A



B

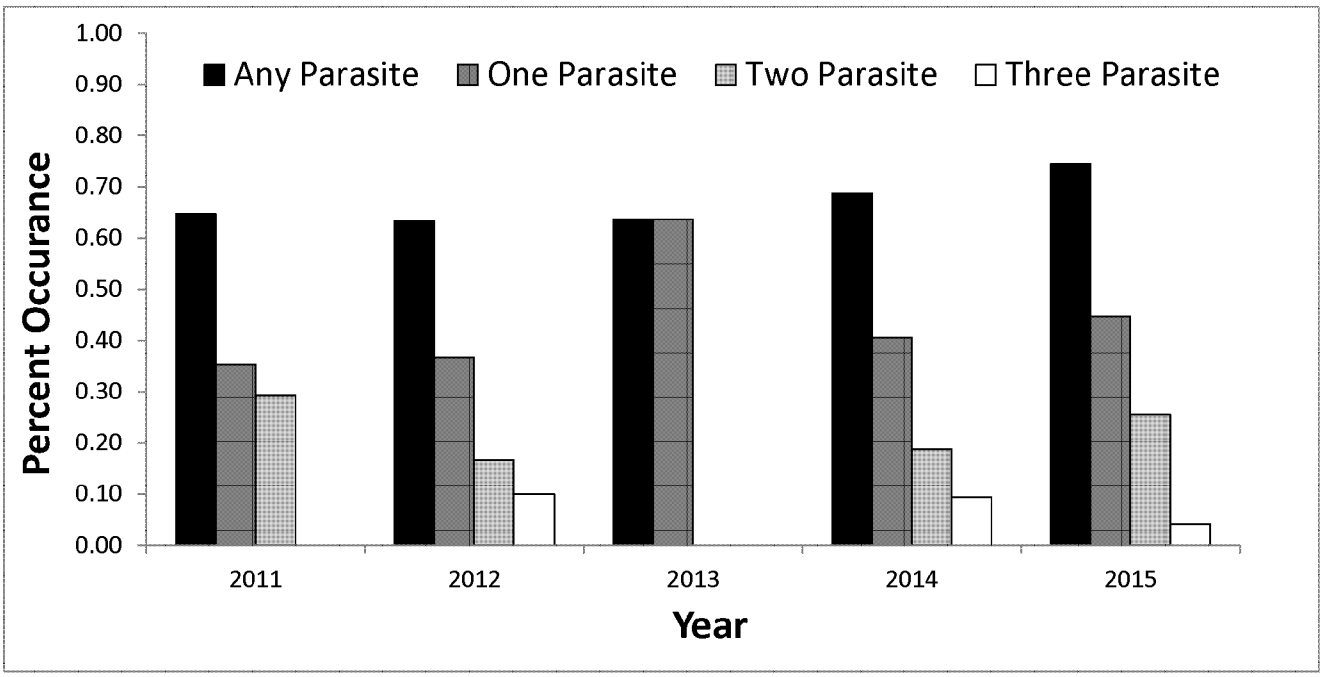


Figure Locs. The percentage of all validated locations that have occurred within the boundary for the Stirling Management Area of Sierra Pacific Industries (In Stirling) or within a 2-km buffer of the boundary (2 km Buffer) for fishers' dens, for female locations, and male locations, 2009-2015, for all translocated and Stirling-born fishers.

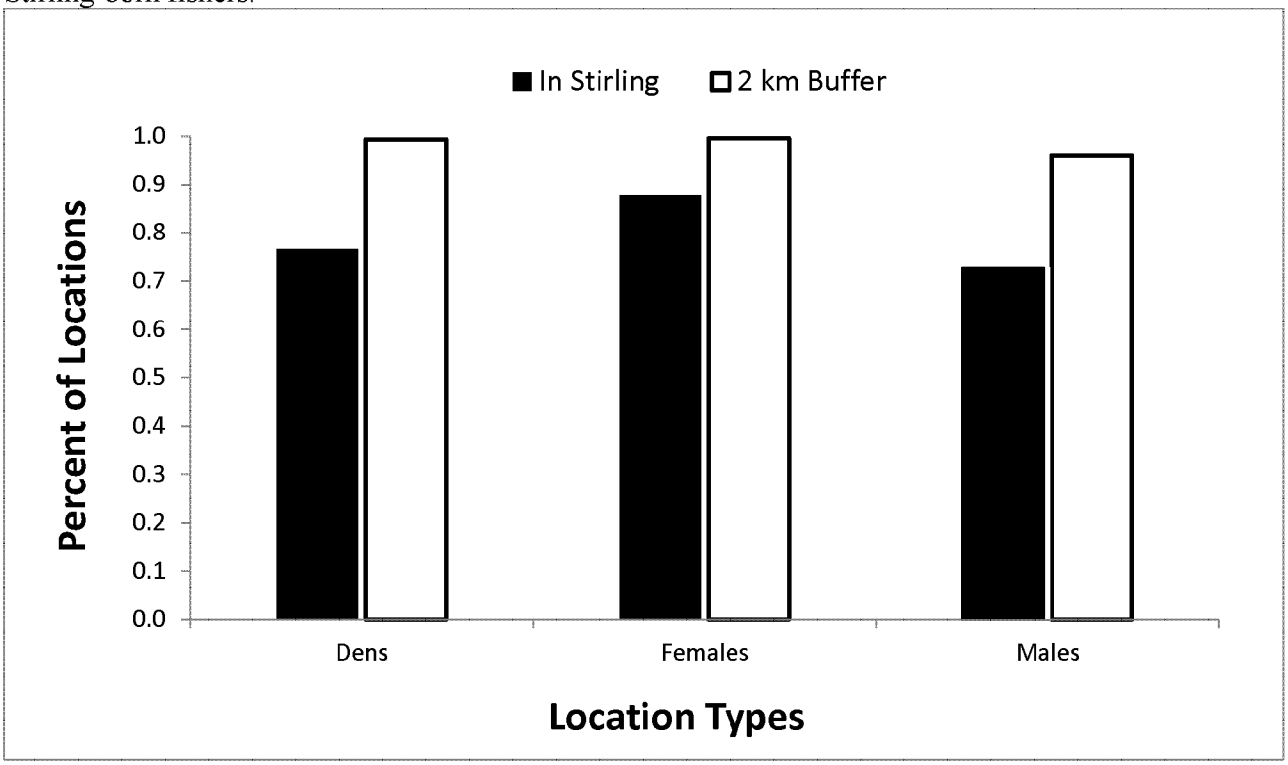


Figure 3. Map of the Stirling Management Area of Sierra Pacific Industries in the northern Sierra Nevada and southern Cascade mountains of California (green shading) and the locations of all traps set during October – November, 2015. Yellow dots represent traps that did not capture a fishers and red stars represent traps that captured at least 1 fisher.

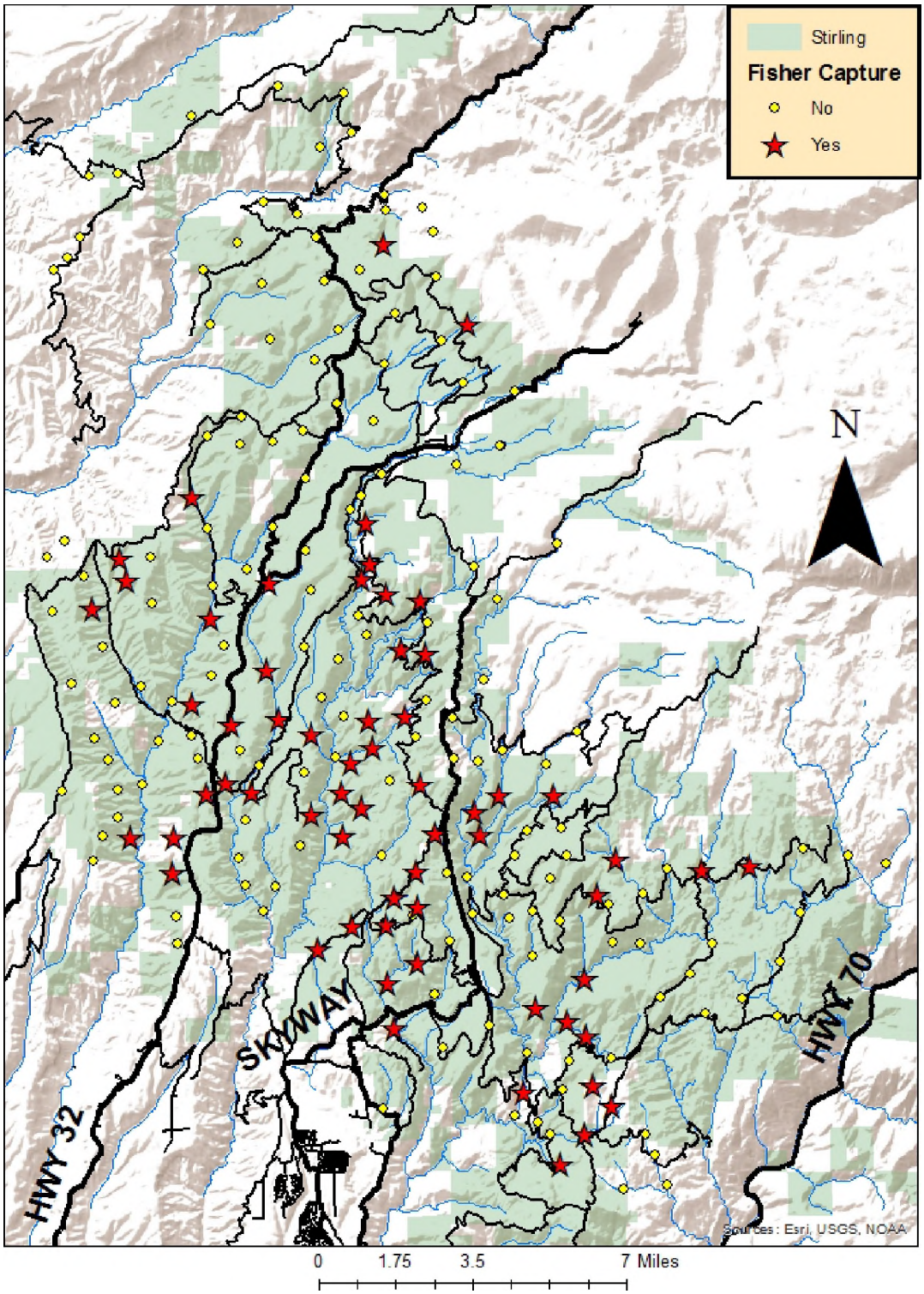


Figure 4. Percent of estimated locations of fishers obtained via Argos, GPS and VHF telemetry at different times of day across all years of study (2009-2015) on the Stirling Management Area of Sierra Pacific Industries in the Northern Sierra Nevada and Southern Cascade Mountains of northern California.

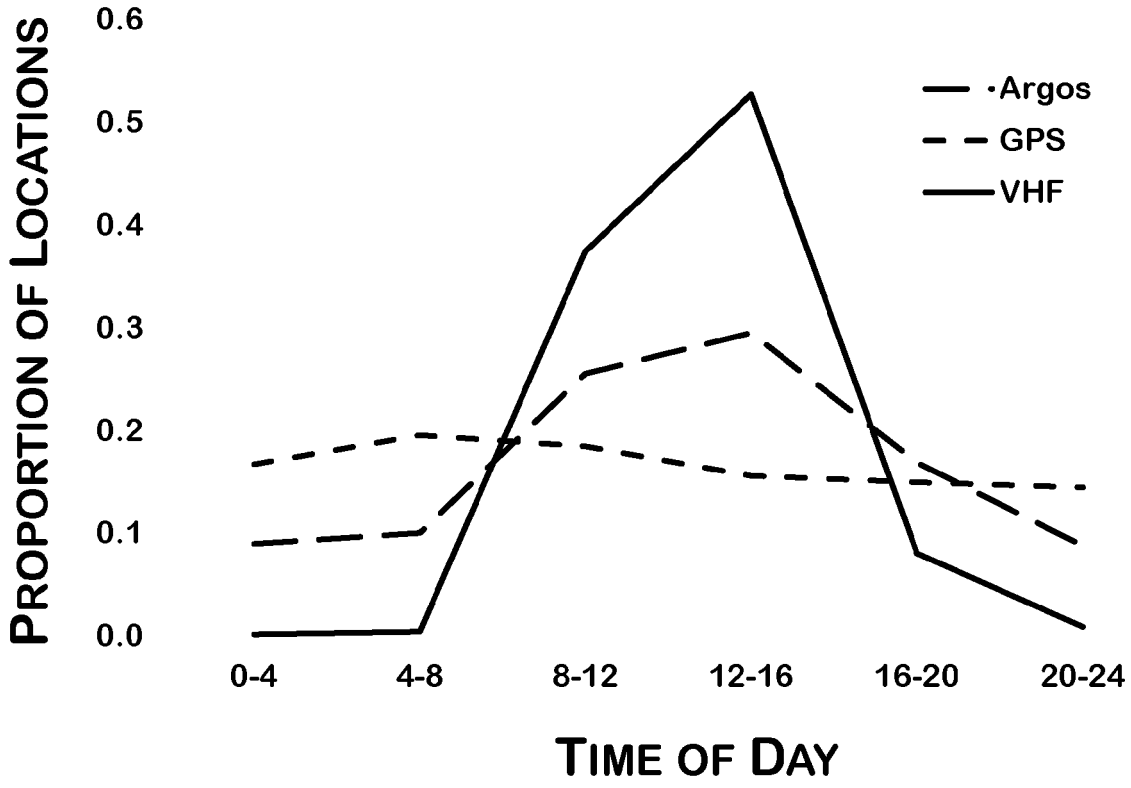


Figure 5. Percent of fishers by age distribution based off cementum annuli estimates (ages for new fishers captured in 2015 were estimated based on body size, and development) on the Stirling Management Area of Sierra Pacific Industries in northern Sierra Nevada and southern Cascade Mountains of California.

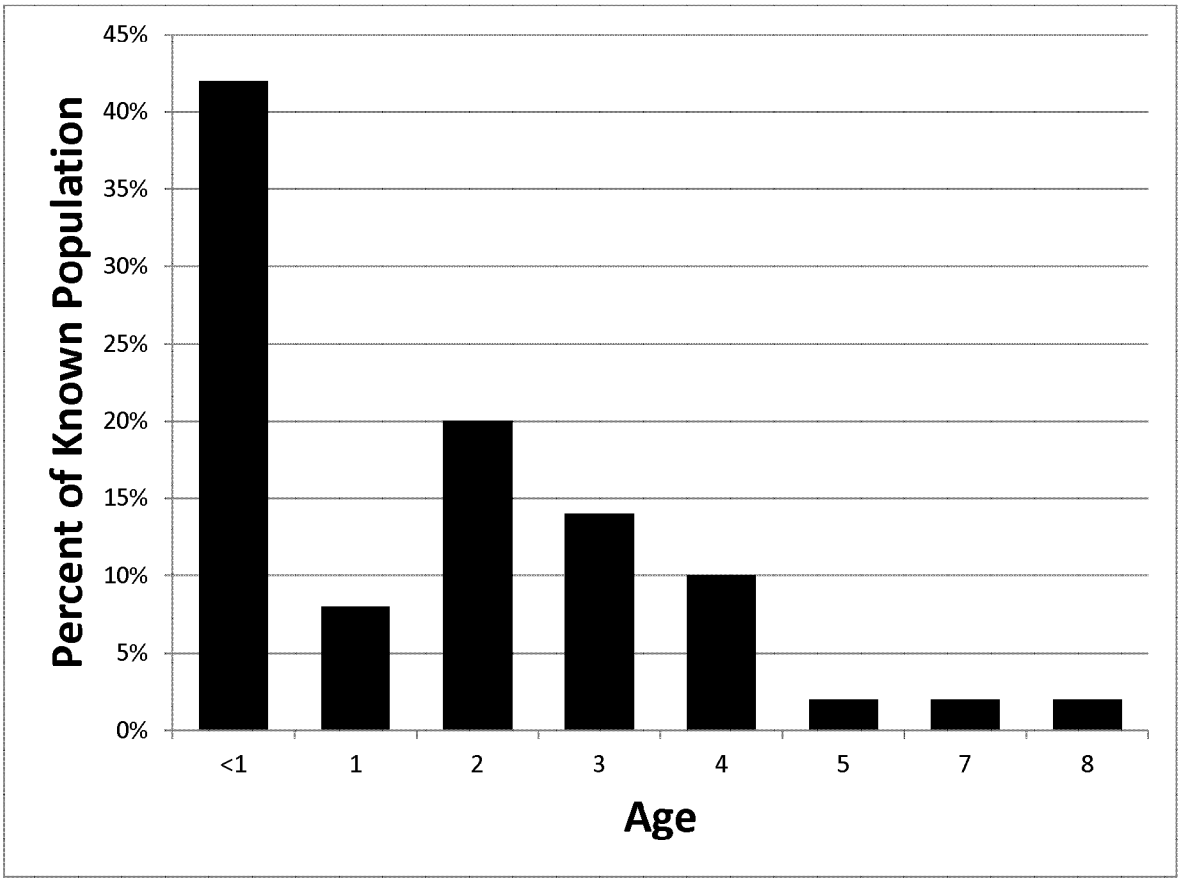


Figure 6. Annual estimates ± 95% confidence intervals of survival for adult fishers during the non-reproductive season, juvenile fishers (<1 year old), 1-year old fisher (>1 < 2- years old) and adult fishers during the reproductive season (April-August) for reintroduced and non-reintroduced fishers from 2009 to 2015 in northern California.

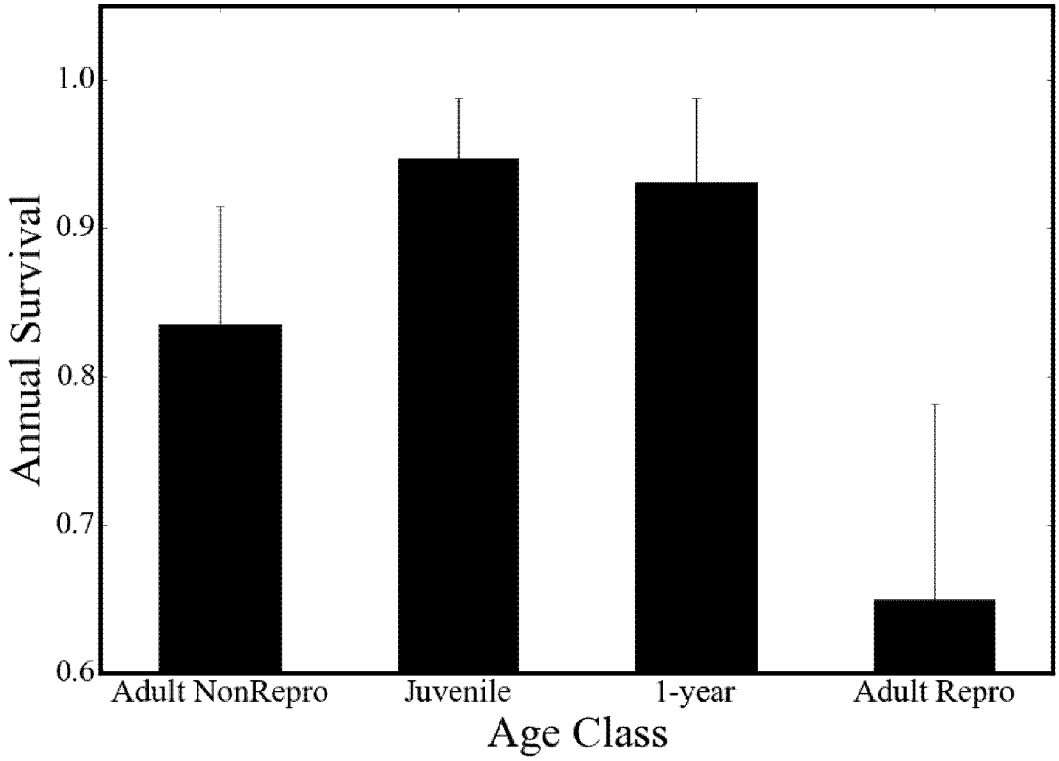


Figure 7. The minimum number of females (diamonds and gray solid line), males (circles and a dashed line) and total (squares with solid black line) known to be alive for fishers living on or near the Stirling Management Area of Sierra Pacific Industries in the northern Sierra Nevada and southern Cascade Mountains of California during the autumns of 2010-2015.

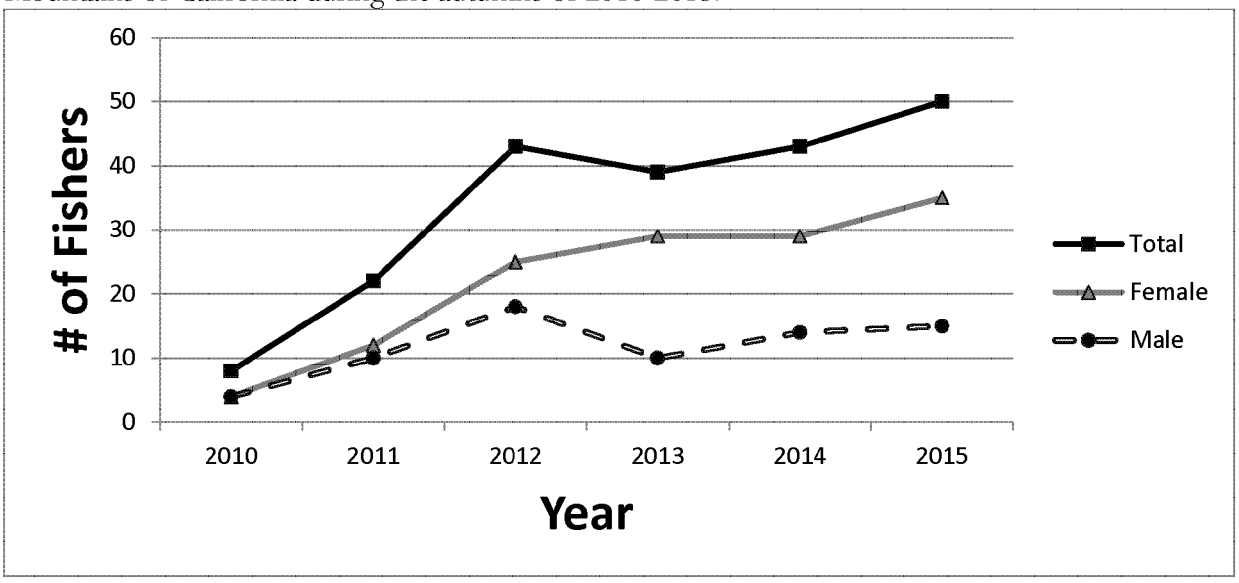


Figure 8. Annual estimates ± 95% confidence intervals of survival for reintroduced and non-reintroduced fishers from 2009 to 2015 in northern California. Note 2009 estimates derived from only December of that year.

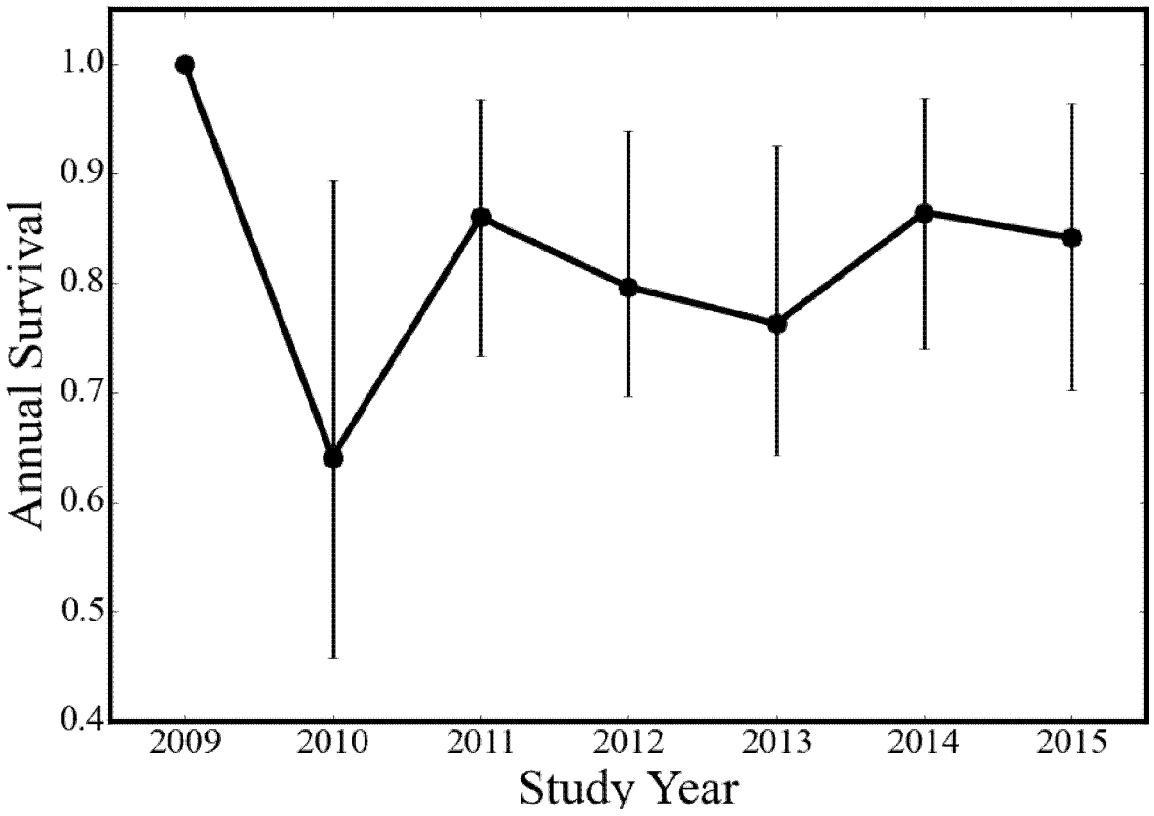
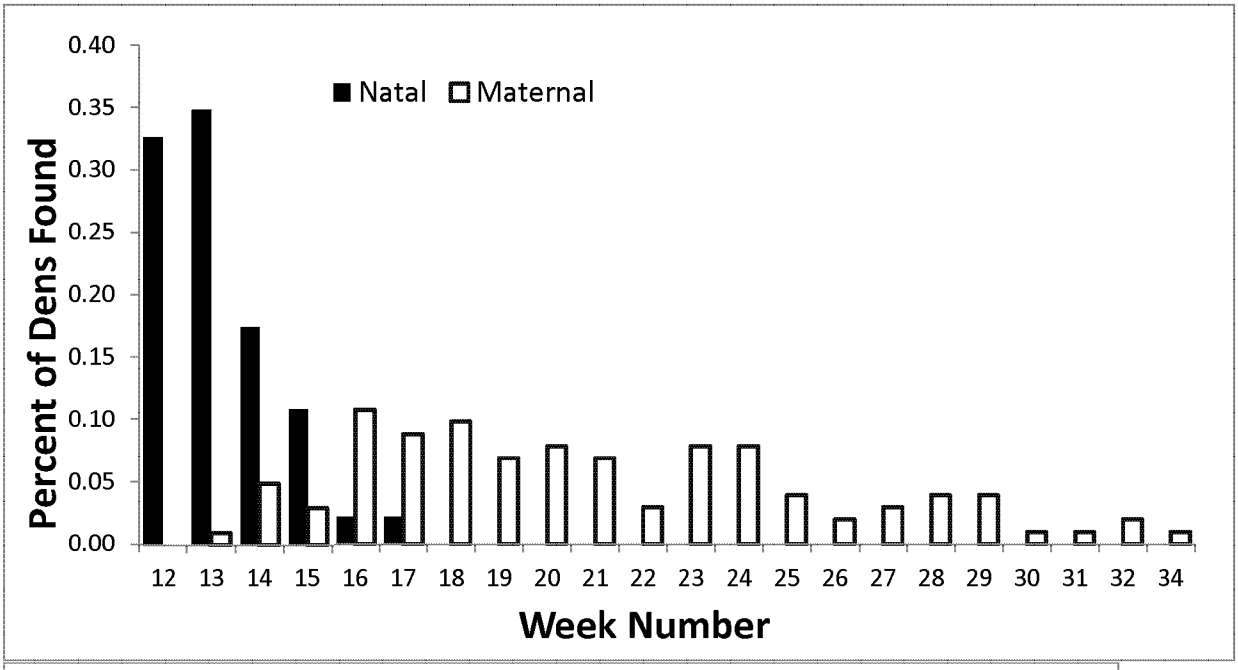


Figure 9. (A) The percent of all natal (black bars) and maternal (open bars) fisher dens found by week in 2010-2015 and (B) The mean week number ± 1 SD (mean date above bar), by year, that natal dens were found on and near the Stirling Management Area of Sierra Pacific Industries in the northern Sierra Nevada and southern Cascade Mountains of California.



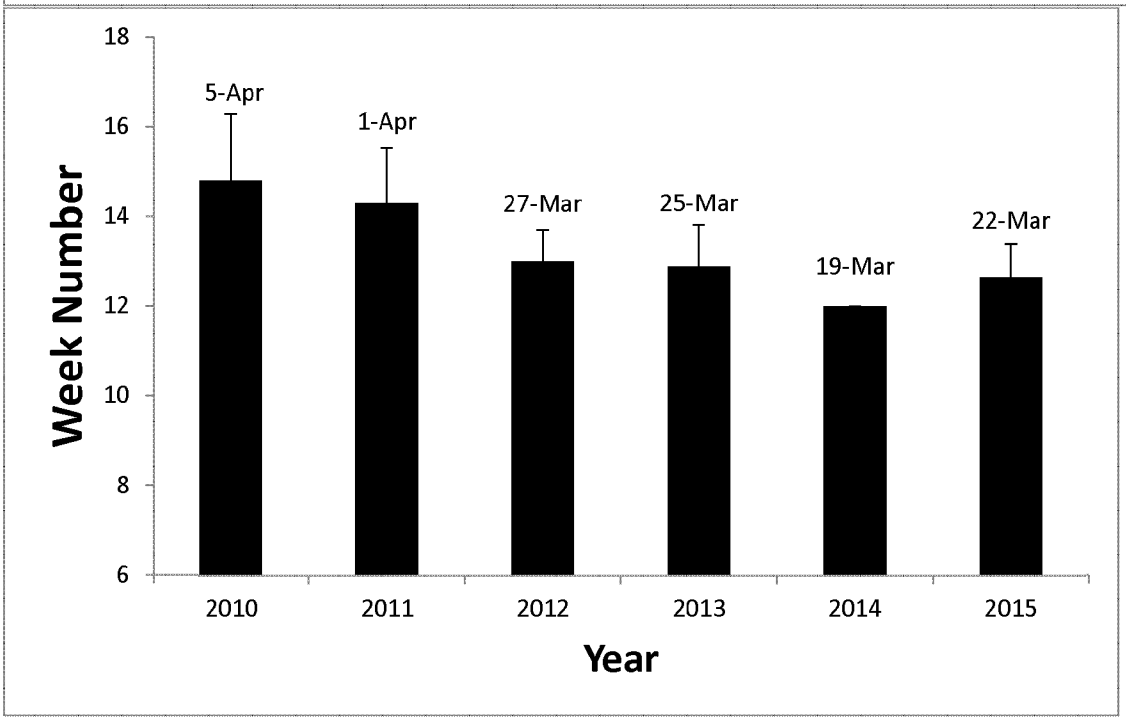


Figure 10. Locations of female fishers' dens located during the springs and summers of 2010-2013 on, or near, the Stirling Management Area of Sierra Pacific Industries in the Northern Sierra Nevada and Southern Cascade Mountains of northern California.

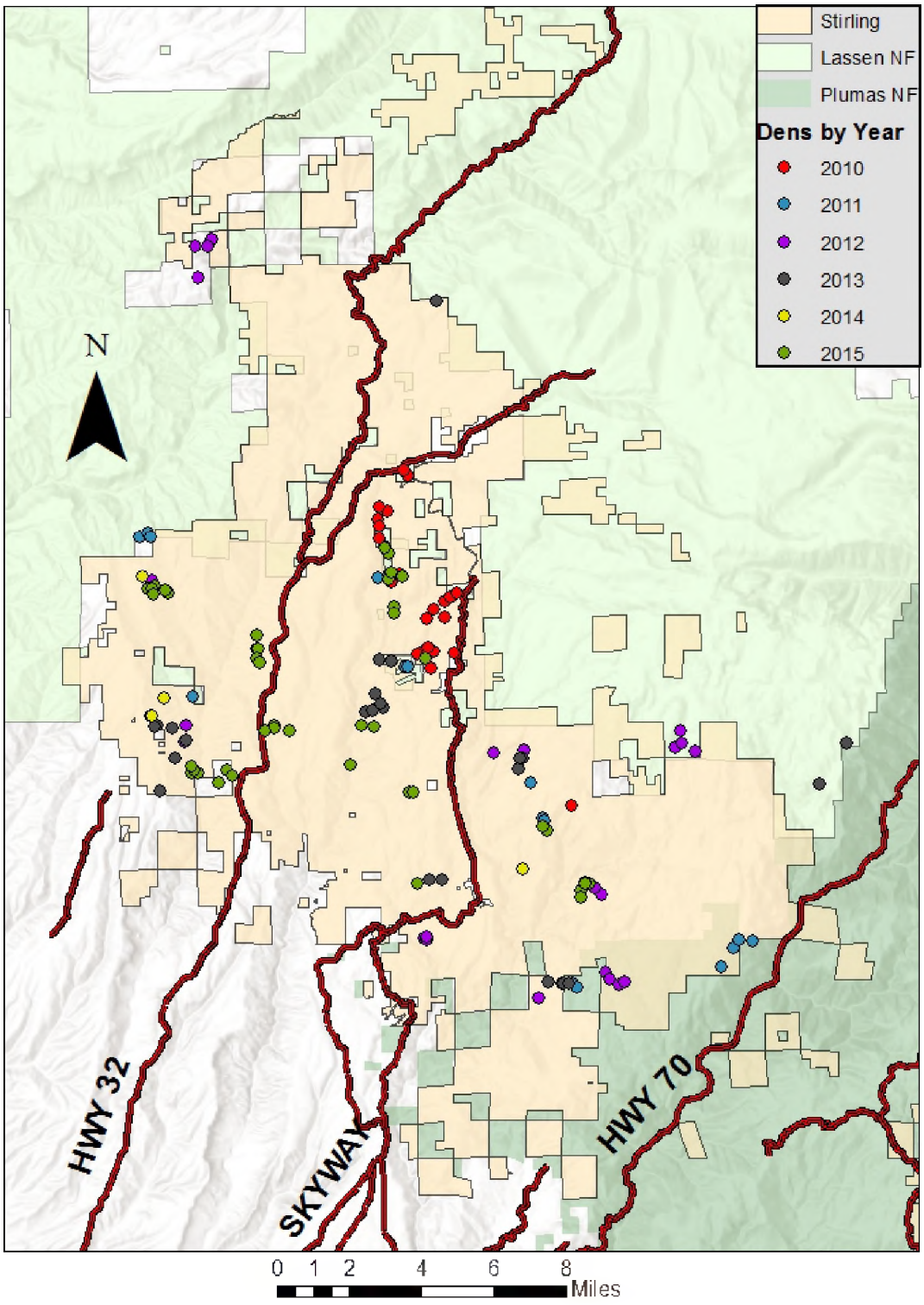


Figure 11. Study site for monitoring fisher population dynamics in response to two wildfires in Northern California. Both wildfires occurred in the summer of 2014. The Beaver Fire is the northern fire and the Happy Camp Complex Fire is the southern fire depicted in this figure. The black squares show the locations of our survey sites. The light-colored area of low elevation bisecting the study site from east to west in approximately the middle is the valley containing the Klamath River. This satellite image is courtesy of Microsoft Bing basemaps.

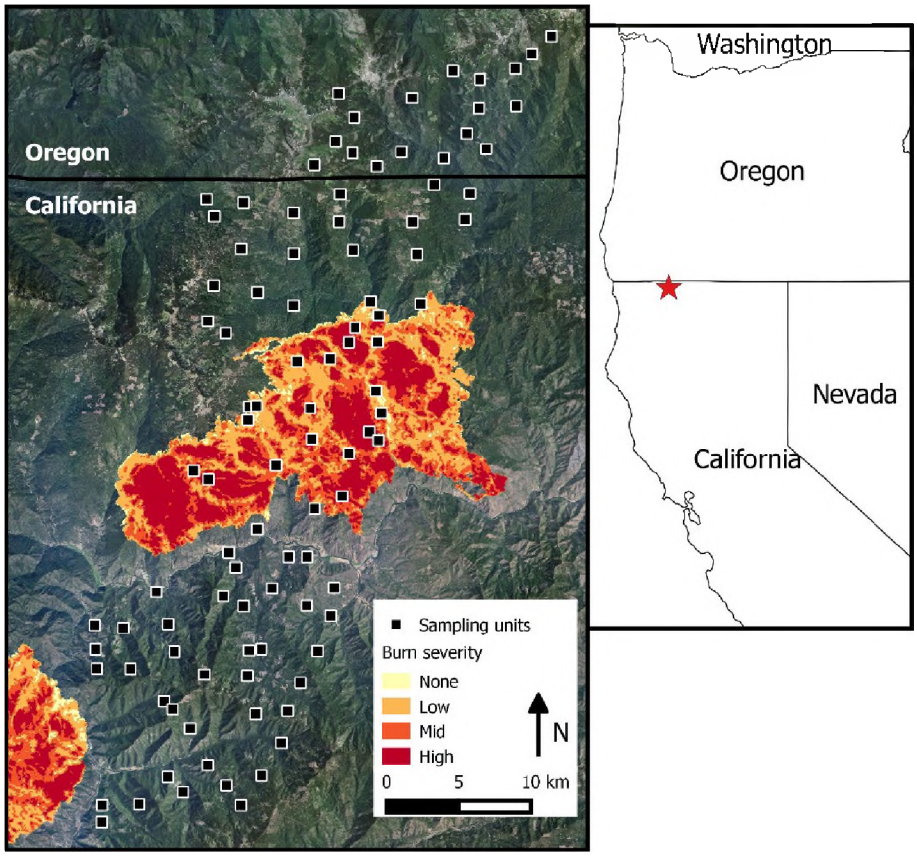


Figure 12. Estimated annual abundance (■) and 95% credible intervals of fishers in the Klamath.

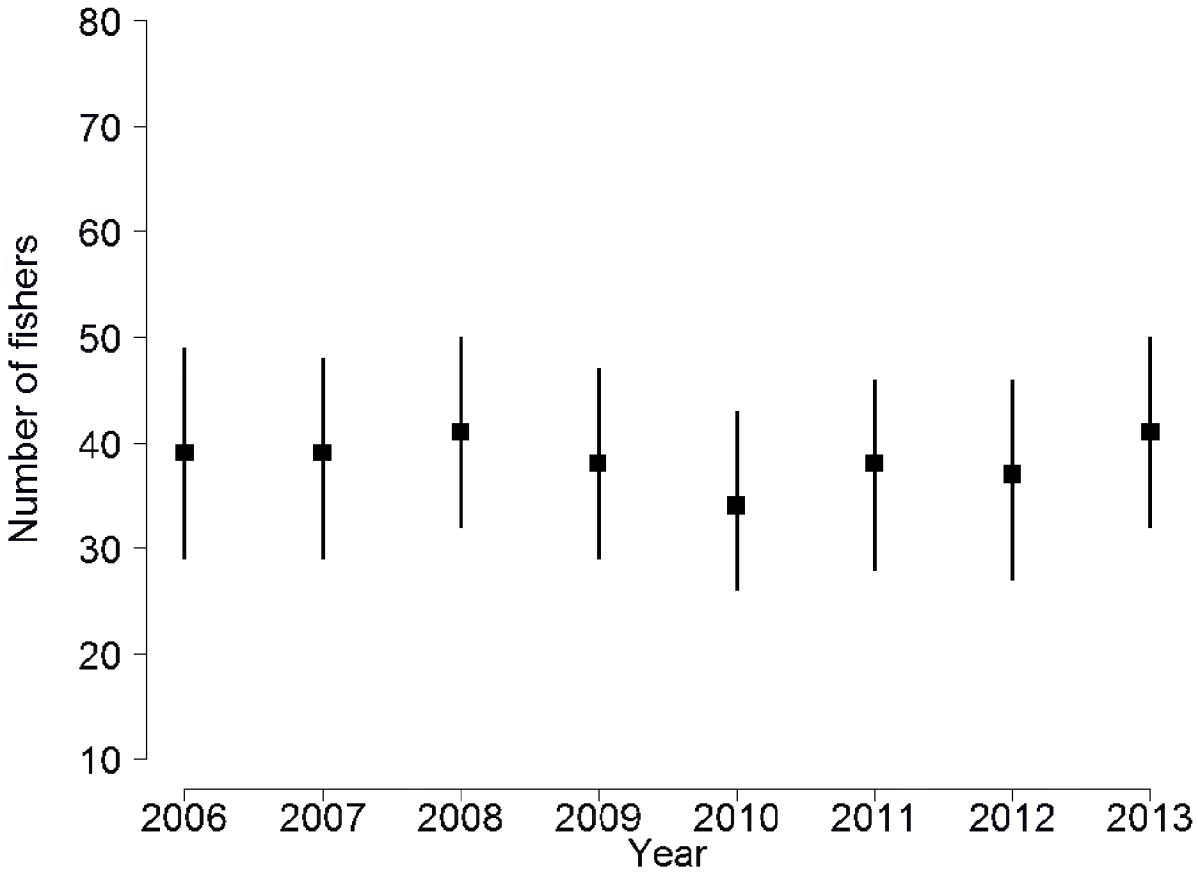


Figure 13. Density maps indicating the locations of fisher activity centers in the Klamath. The scale bar and color scheme indicate the number of estimated activity centers/100 km^2 encompassing the 1 km^2 grid cell.

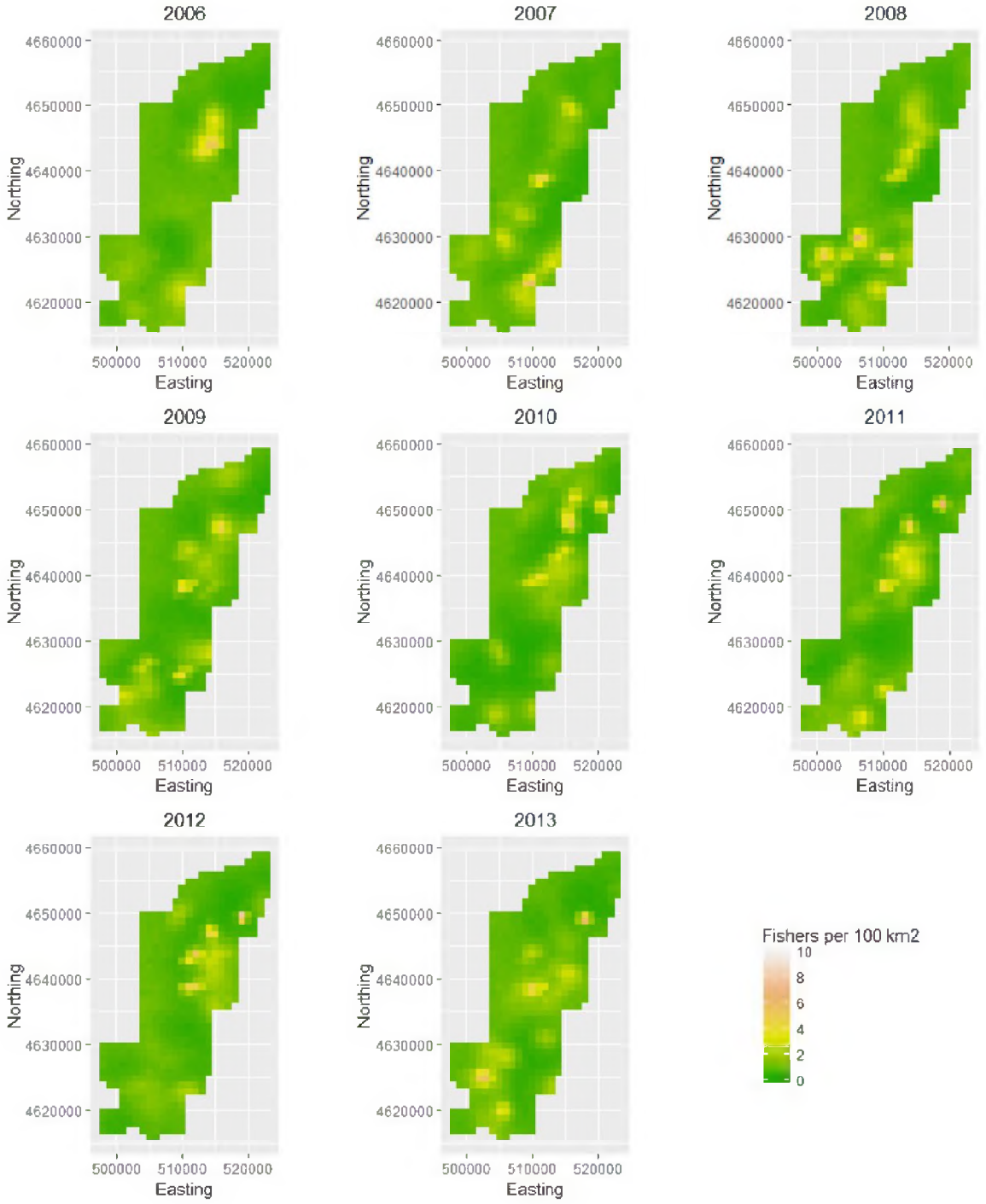


Figure 14. Density map indicating the locations of fisher activity centers in a portion of the Stirling Management Area in 2013 relative to the non-invasive sampling units (▲). The color scheme indicates the number of estimated activity centers/100 km^2 encompassing the 1 km^2 grid cell.