

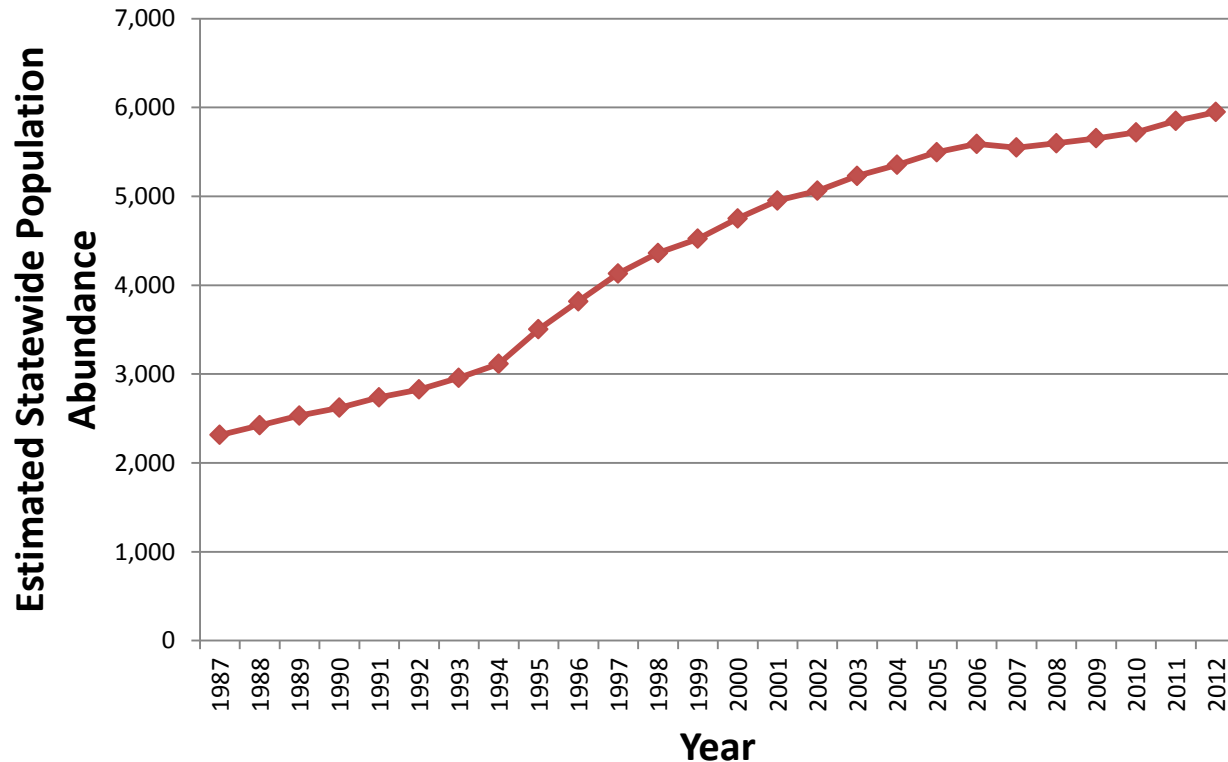
Cougar Management and Research in Oregon



Oregon Department of Fish and Wildlife

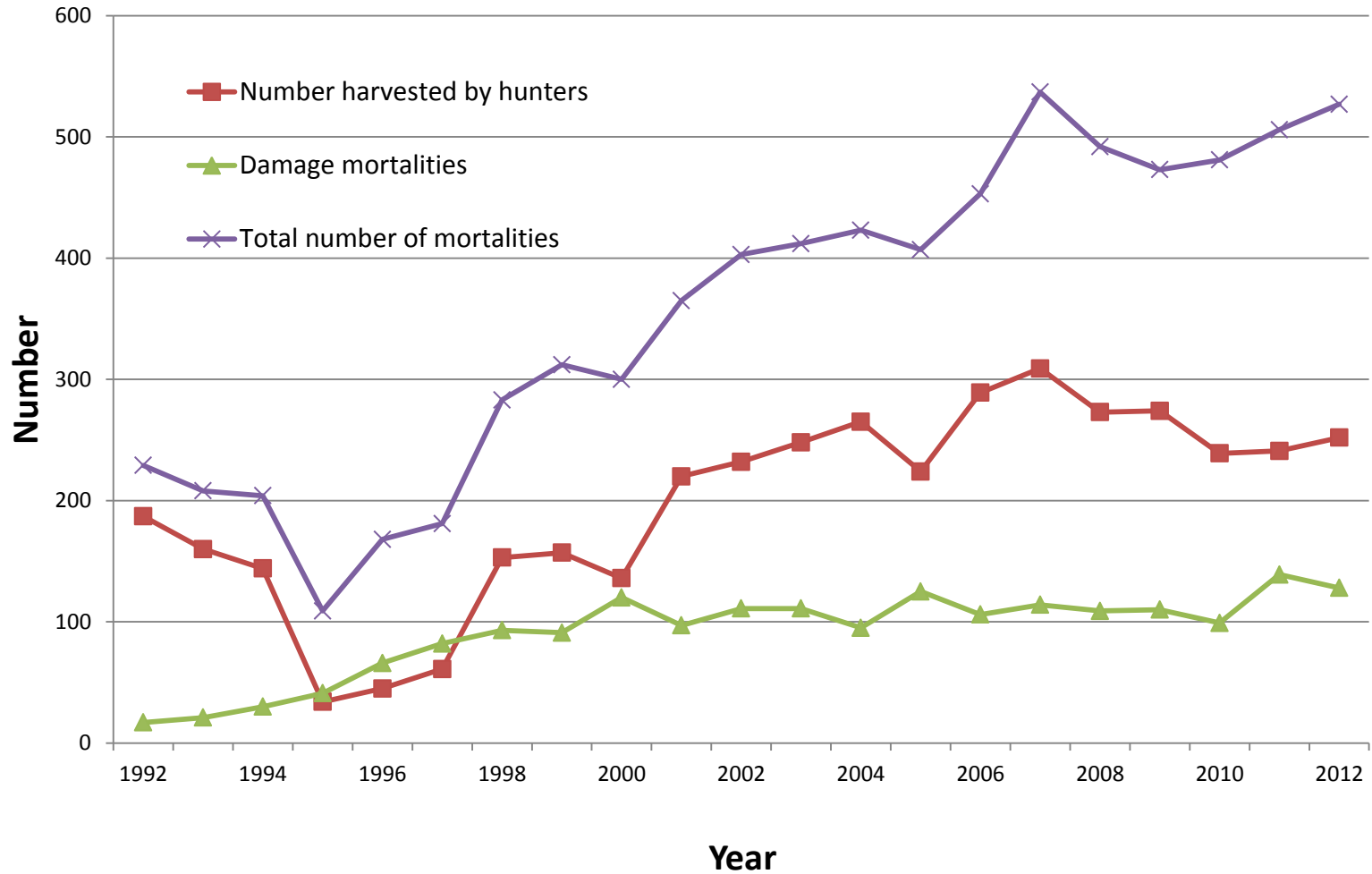
22 May 2013

Cougar Population Abundance Estimation

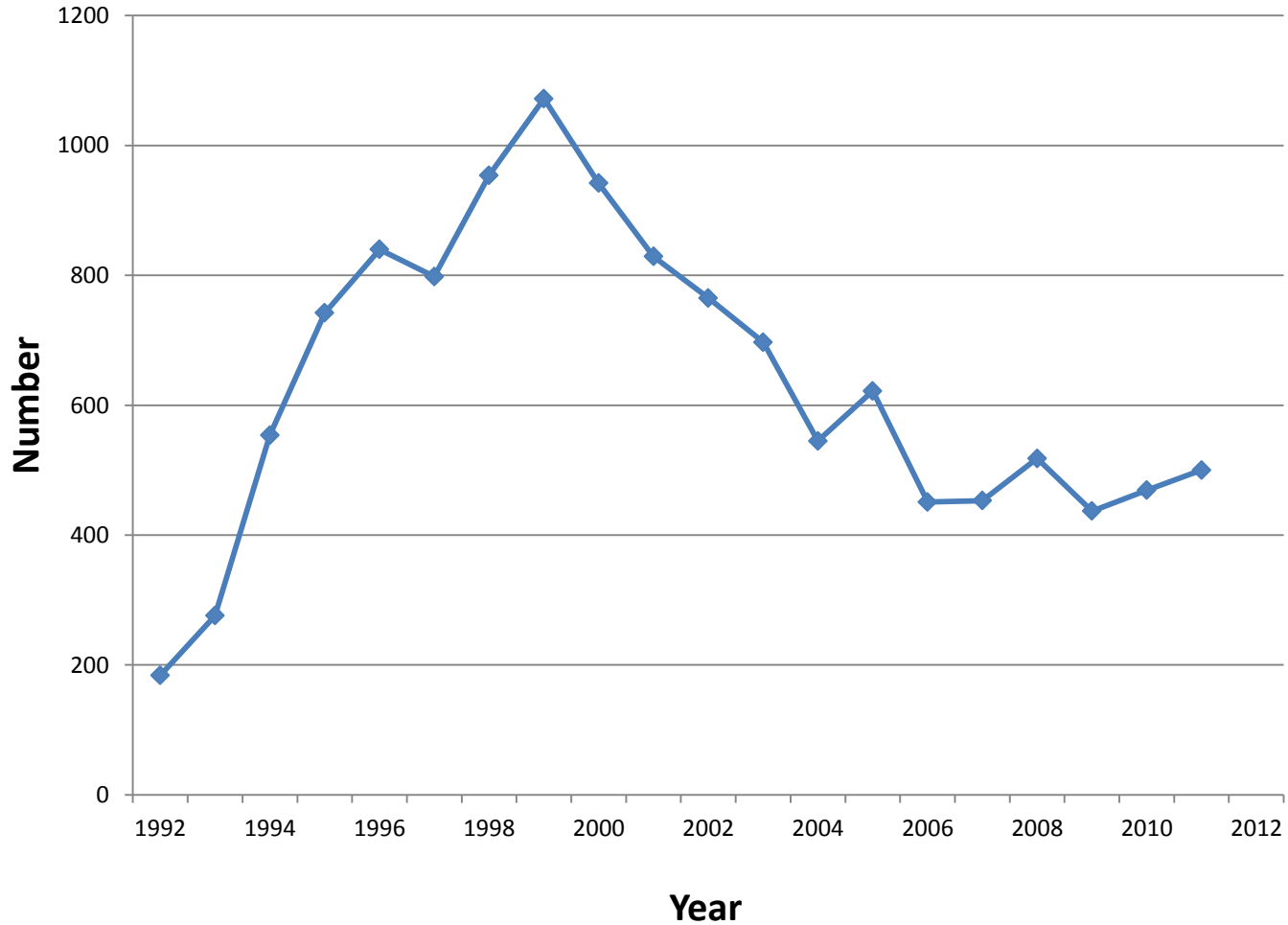


- Current deterministic model (Keister and Van Dyke 2002)
- Development of contemporary stochastic population model
- Statewide population models for cougars typically rely on harvest data

Number of Cougar Mortalities



Number of Complaints



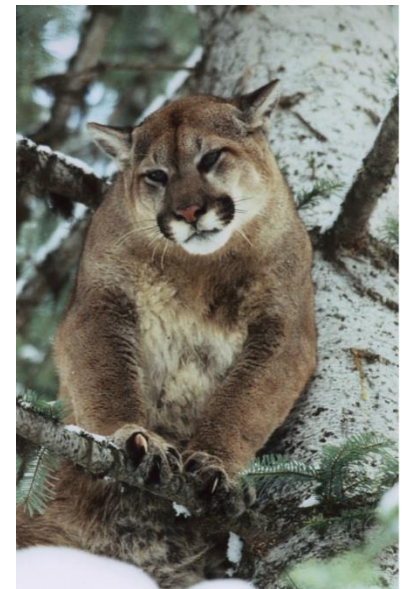
Cougar Research in Oregon

- Examined cougar ecology since 1989
- Monitored an average of 27 radio-marked cougars each year since 1989
- Collected biological information on over 8,000 cougar mortalities since 1987.
- Data on cougar age structure, reproductive and survival rates, habitat use, and prey utilization.

Cougar Research in Oregon

- Catherine Creek Study – 8 years of data
- Jackson Creek Study – 10 years of data
- Nutrition/Predation Study – 4 years of data
- Sled Springs Study – 8 years of data
- Wenaha Study – 8 years of data
- Mt. Emily Study – 3 years of data

- 22 Publications (most in scientific journals)
- 7 Professional presentations
- 8 Publications in progress



Cougar Biology

- Density
- Mortality
- Survival rates
- Dispersal
- Prey selection
- Impacts to ungulates
- Home Range
- Reproduction
- Weights – Ages
- Habitat Use



Fates of radio-collared cougars

January 2002 – June 2008

Example of causes of mortality for cougars in Oregon

ODFW captured and radio-collared 68 individuals during 7 winters and of these 33 died.

Cause of Mortality

18 hunter	(54%)
8 natural	(24%)
4 illegal	(12%)
2 human safety	(6%)
1 unknown	(3%)

Values similar to statewide mandatory check-in data of >8,000 mortalities



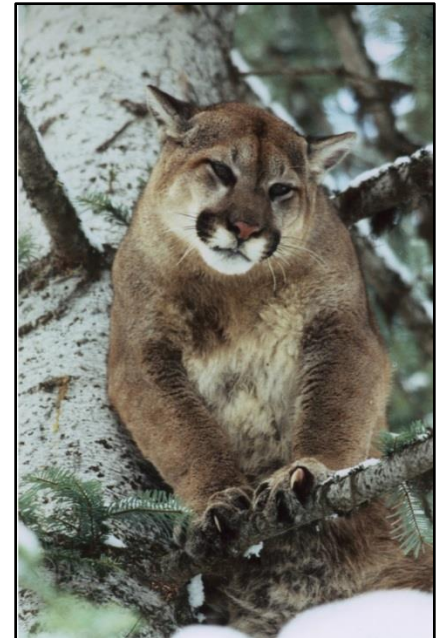
Nutrition/Predation Study

3 major components:

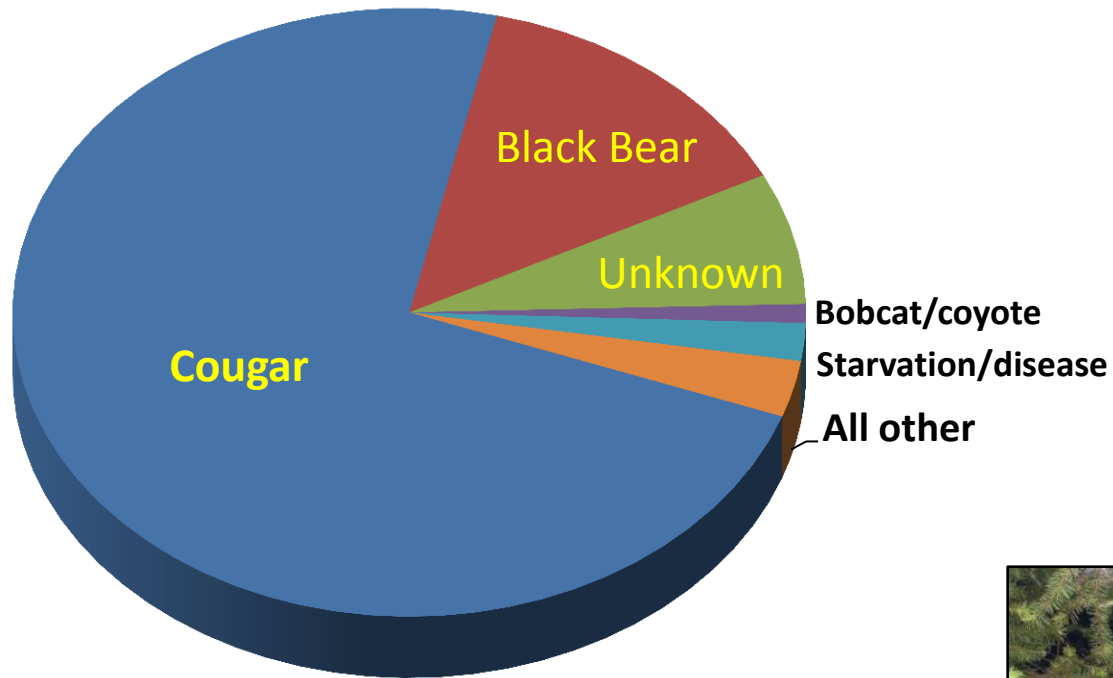
1. Nutritional and reproductive status of cow elk
 2. Calf elk survival and causes of mortality
 3. Cougar, bear, deer, elk populations
- Captured > 600 elk cows and > 600 elk calves
 - Radio-marked all captured elk
 - Documented cause of mortality

Cougar prey selection and population estimation in Mt Emily WMU

- Cougar Prey selection
- Cougar Population estimates
- Incorporate information into elk and deer population models

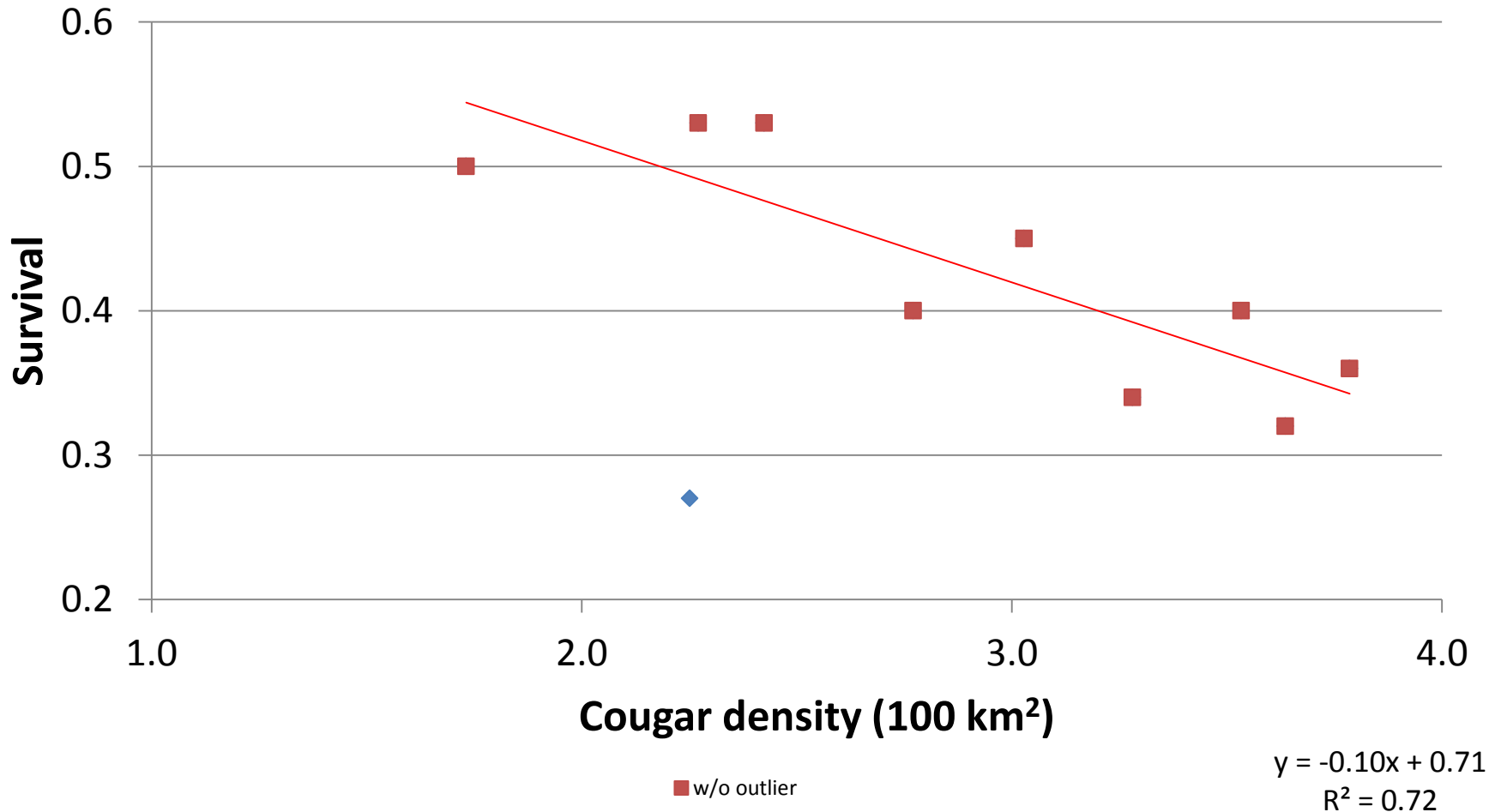


Causes of Mortality for 232 Elk Calves



Nutrition/Predation Study

Cougar density—calf survival 2003 - 2007



Prey Composition:

(there were 51 non-ungulate prey documented)

Male Cougars:	137 Elk (52%),	125 Deer (48%)
Female Cougars:	227 Elk (25%),	668 Deer (75%)
All Cougars:	364 Elk (31%),	793 Deer (69%)

Prey Biomass (Live weight estimates):

Male Cougars:	Elk – 77%,	Deer – 23%
Female Cougars:	Elk – 36%,	Deer – 64%

Research Summary

- ODFW has 23 years of data on cougars in Oregon and continue to evaluate cougar ecology.
- Oregon cougar density (based on our study area estimates) is greater than many other published data.
- There are varied causes of mortality for cougars in Oregon
- Cougars survive well in Oregon – each year, 150 of every 200 survive to the next year.
- Cougars in Oregon typically choose elk and deer for prey.
- Cougars are having significant impacts on Oregon's elk populations primarily by predation on elk calves.
- The greater the density of cougars on the landscape the greater the impact on elk calf survival.

Questions

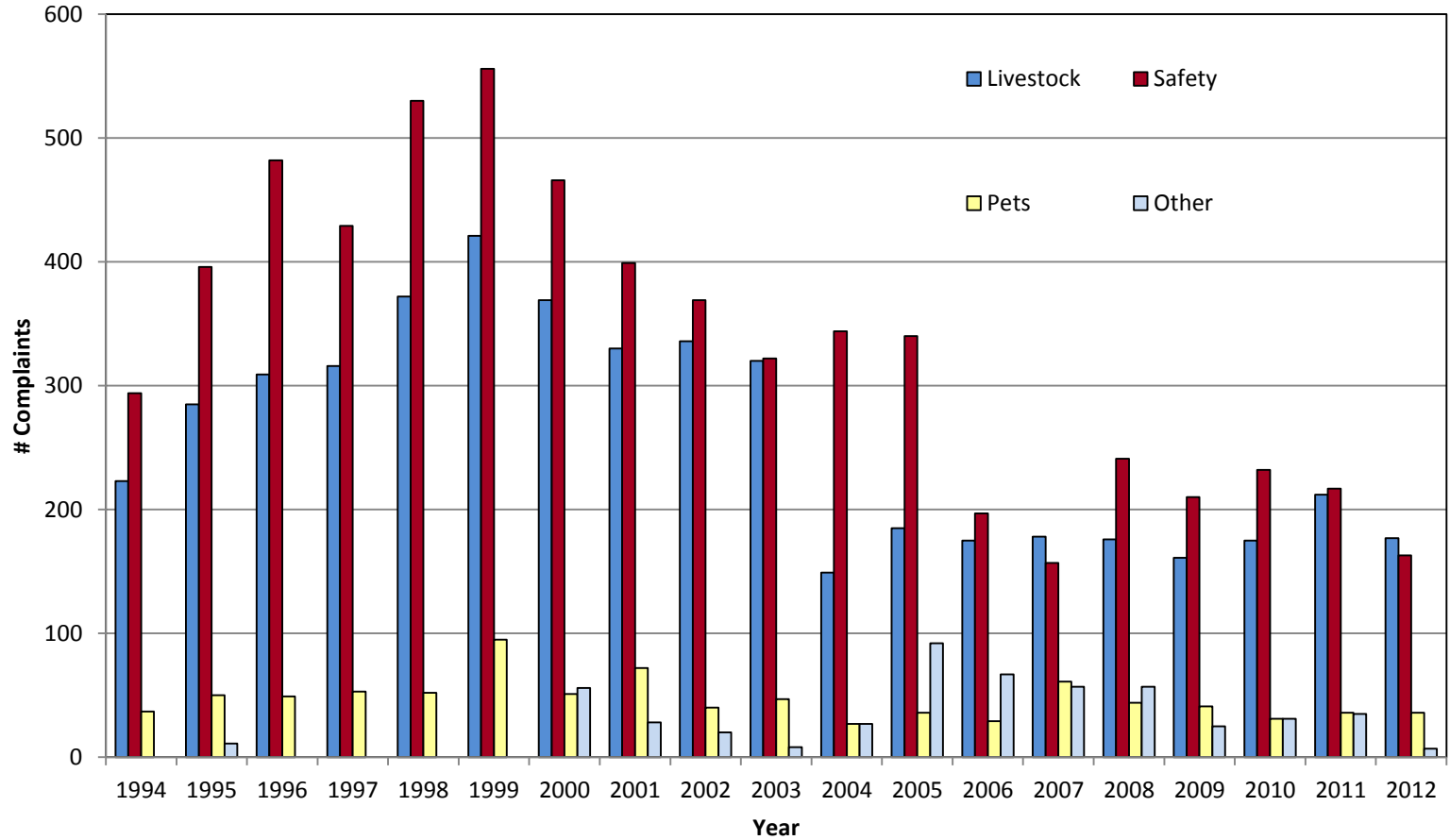
Annual survival rates of cougar



Juvenile Cougar Dispersal

- Based on 29 juvenile radio-marked cougars (Jackson Creek study).
 - 10 Male = 51 miles average dispersal distance and 100% mortality (from 7 different sources of mortality)
 - 19 Female = 22 miles average dispersal distance and 22% mortality
 - Dispersal directions were random from the study area

Number of Complaints



Cougar Density Estimates

- Density estimates made by mark/recapture and radio-telemetry monitoring – Jackson Creek study during 1993-2002 (southwest Oregon).
 - Annual estimates ranged from 2.7 to 4.3 cougars/100 km²
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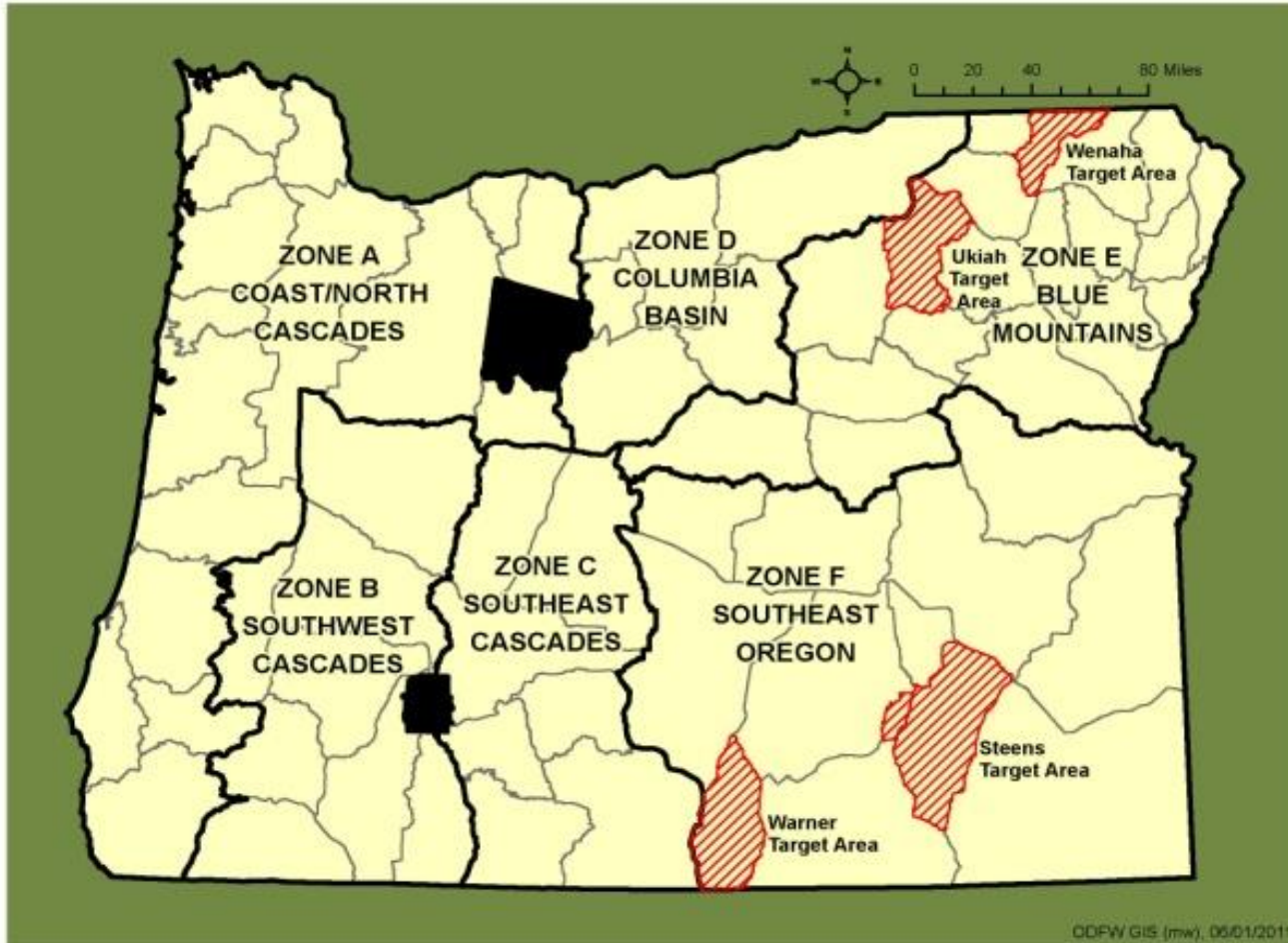
- Wildlife detection dogs to locate cougar scat (DNA) -2011 (northeast Oregon).
- 4.3 to 4.6 cougars/100 km²
Conf. int.= 2.8 – 5.9 and 2.6 – 6.6



2006 Oregon Cougar Management Plan: Target Areas

- Proposed implementation submitted for approval by respective Region and Wildlife Division
- Open for public comment during development phase
- Linked to Plan Objectives and triggers:
 - Number of cougar mortalities
 - Number of complaints related to cougars
 - Deer/Elk population data
- Each target area is compared to an adjacent control WMU
- Upon completion of target area activities, a monitoring report is completed to evaluate effectiveness of administrative removals
- Adjustments are made based on Adaptive Management process

Current Cougar Target Areas



Volunteer Agents

- Authority for ODFW to utilize volunteer agents (ORS 498.164)
- Used to address cougar/bear damage, human safety, and for target area and research purposes; may use dogs
- Extensive approval process, incl. background check
- Appointments for multiple consecutive years
- 21 agents currently approved, at least 1 available for any given county

Volunteer Agents

Table 1. Expenditures (\$) directly related to use of volunteer agents for cougar and bear research and management activities, 2008–2012.

Year	Activity			Total
	Damage/human safety	Cougar Target Areas ^a	Research	
2008	200	0	15,026	15,226
2009	338	0	16,475	16,813
2010	0	7,115	19,321	26,436
2011	700	13,185	16,393	30,278
2012	0	10,938	3,724	14,662
Total	1,238	31,238	70,939	103,415

^aJosephine County OHA covered \$5,098 of the 2010–2011 expenditures for Warner Target Area, which was not subtracted from this table.