

Professor Robert Wielgus, Ph.D. (retired)
Statement on increased cougar hunting to offset mule deer and bighorn sheep population declines in Oregon

My name is Dr. Robert Wielgus, I live in Bend Oregon. I am the former (retired) Director of the Large Carnivore Conservation Lab at Washington State University.

I have studied large predators and their interactions with humans, prey, and livestock for over 35 years and have published over 35 peer reviewed scientific papers on predator/human interactions. I captured, radio-collared, and studied hundreds of cougars, and simultaneously captured and collared hundreds of mule deer, white-tailed deer, and mountain caribou in Idaho, Washington, and southern British Columbia for over 20 years (1997-2018).

I also have provided invited expert reviews, reports, and presentations on cougar management for the ODFW Oregon Department of Fish and Wildlife, Oregon Wildlife Commission, and Oregon Senate Committee on Natural Resources over many years. Thank you for allowing me to once again present my research results and recommendations to your committee.

ODFW has conducted extensive research on mule deer population declines. The primary causes of these declines is habitat loss and degradation, drought, reduced spring growing seasons, fragmented migration routes, vehicle strikes, hunting, and predation by cougars. In this review I will focus on the effects of cougar predation.

My research partners and my lab (WSU -Washington State University, WDFW – Washington Dept. Fish and Wildlife, IDFG – Idaho Dept. Fish and Game, and BCMOE – British Columbia Ministry of Environment) documented population declines for mule deer and mountain caribou in eastern Washington, northern Idaho, and southern British Columbia. Similar to the mule deer and bighorn sheep declines in Oregon. Our extensive radiotelemetry studies showed that relatively rare mule deer were declining because of cougar predation in the Selkirk Mountains and Kettle Mountains of southern British Columbia, northern Idaho, and northeastern Washington - while abundant white-tailed deer were increasing in the same area (Robinson et al 2002.). At the same time endangered mountain caribou were declining because of cougar predation in the same area (Katnick 2002, Katnick and Wielgus 2005). We increased cougar hunting in the area to reduce cougar predation on these declining species, the same as proposed for Oregon. Contrary to the expected results, mule deer and caribou continued to decline despite extremely high mortality of cougars (Lambert et al 2006, Wielgus 2017). To make sense of this dilemma we radio collared hundreds of cougars to see what was going on. The results were astounding and completely counterintuitive.

Cougars were selecting for rare mule deer (and caribou) at higher elevations during summer instead of super abundant white tailed deer at lower elevations (Cooley et al . 2008). The question was why.

Increased remedial hunting of cougars resulted in increased immigration by young, mostly male cougars. For every older resident male killed, 2 or 3 young guys came to the funeral (Robinson et al. 2008, Maletzke et al. 2014). No such immigration was observed in lightly hunted cougar populations where most older males were spared (Cooley et al 2009a, Maletzke et al 2014). High cougar mortality

was compensated by high immigration of young males and low cougar mortality was compensated by high emigration of young males. Increased hunting did not affect total cougar numbers but did shift the sex ratio towards younger immigrant males (Cooley et al 2009b).

Unlike older resident fathers, these younger immigrant males engaged in sexually selected infanticide or killing of cubs to induce estrous in the females (Cooley et al 2009b, Wielgus et al 2013).

Keehner et al (2015a) found that females with cubs vulnerable to infanticide were the only sex and age class that selected for rare mule deer at high elevations, other sex age classes selected for abundant white-tailed deer at low elevations. Keehner et al (2015b) also found that females with cubs avoided infanticidal immigrant males in heavily hunted populations by segregating into high elevations inhabited by mule deer and caribou, but not in lightly hunted populations where older resident males were fathers of cubs. Most of the disproportionate predation occurred during summer when kittens were most vulnerable to infanticide. My lab also documented that only female cougars were selecting for mountain caribou at those high elevations.

Remedial increased sport hunting of cougars to reduce cougar predation on sensitive and endangered prey caused increased immigration by young males, increased sexually selected infanticide by those males, increased sexual segregation by females with cubs into high elevations to avoid those males, and increased predation on rare declining mule deer and caribou at those high elevations

Wielgus et al. (2013) recommended that cougar mortality not exceed the cougar intrinsic population growth rate of 14 % to prevent such increased immigration and predation on rare declining secondary prey. The Washington Department of Fish and Wildlife followed those recommendations and reduced cougar mortality statewide to < 14% (Beausoleil et al 2013). Mule deer then recovered from high cougar predation where they were declining from cougar predation in Washington. Unfortunately, wildlife management agencies did not follow our recommendations in the Selkirk Mountains of Idaho and British Columbia. High hunting mortality of cougars and high cougar predation of mule deer and caribou continued in that area. As a result, the last mountain caribou population in the lower 48 USA and southern Canada is now extinct. Increased remedial cougar hunting appeared to cause the extinction of mountain caribou in the lower US.

My lab and WDFW found that the maximum growth rate without hunting mortality of cougars was 14% and that the density of adult cougars was 2.2 cougars/100 km² in Washington, Idaho, and Montana. When we restricted cougar hunting mortality to 14% of 2.2 cougars /100 km² throughout all the Game Management Units in Washington. Problems with cougar predation on mule deer disappeared.

Oregon Department of Fish and Wildlife (ODFW) claims a cougar density and population size 2-3 times higher than our studies in Washington, Idaho, and Montana, because they count kittens in their estimates and the other states don't. ODFW claims a hunting mortality rate of about 14%, but this is based on their inflated density estimate that is twice as high as everyone else (because of kittens). Therefore, the actual mortality rate is also likely twice as high as reported, about 28% not 14%. At similar levels of high cougar hunting mortality we had high predation on mule deer and continued population declines. Only after adult female cougar mortality exceeded 40% did mule deer finally recover. I believe ODFW may be overharvesting cougars, like we did in WA, and that may contribute to increased predation on mule deer and big horn sheep.

It was clear that increased hunting of cougars caused increased male immigration, sexual habitat segregation and prey switching by female cougars with cubs to declining secondary prey. Radio collaring the prey alone (as is done in Oregon) was insufficient to determine the mechanism and reasons for increased cougar predation. Only by radio-collaring all sex and age classes of both predators and prey were we able to determine and remedy the cause of prey declines. It could well be that present cougar mortality in Oregon is already resulting in sexual segregation and prey-switching by females with cubs away from abundant elk to declining mule deer throughout eastern and central Oregon and from more abundant mule deer to very rare bighorn sheep at Steens mountain. If that is the case, increased cougar mortality could be increasing predation on those 2 declining species.

Research by my team showed that male cougars selected for abundant white-tails and elk. But that females with cubs avoided prey preferred by males.

Research conducted by ODFW also showed that male cougars preferred elk in NE Oregon and that females with cubs avoided elk and white-tailed deer and preferred mule deer (Clark et al., (2014), same as in our study areas. I hypothesize that high hunting mortality of cougars in Oregon could be causing prey switching by females with cubs and contributing to population declines of mule deer and big horn sheep in Oregon. We can test that hypothesis for mule deer by reducing cougar hunting mortality to less than 14% in select areas. If mule deer increase, not decrease, as expected, prey switching by females with cubs to mule deer is likely responsible. We can test that hypothesis for big horn sheep by radio collaring cougars. If females with cubs, not other sex age classes, select for bighorn sheep, then prey switching is likely responsible. Simultaneous radio-collaring of both predators and prey can confirm or reject the prey switching hypothesis, as was done in our study areas.

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