

**MONTANA FISH, WILDLIFE & PARKS  
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION**

**Species: Mountain Lion**  
**Region: 3**  
**Hunting District: 390 & 391**  
**Year: 2020-21**

- 1. Describe the proposed season / quotas changes and provide a summary of prior history (i.e., prior history of permits, season types, etc.).**

The proposal is to increase the total mountain lion quota from 10 to 11. No change is recommended to the current female subquota of 5. See table 1 for past HD 390 & 391 zone mountain lion harvest information.

- 2. What is the objective of this proposed change? This could be a specific harvest amount or resulting population level or number of game damage complaints, etc.**

The proposal is to increase the overall mountain lion quota in the lion management zone with the goal of reducing the zone mountain lion population to some extent.

- 3. How will the success of this proposal be measured? This could be annual game or harvest surveys, game damage complaints, etc.**

Mountain lion harvest information will be monitored via mandatory checks and MFWP's MRRE system. Future comments from houndsmen, landowners and hunters may help indicate what if any impact the quota changes have on the management zone's mountain lion population; although, the utility of lion sightings, houndsmen efforts, etc to actually detect a change in mountain lion populations is quite questionable (Robinson and Desimone 2011). Ages of harvested mountain lions will be monitored via pulled teeth to determine if the age structure of the mountain lion population particularly that of the male segment is being negatively impacted as a result of the quota increases. In addition, age information on harvested females can give use an idea of the percentage of adult females in the harvest which may provide an indication of harvest impacts on the overall population.

- 4. What is the current population's status in relation to the management objectives? (i.e., state management objectives from management plan if applicable; provide current and prior years of population survey, harvest, or other pertinent information).**

There is currently no official population management objective for mountain lions in this management zone. The Department has developed mountain lion population estimates for all the different mountain lion management zones in the state using a resource selection function model (Robinson et al. 2013). However, these estimates have not been validated in the various districts across the entire state, so it's unknown how accurate they are in the different districts or eco-regions of the state – some recent research and management experiences at the local level indicate that at least in some cases the model may not be that accurate. In addition, the estimates for the Big Belt Mountains area were done prior to a major boundary changes in HD 2016, so those estimates are no longer valid given the current HD boundaries.

Another way to estimate the lion population for the new management zone area is to estimate the population size based on some crude density estimates. Looking at where mountain lions have been harvested in the past and overlaying potential mountain lion habitat based on vegetation and topography with mule deer and elk winter range information in the two hunting districts, it is estimated that there may be approximately 1,232 km<sup>2</sup> of potential winter mountain lion habitat in the management zone. Based on published mountain lion research done elsewhere in Montana and the western United States and Canada, it appears that a total independent mountain lion ( $\geq 1.5$  yrs) density of somewhere in the range of approximately 3.75 lions/100km<sup>2</sup> of winter lion habitat may not be unreasonable for this area given its generally rugged topography, which would yield a total estimated independent mountain lion population size of approximately 46 lions. At an estimated independent mountain lion population size of 46, a total quota of 11 lions would yield a harvest rate

of approximately 23.9% of the independent population which is believed to be a sustainable harvest rate. Most lion populations typically have 2.5x – 3x as many sub-adult/adult females as sub-adult/adult males in the population. With that in mind, the estimated 46 independent mountain lions might be comprised roughly of 33 independent females and 13 independent males. If the current female sub-quota of 5 were filled this would be a 15.2% harvest rate on the estimated number of independent females which is believed to be within an acceptable range of female harvest mortality. Additional female mortality from other sources is quite likely.

Obviously, trying to extrapolate mountain lion densities to areas other than where the research was done must be approached with great caution. Mountain lion densities could be lower or higher than the numbers used above, which would of course impact population estimates. Unfortunately, not having any mountain lion population information, or having any mountain lion population research done in Montana east of the continental divide in habitats which may be similar to that found in the Big Belt Mountains, makes making biologically sound management decisions related to mountain lions rather difficult.

Harvest information for the zone is provided in Table 1.

**5. Provide information related to any weather/habitat factors, public or private land use or resident and nonresident hunting opportunity that have relevance to this change (i.e., habitat security, hunter access, vegetation surveys, weather index, snow conditions, and temperature / precipitation information).**

Lion habitat in the area is believed to be good overall with ample numbers of prey consisting of mule deer (numbers currently down on national forest lands), white-tailed deer and elk (above objective in the management zone) among big game species. Good prey numbers likely provide incentive for mountain lions to immigrate into the area which would help to maintain a healthy mountain lion population in regards to total numbers. Access in the zone varies with much of HD 390 being private land where access for mountain lion hunting is somewhat limited; although, many of the landowners that don't allow access for elk or mule deer hunting will allow some access for mountain lion hunting. HD 391 has a mixture of public (USFS) and private land where access is reasonable for mountain lion hunting. Access to areas where mountain lions might be found during the winter on USFS land is generally decent; although, it's believed that due to winter prey distribution many lions are probably found on or near private land in the district. Weather conditions may negatively affect mountain lion harvest, however, weather conditions the last couple of years have afforded lion hunters ample opportunity to harvest any available mountain lions.

Overall (resident and nonresident) hunter opportunity will be increased, as the quota change proposal will result in an increase in the total number of mountain lions allowed for harvest. Both the total quota and the female sub-quota are typically filled fairly quickly ('race' type situation) in the zone, if good snow conditions are present.

**6. Briefly describe the contacts you have made with individual sportsmen or landowners, public groups or organizations regarding this proposal and indicate their comments (both pro and con).**

FWP personnel from R3 met with a group of Region 3 houndsmen and other interested individuals in early-March to visit about potential mountain lion changes in the Region. At the meeting a recommendation to increase the overall quota by two with no changes to the female quota was discussed. No comments were received at the meeting regarding this proposal or the management zone in general. Comments received from contacted local Townsend area houndsmen on that original proposal were mixed, as some indicated that they were generally supportive of the proposal or at least okay with it while a couple others were opposed or at least had serious concerns about raising the total quota by two. Many local hunters and landowners think there are too many lions in the area and in part blame mountain lions for lower than desired mule deer populations on National Forest land. The original proposal was discussed with the local game warden, Josh Leonard, who was supportive of the proposal. As a result of comments and input received, the decision was made to revise the original recommendation of raising the total quota by two to only raising it by one. The female subquota will be recommended to remain unchanged.

**Literature Cited:**

Robinson et al. 2013. Linking resource selection and mortality modeling for population estimation of mountain lions in Montana. Final Report, Montana Department of Fish, Wildlife & Parks, Wildlife Division, Helena, MT, 81 pp.

Robinson, H.S. and R.M. DeSimone. 2011. The Garnet Range mountain lion study: Characteristics of a hunted population in west-central Montana. Final Report, Montana Department of Fish, Wildlife & Parks, Wildlife Bureau, Helena, MT. 102 pp.

Submitted by: **Adam Grove, Wildlife Biologist – Townsend**

Date: 3/9/2020

Approved: \_\_\_\_\_  
Regional Supervisor / Date

Disapproved / Modified by: \_\_\_\_\_  
Name / Date

Reason for Modification:

Table 1. Mountain lion harvest related information for mountain lion management zone 390 & 391 since 2016 boundary change.

		<b>Female</b>	<b>Female</b>	<b>Male</b>	<b>Total</b>		<b>Female</b>		<b>Season</b>	
<b>District</b>	<b>Lic. Year</b>	<b>SubQ</b>	<b>Harvest</b>	<b>Harvest</b>	<b>Quota</b>	<b>Total Harv</b>	<b>Closed</b>	<b>Days Open</b>	<b>Closed</b>	<b>Days Open</b>
<b>390 &amp; 391</b>	2016	5	5	9	10	<b>14</b>	12/6/2016	6	12/6/2016	6
	2017	5	6	9	10	<b>15</b>	12/17/2017	17	12/17/2017	17
	2018	5	3	8	10	<b>11</b>	12/24/2018	24	12/24/2018	24
	2019	5	3	7	10	<b>10</b>	12/18/2019	18	12/18/2019	18
	<b>Ave</b>	<b>5.0</b>	<b>4.3</b>	<b>8.3</b>	<b>10.0</b>	<b>12.5</b>		<b>16</b>		<b>16</b>

Note: Red numbers indicated quota over-runs.