

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION
Mountain Lion 2022
Mountain Lion HD 320 Boundary Change

Hunting Districts: 319 & 341

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

Combine HD 319 and HD 341. New HD will be named HD 319. See deer and elk boundary changes master list.

Increase Total Quota from 4 to 5. Keep female Subquota at 2. LMU will just be HD 319 (after incorporation of 341).

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION
Mountain Lion 2022
Mountain Lion HD 320 Boundary Change

Hunting Districts: 320

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

Adjust the boundary to mountain lion Hunting District 320.

- 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.**

Statewide regulations simplification.

**MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION
Mountain Lion 2022
Combine Gravely Mountain Lion HDs**

Hunting Districts: 322, 323, 324, 325, 326, 327, 330

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

Combine mountain lion hunting districts 322/326/330 and 323/324/326/330 into one hunting district named 322,

Quota: 12;

Female Sub-quota 4;

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.

Statewide regulations simplification.

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION
Mountain Lion 2022
Add HD 390 to HDs 312 & 393 LMU

Hunting Districts: 312, 390, 393

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 add the new HD 390 (area between the Missouri River and U.S. Hwy 287 in the current D/E HD 380 added to the existing D/E HD 390) to the current HDs 312 and 393 mountain lion management unit (LMU). The new LMU total proposed quota would be 13 with a female subquota of 6. The new proposed quotas were derived from adding the existing LMU 312 & 393 quotas to the average total and female harvest in HD 390 since 2016.

New LMU Legal Description:

Those portions of Broadwater, Gallatin, Meagher and Park Counties encompassing deer/elk hunting districts 312, 390, and 393 lying within the following-described boundary: Beginning at the junction of I-90 and its intersection with U.S. Hwy 287 near Three Forks, then southeasterly along said interstate to its junction with Heeb Road, east on Heeb Road to Highway 10, southeasterly along Highway 10 to Weaver Road, then east on Weaver Road to its intersection with Hamilton Road at Highway 290, then east and north on Hamilton Road to Wes Davis Road, then east and south on Wes Davis Road to Penwell Bridge Road, then east on Penwell Bridge Road to Walker Road, then south on Walker Road to East Baseline Road, east on Baseline East Road to Bostwick Road, south on Bostwick Road, to Saddle Mountain Road, west on Saddle Mountain Road to Summer Cutoff Road, south on Summer Cutoff Road to Sypes Canyon Road, southeasterly on Sypes Canyon Road to Rolling Hills Road, south on Rolling Hills Road to Lookfar Way, south on Lookfar Way to Deer Creek Drive, south on Deer Creek Drive to Story Mill Road, then southeasterly on Story Mill Road to L Street, then south on L Street to its intersection with Rocky Creek, then southeasterly along Rocky Creek, then southerly to Bear Canyon-Interstate 90 Interchange, then easterly along Interstate 90 to the Yellowstone River at Livingston, then easterly along said river to its junction with U.S. Hwy 89, then northerly along said highway to its junction with Sixteen Mile Creek near Ringling, then southeasterly along said creek to the Meagher-Gallatin county line, then northerly along said line to the Broadwater-Meagher County line, then northerly along said line to the Dry Creek Road, then westerly along said road to the Dry Creek cut-off road, then northerly along said road to the Ridge Road, then westerly along said road to its junction with Greyson Creek, then westerly along Greyson Creek to the east bank of the Missouri River, then southerly along the east bank of said river to its junction with U.S. Hwy 287 near Toston, then southerly along said highway to its junction with I-90 near Three Forks, the point of beginning.

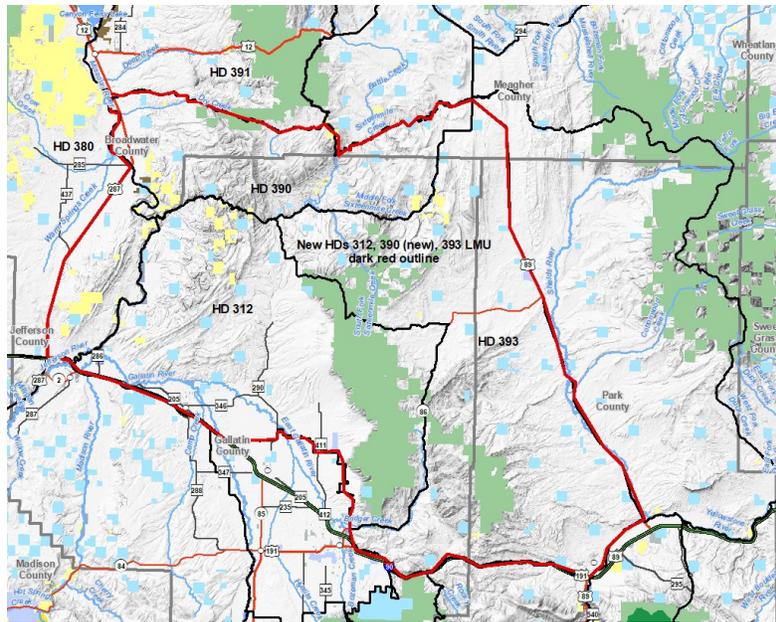


Figure 1: New HDs 312, 390, 393 LMU.

The proposal is to increase the overall size of the LMU and to have it more closely resemble the Bridger elk management unit (EMU) which HDs 312, 390 and 393 are all part of. Managing HD 390 mountain lions in a unit that includes HDs 312 and 393 (Bridger Mtns) makes more biological sense than having HD 390 included with HD 391 (Big Belt Mountains) which it has been for years, given that HDs 390, 312 and 393 are all in the same EMU. In addition, HDs 312, 390 and 393 are all part of the southwest ecoregion under the Montana Mountain Lion Monitoring & Management Strategy (2019), while HD 391 is part of the west-central ecoregion.

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. Ages of harvested mountain lions will be monitored via pulled teeth. Age information on harvested females can give 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 proposed new LMU, nor in any of the existing LMUs in Region 3. Management objectives for the new LMU and/or for the southwest ecoregion will be developed once lion population/density estimates have been made for the southwest ecoregion. 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.

See attached figures for quota and harvest information related to LMU 312 & 393 and HD 390.

Table 1. Mountain lion harvest related information for mountain lion management unit 312 & 393

DISTRICTS	HUNT YEAR	FEMALE QUOTA	FEMALE TAKEN	MALE QUOTA	MALES TAKEN	QUOTA TOTAL	TOTAL HARVEST	FEMALE CLOSED	MALE CLOSED	SEASON CLOSED
312 & 393	1995	3	2		6	7	8			1/10/96
	1996	3	1		6	7	7			1/7/97
	1997	3	4		3	7	7	12/11/97		12/16/97
	1998	4	4		7	10	11	12/29/98		1/12/99
	1999	4	4		6	10	10	12/25/99		1/31/00
	2000	4	4		6	10	10	12/13/00		1/6/01
	2001	4	4		5	10	9	1/9/02		
	2002	4	5		4	10	9	1/18/2003		
	2003	4	4		4	8	8			1/26/2004
	2004	4	4		1	8	5	1/4/2005		4/14/2005
	2005	2	1		4	8	5	1/12/2006		4/14/2006
	2006	1	1		4	5	5	12/5/2006		2/13/2007
	2007	1	2		3	5	5	12/24/2007		12/25/2007
	2008	1	1		6	5	7	1/4/2009		1/12/2009
	2009	1	1		4	5	5	11/21/2009		3/16/2010
	2010	1	1		4	5	5	12/6/2010		12/27/2010
	2011	1	1		4	5	5	12/7/2011		2/3/2012
	2012	2	3		5	7	8	1/1/2013		4/11/2013
	2013	2	1		6	7	7			12/31/2013
	2014	2	2		5	7	7	12/18/2014		3/6/2015
	2015	2	3		4	7	7	12/18/2015		12/28/2015
2016	2	2		5	7	7	1/14/2017		1/27/2017	
2017	4	3		4	9	7			4/14/2018	
2018	4	4		7	9	11	1/27/2019		1/27/2019	
2019	4	3		6	9	9	1/5/2020		4/14/2020	
2020	4	3		6	9	9				

Note: Red numbers indicate quota over-runs.

Figure 1: HDs 312_393 LMU quota and harvest information.

Table 2: Mountain lion harvest in HD 390 since 2016

Year	Total Harvest	Male Harvest	Female Harvest
2016	3	2	1
2017	7	4	3
2018	3	3	0
2019	3	0	3
2020	3	1	2
Average	3.8	2	1.8

Figure 2: HD 390 mtn lion harvest information since 2016.

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, 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. HDs 312 and 393 are a mixture of public (USFS) and private land where access varies for mountain lion hunting. Access to areas where mountain lions might be found during the winter on USFS land also varies; 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 generally afforded lion hunters ample opportunity to harvest any available mountain lions. Given that the proposed quotas are just a combination of existing quotas/harvest levels, overall (resident and nonresident) hunter opportunity shouldn't be impacted either way.

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).

There has been discussion over the last several years about combining these three hunting districts for mountain lion management with some houndsmen being supportive of the idea and some being opposed to the idea. Again, given that the three HDs are all within the southwest ecoregion, it makes more sense for HD 390 to be combined with HDs 312 & 393 then with HD 391 which is in the west-central ecoregion.

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.

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION
Mountain Lion 2022
HD 380 mountain lion LMU boundary change

Hunting Districts: 380

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 change the mountain lion HD 380 LMU boundary to match the proposed new D/E HD 380 boundary.

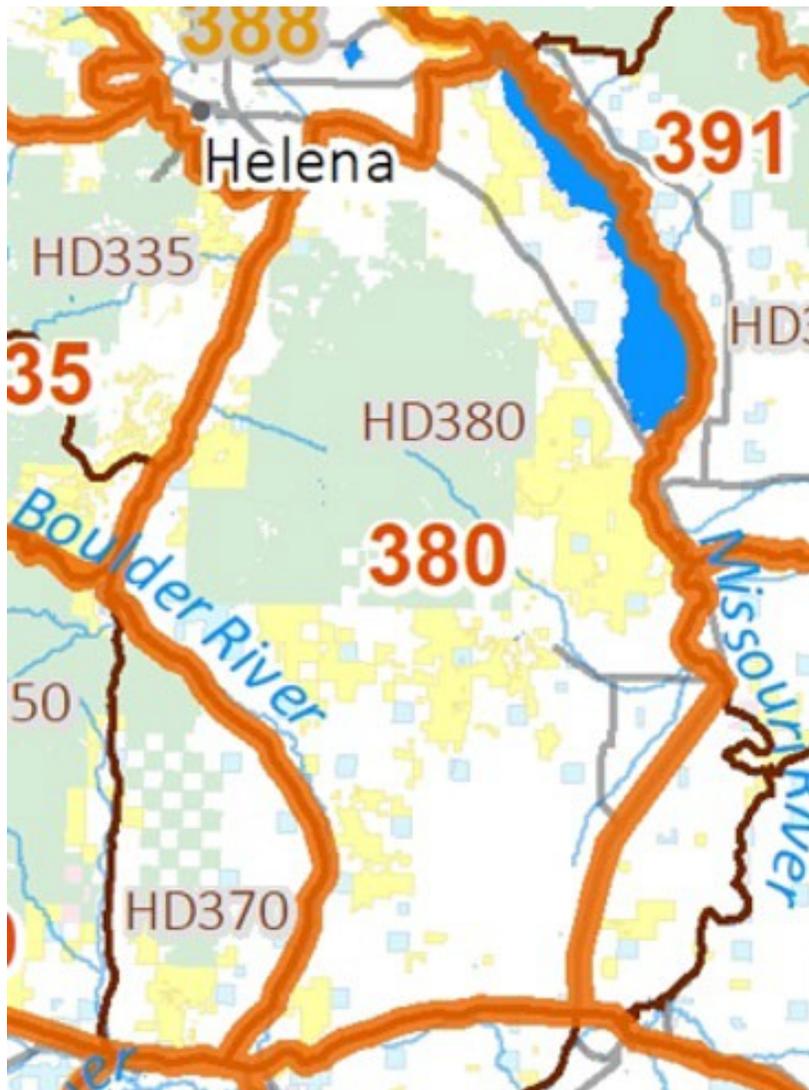


Figure 1: New HD 380 mountain lion LMU boundary.

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 objective of the proposed change is to have similar HD boundaries across species where possible.

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

NA

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).

The change will have no population related impacts, given that the area being removed from HD 380 is being added to HD 390. If there are any mountain lions in that area, they can be hunted in HD 390 which will be part of the new HDs 312, 390 and 393 LMU.

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).

The proposed boundary change should not affect resident and nonresident hunting opportunity in the HD, as mountain lion hunting opportunity in the affected area is currently limited by access and lion numbers. In addition, the area proposed to be removed from HD 380 (area between Missouri River and U.S. Hwy 287) will be open for mountain lion hunting in the new proposed HDs 312, 390 and 393 LMU.

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).

No public comments were received during the initial public comment period regarding mountain lions relative to the proposed D/E HDs 380 and 390 boundary change proposals. Although, people may not have realized that the proposed D/E boundary changes would also affect mountain lion LMUs.

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION
Mountain Lion 2022
Add HD 391 to HD 392 LMU

Hunting Districts: 391, 392

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 combine HDs 391 and 392 into a new mountain lion management unit (LMU). The new LMU total proposed quota would be 11 with a female subquota of 4. The new proposed quotas were derived from adding the existing LMU 390 & 391 (minus average harvest in HD 390 since 2016) quota to the existing LMU 392 quota. Since both HDs 390 (added to HDs 312 and 393 LMU) and HD 391 were added to other existing LMUs, the HD 390 and 391 LMU will be removed.

Those portions of Broadwater and Lewis and Clark Counties encompassing deer/elk HDs 391 and 392 lying within the following described boundary: Beginning at the mouth of Meriwether Canyon on the Missouri River, then northeasterly up the Meriwether Canyon-Mann Gulch Divide to the Meriwether Canyon-Willow Creek Divide, then northeasterly along said divide to Willow Mountain, then southeasterly along the Slip Gulch-Meriwether Canyon-Big Log Gulch Divide to Bear Prairie, then northeasterly along the Candle Gulch-Hunters Gulch Divide to Candle Mountain, then easterly along the Willow Creek-Hunters Gulch-Moors Creek Divide to Moors Mountain, then northeasterly along the Willow Creek-Elkhorn Creek-Porcupine Creek Divide to the posted Beartooth Wildlife Management Area-Gates of the Mountains Wilderness Area boundary, then south and east along the Gates of the Mountains Wilderness Area and national forest boundary to the Beaver Creek Road (USFS Rd #138) in Section 23, then easterly along said road to the Lewis and Clark-Meagher County Line, then southerly and easterly along said county line to the Meagher-Broadwater County line, then southerly along said line to its junction with the Dry Creek Road, then westerly along said road to its junction with the Ridge Road, then northerly and westerly along said road to Greyson Creek, then westerly along said creek to the east bank of the Missouri River, then northerly along the east bank of the Missouri River, and then the east bank of Canyon Ferry Reservoir, and then the east bank of the Missouri River again to the mouth of Meriwether Canyon the point of beginning.

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 combine HDs 391 and 392 into a new LMU. The two HDs will be proposed to be combined to form the West Big Belts elk management unit under the Department's new Elk Plan. This is provided FWP continues to have EMUs under the new elk plan. Managing those two HDs (Big Belt Mountains) for mountain lions makes more biological sense than having HDs 390 (Bridger Mountains) and 391 combined and HD 392 in its own LMU. In addition, HDs 391 and 392 are part of the west-central ecoregion, while HD 390 is in the southwest ecoregion under the Montana Mountain Lion Monitoring & Management Strategy (2019), while HD 391 is part of the west-central ecoregion.

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. Ages of harvested mountain lions will be monitored via pulled teeth. Age information on harvested females can give 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 proposed new LMU, nor in any of the existing LMUs in Region 3. Management objectives for the new LMU and/or for the west-

central ecoregion will be developed once lion population/density estimates have been made for the west-central ecoregion. The Department developed mountain lion population estimates for all the different mountain lion management zones in the state in the past using a resource selection function model (Robinson et al. 2013). However, these estimates have never 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.

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 very good overall with ample numbers of prey consisting of mule deer, white-tailed deer, and elk 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, HD 391 is approximately 60% private land where access for mountain lion hunting varies; although, many of the landowners that don't allow access for elk or mule deer hunting will often allow some access for mountain lion hunting – in the past access for mountain lion hunting in HD 391 hasn't been an issue. HD 392 is over 90% public land, so access is very good. Weather conditions may negatively affect mountain lion harvest. However, weather conditions the last couple of years have generally afforded lion hunters ample opportunity to harvest any available mountain lions. Given that the proposed quotas are just a combination of existing quotas/harvest levels, overall (resident and nonresident) hunter opportunity shouldn't be impacted either way.

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).

There has been discussion over the last few years about possibly combining these two hunting districts for mountain lion management, with some houndsmen being supportive of the idea and some being opposed to the idea. Again, given that the two HDs are within the west-central ecoregion, it makes more sense going forward for the two HDs to be combined, then having HD 391 combined with HD 390 which is in the southwest ecoregion.

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.

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION
Mountain Lion 2022
LMU 422, 424, 425 & 442 Change

Hunting Districts: 422, 423, 424, 425, 442, 450

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

Remove HD 423 from the southern RMF LMU and add HD 450. Remove HD 450 from LMU 404 and 444. Create LMU 421 and remove HD 421 from LMU 404 and 444. All based on boundary changes being proposed related to the deer/elk HDs and reflecting appropriate lion management related to such (further described in this justification).

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 objective of this proposed change serves to align LMU's with new deer/elk HD boundaries as well as adjust quota levels related to the LMU boundary changes. Current deer/elk HDs 421 and 423 are proposed to be combined into one HD (421) and as such, this proposal seeks to create an LMU specific to this area. In combination with this change, this would effectively remove current HD 423 from the southern RMF LMU (HDs 422, 424, 425 and 442) as well as remove HD 421 from the LMU that includes HDs 444, 404 and 450. Lastly and given the proposed deer/elk HD boundary adjustment related to HDs 442 and 450, 450 would be added into the southern RMF LMU. To summarize, proposed changes would produce three LMU's that would include 1), HDs 422, 424, 425, 442, 450; 2) HDs 421 and 423; 3) HDs 404 and 444. All of these HDs have current general license lion hunting opportunity based on quota systems. Necessary quota adjustment are also proposed as part of this change (see population status in relation to management objectives section for further information).

These changes take into account current known lion demographic data related to harvest prescriptions as has been more thoroughly described in most recent quota justifications in recent years. This proposed change is likely the last proposed modification for these LMUs before full implementation of the recently adopted MT mountain lion monitoring and management strategy (MFWP, 2019). Implementation of this management direction within this area (west-central ecoregion) is scheduled to take affect over the next couple years. The strategy is designed to provide systematically collected, robust data to improve and inform population modeling efforts which can then be used to prescribe harvest quotas more confidently across ecoregions (MFWP, 2019).

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

Success of this proposal will be measured by various harvest data, newly adopted population monitoring techniques (to be implemented), general public (hunter/houndsmen) satisfaction and to some limited degree, big game prey species performance (recruitment/survivorship). It is also important to note that these quota levels are not necessarily perceived as harvest 'targets' to reach each year. Rather, potential harvest caps to limit significant long-term impacts to the overall mountain lion population within the entire LMU. There are also significant areas in which little to no lion hunting occurs within these LMUs which serves as emigration sources to those areas that have heavier hunting harvest.

Given these proposed changes, keeping tabs on harvest distribution related to quota levels as a whole and/or between sexes is also important. In time, management strategies better informed by the mountain lion management strategy direction should help to refine quota levels as/if necessary within these LMUs.

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 these LMUs. This is in large part due to the lack of good techniques currently available to get reliable estimates of mountain lion populations without spending significant time and money – although again, this will change in the coming years given the new Strategy and should significantly improve our knowledge base related to this. In the meantime and as has been more thoroughly described in more recent quota level justifications related to these LMUs, harvest quota prescriptions continue to be based on gauging population estimates based off of statewide research data, generally accepted lion population information, habitat influences and harvest data (Robinson et al. 2011 and 2013, Williams 1992). Using some of this information along with looking at density estimates based on other research there is some potential to gain rough estimates of population size for this LMU and subsequent effects of harvest on local area populations. Such estimates do come with some level of variability since research completed elsewhere may not correlate the same to another area/habitat.

Without getting into these details (see previous quota justifications), and using previous harvest levels related to these areas (attempting to parcel out more recent harvest and hunter opportunity per LMU), the proposed quota levels for each LMU will be as follows:

LMU 422, 424, 425, 442 and 450 – males 5, females 3 (total quota = 8)

This reflects removing HD 423 harvest from this LMU and adding 450. Based on recent 3- and 5-year average, harvest within HD 423 amounts to approximately 2 males and 2 females per year. Very little, if any harvest occurs in HD 450 from year to year. Given the current quotas for this area is 7 males and 5 females, reducing each of this subquota's by 2 is appropriate. Lion hunting has a significant interest in this area with certain areas getting significantly more pressure than others. Among other factors, providing a balance of hunting/houndsmen opportunity while maintaining lion populations as well as prioritizing limiting conflict given rural, residential human presence is important.

LMU 421 and 423 – males 3, females 3 (total quota = 6)

As is described above for HD 423 harvest and based on recent 3- and 5-year average harvest within HD 421 (one female and less than one male), proposing a 3 male/3 female quota for this area is appropriate. Lion hunting does occur in this area with certain areas getting more pressure than others. Providing a balance of hunting/houndsmen opportunity while maintaining lion populations as well as prioritizing limiting conflict given rural, residential human presence is important.

LMU 404 and 444 – males 2, females 2 (total quota = 4)

Very little if any harvest typically occurs in these areas. Lions present in this area are considered more transient in nature with little harvest opportunity or interest from lion hunters. However, tolerance for lions in this area is likely less given generally poor quality lion habitat and increased likelihood for conflict related to rural human presence. Maintaining some level of potential harvest opportunity is important to limit lion presence in this area.

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).

Outside of LMU 404/444, lion habitat in these areas is believed to be good to excellent with generally good number of prey consisting of mule deer, white-tailed deer, elk and bighorn sheep among big game species. Access in these hunting districts for mountain lion hunting is fair to good, with some restrictions due to the low density of publicly accessible roads in the area. These limited access areas along with high use areas may also cause certain areas to portray source/sink population dynamics. The limited accessibility of much of the area to lion hunters could also be one of the primary reasons that mountain lion harvest in these hunting districts has at times historically been somewhat low.

Weather conditions can negatively affect mountain lion harvest, however, it is believed that weather conditions the last few years have afforded lion hunters ample opportunity to harvest available mountain lions. Other considerations and concerns about lion presence in "nontraditional" habitats or in those environments where tolerance for lions is very low (cities, towns, subdivisions, etc.) has influenced quota numbers in the past. There are some concerns of lion activity in/around these "nontraditional" habitats.

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).

Very limited contacts have been made regarding these proposed changes. Given this change is geared primarily towards adjustments reflected in deer/elk HD boundaries, little on the ground change is expected related to hunting/harvest limitations. Limited anecdotal comments received from various big game hunters over the past couple years point to at least a perceived healthy lion presence in this LMU. Discussions with some local lion hunters and houndsmen indicate a decline in lion observations and harvest success the last couple years, especially towards portions of LMU 422, 424, 425, 442 and 450. Monitoring harvest distribution and quota closure status in future years will be important. To date, there have been limited contacts with landowners and lion depredation events on livestock are typically very low in this LMU.

References:

- MT. Fish, Wildlife & Parks. February 2019. Montana Mountain Lion Monitoring & Management Strategy. 139 pp.
- Robinson, H., Ruth, T., Gude, J., Choate, D., DeSimone, R., Hebblewhite, M., Kunkel, K., Matchett, M.R., Mitchel, M., Murphy, K., and Williams, J. April, 2013. Linking Resource Selection and Mortality Modeling For Population Estimation of Mountain Lions in Montana. Final Report.
- 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.
- Williams, J. S. 1992. Ecology of Mountain Lions in the Sun River Area of Northern Montana. M.S. Thesis, Montana State University, Montana. 109 pp.

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION
Mountain Lion 2022
Create LMU 421

Hunting Districts: 421 (& 423)

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

Remove HD 423 from the southern RMF LMU and add HD 450. Remove HD 450 from LMU 404 and 444. Create LMU 421 and remove HD 421 from LMU 404 and 444. All based on boundary changes being proposed related to the deer/elk HDs and reflecting appropriate lion management related to such (further described in this justification).

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 objective of this proposed change serves to align LMU's with new deer/elk HD boundaries as well as adjust quota levels related to the LMU boundary changes. Current deer/elk HDs 421 and 423 are proposed to be combined into one HD (421) and as such, this proposal seeks to create an LMU specific to this area. In combination with this change, this would effectively remove current HD 423 from the southern RMF LMU (HDs 422, 424, 425 and 442) as well as remove HD 421 from the LMU that includes HDs 444, 404 and 450. Lastly and given the proposed deer/elk HD boundary adjustment related to HDs 442 and 450, 450 would be added into the southern RMF LMU. To summarize, proposed changes would produce three LMU's that would include 1), HDs 422, 424, 425, 442, 450; 2) HDs 421 and 423; 3) HDs 404 and 444. All of these HDs have current general license lion hunting opportunity based on quota systems. Necessary quota adjustment are also proposed as part of this change (see population status in relation to management objectives section for further information).

These changes take into account current known lion demographic data related to harvest prescriptions as has been more thoroughly described in most recent quota justifications in recent years. This proposed change is likely the last proposed modification for these LMUs before full implementation of the recently adopted MT mountain lion monitoring and management strategy (MFWP, 2019). Implementation of this management direction within this area (west-central ecoregion) is scheduled to take affect over the next couple years. The strategy is designed to provide systematically collected, robust data to improve and inform population modeling efforts which can then be used to prescribe harvest quotas more confidently across ecoregions (MFWP, 2019).

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

Success of this proposal will be measured by various harvest data, newly adopted population monitoring techniques (to be implemented), general public (hunter/houndsmen) satisfaction and to some limited degree, big game prey species performance (recruitment/survivorship). It is also important to note that these quota levels are not necessarily perceived as harvest 'targets' to reach each year. Rather, potential harvest caps to limit significant long-term impacts to the overall mountain lion population within the entire LMU. There are also significant areas in which little to no lion hunting occurs within these LMUs which serves as emigration sources to those areas that have heavier hunting harvest.

Given these proposed changes, keeping tabs on harvest distribution related to quota levels as a whole and/or between sexes is also important. In time, management strategies better informed by the mountain lion management strategy direction should help to refine quota levels as/if necessary within these LMUs.

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 these LMUs. This is in large part due to the lack of good techniques currently available to get reliable estimates of mountain lion populations without spending significant time and money – although again, this will change in the coming years given the new Strategy and should significantly improve our knowledge base related to this. In the meantime and as has been more thoroughly described in more recent quota level justifications related to these LMUs, harvest quota prescriptions continue to be based on gauging population estimates based off of statewide research data, generally accepted lion population information, habitat influences and harvest data (Robinson et al. 2011 and 2013, Williams 1992). Using some of this information along with looking at density estimates based on other research there is some potential to gain rough estimates of population size for this LMU and subsequent effects of harvest on local area populations. Such estimates do come with some level of variability since research completed elsewhere may not correlate the same to another area/habitat. Without getting into these details (see previous quota justifications), and using previous harvest levels related to these areas (attempting to parcel out more recent harvest and hunter opportunity per LMU), the proposed quota levels for each LMU will be as follows:

LMU 422, 424, 425, 442 and 450 – males 5, females 3 (total quota = 8)

This reflects removing HD 423 harvest from this LMU and adding 450. Based on recent 3- and 5-year average, harvest within HD 423 amounts to approximately 2 males and 2 females per year. Very little, if any harvest occurs in HD 450 from year to year. Given the current quotas for this area is 7 males and 5 females, reducing each of this subquota's by 2 is appropriate. Lion hunting has a significant interest in this area with certain areas getting significantly more pressure than others. Among other factors, providing a balance of hunting/houndsmen opportunity while maintaining lion populations as well as prioritizing limiting conflict given rural, residential human presence is important.

LMU 421 and 423 – males 3, females 3 (total quota = 6)

As is described above for HD 423 harvest and based on recent 3- and 5-year average harvest within HD 421 (one female and less than one male), proposing a 3 male/3 female quota for this area is appropriate. Lion hunting does occur in this area with certain areas getting more pressure than others. Providing a balance of hunting/houndsmen opportunity while maintaining lion populations as well as prioritizing limiting conflict given rural, residential human presence is important.

LMU 404 and 444 – males 2, females 2 (total quota = 4)

Very little if any harvest typically occurs in these areas. Lions present in this area are considered more transient in nature with little harvest opportunity or interest from lion hunters. However, tolerance for lions in this area is likely less given generally poor quality lion habitat and increased likelihood for conflict related to rural human presence. Maintaining some level of potential harvest opportunity is important to limit lion presence in this area.

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).

Outside of LMU 404/444, lion habitat in these areas is believed to be good to excellent with generally good number of prey consisting of mule deer, white-tailed deer, elk and bighorn sheep among big game species. Access in these hunting districts for mountain lion hunting is fair to good, with some restrictions due to the low density of publicly accessible roads in the area. These limited access areas along with high use areas may also cause certain areas to portray source/sink population dynamics. The limited accessibility of much of the area to lion hunters could also be one of the primary reasons that mountain lion harvest in these hunting districts has at times historically been somewhat low.

Weather conditions can negatively affect mountain lion harvest, however, it is believed that weather conditions the last few years have afforded lion hunters ample opportunity to harvest available mountain lions. Other considerations and concerns about lion presence in "nontraditional" habitats or in those _____

environments where tolerance for lions is very low (cities, towns, subdivisions, etc.) has influenced quota numbers in the past. There are some concerns of lion activity in/around these “nontraditional” habitats.

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).

Very limited contacts have been made regarding these proposed changes. Given this change is geared primarily towards adjustments reflected in deer/elk HD boundaries, little on the ground change is expected related to hunting/harvest limitations. Limited anecdotal comments received from various big game hunters over the past couple years point to at least a perceived healthy lion presence in this LMU. Discussions with some local lion hunters and houndsmen indicate a decline in lion observations and harvest success the last couple years, especially towards portions of LMU 422, 424, 425, 442 and 450. Monitoring harvest distribution and quota closure status in future years will be important. To date, there have been limited contacts with landowners and lion depredation events on livestock are typically very low in this LMU.

References:

- MT. Fish, Wildlife & Parks. February 2019. Montana Mountain Lion Monitoring & Management Strategy. 139 pp.
- Robinson, H., Ruth, T., Gude, J., Choate, D., DeSimone, R., Hebblewhite, M., Kunkel, K., Matchett, M.R., Mitchel, M., Murphy, K., and Williams, J. April, 2013. Linking Resource Selection and Mortality Modeling For Population Estimation of Mountain Lions in Montana. Final Report.
- 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.
- Williams, J. S. 1992. Ecology of Mountain Lions in the Sun River Area of Northern Montana. M.S. Thesis, Montana State University, Montana. 109 pp.

**MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION
Mountain Lion 2022
R4 Lion Move HD446**

Hunting Districts: 446

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

Add HD446 to the Big Belt Mountains LMU that currently only includes HDs 445 and 455.

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.

HD446 is currently included in an LMU bundle of HDs primarily composed of Little Belt and Castle Mountain HDs. HD446 is located on the east side of the Big Belt Mountains and is more biologically connected to HDs 445 and 455, also in the Big Belt Mountains.

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

Mountain lion management in the Big Belt EMU will improve because it will occur within a physically contiguous area of mountain lion habitat.

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).

The Dept. has not yet developed numeric lion population objectives. Because the Little Belt/Castles LMU quotas often fill quickly, very little harvest opportunity has been available for HD446, and that HD produces an average of only 1 mountain lion harvest per year over the last 5 years. Harvest quotas in current LMU445/455 are met much less often. FWP is not proposing to change the current harvest quotas in either the Little Belt/Castles LMU or the Big Belt LMU as part of this proposal.

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 harvest opportunity in the HD446 portion of the Big Belt LMU is expected to increase because the season is unlikely to close as quickly as a result of hunter harvest in the Little Belt/Castle Mountains LMU (as it does currently). Lion numbers are robust in both the Little Belts/Castle and Big Belt Mountains.

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).

This proposal has local landowner support and was released for initial public review. FWP has not yet received substantive public comment on the proposal to date.

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION
Mountain Lion 2022
Lion Management Unit 525, 555, 565

Hunting Districts: 525 555, 565

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

In moving ahead with the Mountain Lion Management Plan and to simplify regulations this proposal is to combine the three hunting districts south of the Yellowstone River that are encompassed by the Southwest Ecoregion into one lion management unit. While lion populations appear to have increased in this portion of the Southwest Ecoregion, age structure has decreased over time. Average age of harvested males has declined from 5 years of age to 3 years old over the last 20+ years. The intent is to reduce male harvest to increase the number of mature males. At the same time female harvest should be increased to stabilize the rate of population growth. Thus the need for individual male and female quotas.

Over the last 10 years the average male harvest for these three hunting districts has been 9 lions, while the average female harvest has been 4.5 lions for an overall average of 13.5 lions. This proposal would be for a male harvest quota to 6 and a female harvest quota of 9. Filling each quota would result in an increase in the total lion harvest of 11% and a doubling of the female harvest. The majority of this harvest would likely come from the Boulder River drainage and the Red Lodge Creek/Butcher Creek areas.

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.

Increase harvest of females and decrease harvest of males. Increase average age of harvested males.

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

Harvest by sex and age class is determined through the mandatory check of each lion harvested.

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).

The lion population in this area appeared to peak in the late 1990s and then decline through 2010. Over the last 10 years there appears to have been an increase in the population. Anecdotal reports from hunters also reflect that lion numbers are increasing. Relatively high harvest levels, especially of males, has resulted in the average age of lions harvested declining from 5 years of age to 3 years of age. Currently hunters have little opportunity to harvest a mature lion.

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).

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).

Numerous complaints are received annually about the increased number of lions sportsman are encountering. We frequently field requests for increased lion harvest particularly in the western portion of this management unit.

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION
Mountain Lion 2022
Update Deer/Elk HD numbers add 511

Hunting Districts: 502, 515, 535, 575, and 590

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

The Montana Mountain Lion Monitoring and Management Strategy defines the Region 5 Eastern Ecoregion as Deer/Elk HDs 500, 502, 530, 570, 575 and 590. Four of these Deer/Elk HDs are proposed to be combined into two HDs, therefore we need to update the Region 5 Eastern Ecoregion as Deer/Elk HDs 502, 515, 535, 575, and 590. This change adds old Deer/Elk HD511 into the Eastern Ecoregion. Therefore we need to add the 4 lions from the 511 quota to the Eastern Ecoregion quota of 23 for a new combined quota of 27 Either-Sex Winter Lion Quota.

These HDs are primarily made up of private land. The lion management strategy in these HDs is to have season types that maximize private landowner's flexibility to manage lions on their property. As such lions in these HDs have long been managed with a liberal quota.

The Montana Mountain Lion Monitoring and Management Strategy raises the possibility of simplifying lion season structure by managing on an ecoregion basis. This proposal simplifies regulations by combining HDs 502, 515, 535, 575, and 590 into one management unit with a single lion harvest quota for the entire R5 Eastern Ecoregion.

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 objective of this proposal is to align lion districts with the new deer/elk districts that were created to simplify regulations. LMU's are defined by deer/elk districts. When deer/elk districts are combined, LMU's must be adjusted as well. The objective is to simplify harvest regulations, while maintaining a stable mountain lion population across the R5 lion Eastern Ecoregion.

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

Harvest by sex and age class is determined through the mandatory check of each lion harvested.

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).

For the R5 Eastern Ecoregion harvest rates are generally stable over time with slight increase in some portions of the ecoregion offset by slight decreases in other portions. The harvest objective is to maintain this stable trend.

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).

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).

Complaints about mountain lion conflicts used to occur in the R5 Eastern Ecoregion before we switched to managing these HDs together under one quota. Through the increased flexibility of managing at the larger scale those conflicts have largely been resolved. Adding the former HD511 (new HD535 combination) into this Ecoregion will expand that flexibility.