Welcome to the Comeback Trail

The Fortymile caribou herd has grown steadily for nearly 40 years. That growth is a result of the efforts of many people who worked to bring the herd to where it is today.

This success has brought new challenges for hunt managers. While increasing the herd provides more hunting opportunities, it also means more hunters, leading to more crowding and conflicts. Road crossings and caribou gathering along roads during the hunting season continues to be the biggest challenge for Fortymile hunt managers.

Research shows fall calf weights and the percentage of cows having their first calf at three years of age is in decline, potentially indicating nutritional stress. Additionally, researchers and managers found that the herd has not expanded its calving and summer ranges as quickly as its winter range, resulting in increased caribou densities and a higher likelihood of overgrazing on the summer range.

Unless the herd begins expanding its calving and summer range to some of the adjacent historically used areas, it may become necessary to stop population growth (stabilize the herd) to maintain adequate nutrition. In the meantime, researchers and managers are keeping a close eye on the herd by measuring changes in herd size, distribution and range use, nutrition, productivity, and survival.

We appreciate all the insightful ideas for managing the Fortymile caribou herd provided by the public throughout the years. Changing from a registration to a drawing hunt, for example, is an often-repeated recommendation. To find out why this is not currently possible, and to understand how and why the Fortymile caribou herd is managed as it is, read on! We hope you spend some time learning about this complex, yet intriguing herd.

The future of the herd

The goals of the Fortymile Caribou Herd Harvest Plan 2012–2018 include:

Goal 1: Promote continued growth and restore the herd to its historic range in both Alaska and Yukon to the extent possible without compromising herd health.

Goal 2: Increase the allowable harvest of the herd as the herd grows and as the herd can sustain harvest within the restraints of Goal 1.

Goal 3: Provide reasonable opportunity for Alaska subsistence uses.

Goal 4: Manage Alaska hunts to allow opportunity for nonsubsistence hunters while staying within the constraints of all other goals and objectives.

To learn more about the Fortymile Caribou Herd Harvest Plan (2012–2018), the Harvest Management Coalition, and how the herd is managed go to page 8.

This publication was paid for by hunters and trappers, founders of the modern conservation movement.
A brief but important history

The Fortymile caribou herd is known for its extreme decline in numbers and range size. ADF&G biologists estimate that the herd size dropped from a peak of about 260,000 caribou in the early 1920s to 6,500 in 1973. When the herd size was at its lowest, about 90% of the historic range was abandoned, including areas within the herd's range accessible by the road system along the Steese Highway north of Fairbanks.

From recent and historic literature, ADF&G biologists believe that at least three factors contributed to declining Fortymile herd numbers:

1. reduced caribou nutrition possibly due to overgrazing;
2. heightened predation by wolves as the herd declined; and
3. excessive harvest of caribou during the early 1970s.

A lack of wolves in the 1920s may have led to an unnaturally high population

During the early 1920s there was a notable scarcity of wolves. For example, biologist Adolf Murie did not observe any wolf tracks during his extensive travels by dog sled across Interior Alaska in the winter of 1922–1923, including his travels through the Fortymile winter range. This reduction in wolf numbers may have been due to disease introduced by sled dogs that accompanied the pioneer mining industry in the late 1800s and early 1900s.

If wolves had been abundant in the early 1920s, it is likely that the Fortymile herd would have remained well below the historic highs. Instead, the absence of wolves likely allowed the herd to increase rapidly and peak well above sustainable levels. Similar changes were seen following a reduction in wolf numbers from an intensive wolf control program from 1975 to 1982 within the adjacent Delta caribou herd, allowing them to double in size in only five years.

Success growing the herd...

Since 1995 a goal of all groups working on the Fortymile caribou herd has been to "promote continued growth and restore the herd to its historic range in both Alaska and Yukon to the extent possible without compromising herd health." In 1995 there were about 22,000 caribou, and the herd was recovering from an all-time low of just over 6,000 in 1973. In 2010 the herd numbered over 51,000. Although the 2010 photocensus is the most recent census of the herd, a different method was used in 2015 to estimate the population and we expect those results to be available soon. Preliminary results of the new method suggest that herd size remains stable.

Herd growth was accomplished through a combination of several efforts. First, a sacrifice by hunters. In 1995 Alaska hunters took only 150 bulls a year while people in Yukon voluntarily ceased all harvest. Then in 2000, an agreement was reached between interests in Alaska and Yukon in which only 3% of the herd could be harvested; 2% for Alaska and 1% for Yukon. Again, Yukon people opted to return their quota into herd growth. The Alaska quota, still allowed for herd growth.

In addition to restricted hunting, other potential factors may contribute to herd growth including:

- an on-going wolf control program to remove wolves from the herd's range.
- favorable weather conditions across the Fortymile range in most years since the early 1990s.
- herd expansion into winter range that went unused for many decades.

As the Fortymile caribou herd increases in size there is potential for reduction in the quality of forage plants on their limited summer range. Studies on other caribou herds suggest that widespread overgrazing on the calving range can be an important factor leading to decline in caribou nutrition and numbers. At this time long-term research is being conducted to examine the effects of range quality on nutrition and herd productivity.

This great success brings us to a big question: Will the Fortymile herd respond to management efforts to maintain a healthy and growing population?

Continue reading to find out more...
...Brings new issues

Is the increasing herd going to outgrow its range?

An important research paper by ADF&G researcher Rodney Boertje, and others, examined the status of the Fortymile caribou herd in detail. This paper helped managers and interest groups answer critical questions about the Fortymile herd’s health, setting the stage for continued monitoring and management actions.

Major points of the paper:

- In recent decades predation by wolves was the dominant factor limiting Fortymile herd size.
- Caribou depend on the summer range for growth and reproduction.
- The Fortymile herd has not expanded its calving and summer range to accommodate the greater number of animals that now exist, resulting in increased densities on a limited summer range.

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Generalized map illustrating the size difference between the Fortymile caribou summer calving range and the winter range. The calving range remained roughly the same size over the past 20 years even though the herd has doubled. However, the Fortymile herd has expanded its autumn and winter range.

Although this is a technical bulletin, the Executive Summary is very readable and contains fascinating information about the history of the herd and the implications for future management. You can find this paper on our website by searching the lead author’s name at: www.adfg.alaska.gov > Management & Research > Publications & Reports > Wildlife > Search Wildlife Publications

The herd is growing, but its calving range has not expanded. This can have a major impact on management strategies and the future of the herd.

How many are too many?

The problem with a limited summer range

Reduced habitat quality due to potential widespread overgrazing can be measured in lower calf weights and fewer 3-year-old cows having calves. Currently these measurements have raised concern for the herd’s nutritional status. More long-term data on herd nutritional status and condition are being collected. In the meantime, biologists recommend the following cautionary threshold to determine when caribou are overusing their range:

If for the 5 most recent years fewer than an average of 55% of the 3-year-old cows have calves, and the herd has not expanded into new calving and summer ranges, then stabilizing herd growth by increasing harvest to more than 1,000 animals should be considered.

In addition to these data, managers must also consider other factors. For example, adverse weather conditions (winter and summer) can also have a negative impact on the number of cows giving birth and the weight of calves. This can cause a short-term population stabilization or even decline, such as happened during winters 1992–1993 and 2008–2009.

Average female 4-month-old calf weights have decreased 0.36 pounds per year from 1990 to 2015. Black line is the statistical trend.

Depending on the purpose of the research, biologists weigh caribou at different times. In the image to the left a newborn calf is being weighed, and on the right biologists weigh a 4-month-old calf.

Tracking caribou numbers and trends

Taking advantage of behavior
During the hot summers caribou are tormented by mosquitoes, bot flies, and warble flies. They try to escape these pests by congregating in locations with fewer insects such as snowfields, coastlines, and windswept ridgelines. When they bunch up, or aggregate into groups, biologists can fly over them and take photographs of the entire herd.

In short, a photocensus involves photographing the entire herd and then counting every animal in those photographs. A successful photocensus has several steps and requirements:

- The caribou must be in 10–20 groups in open habitat. Aggregations are dynamic groups that can come together or disperse within hours as weather conditions change throughout the day.
- The weather must be hot and relatively calm, allowing mosquitoes to be very active.
- Crews in airplanes with specially mounted cameras must be able to fly over the groups and take a series of overlapping photographs.
- Back in the office, photographs are laid out and sorted. Lines are drawn on the photographs delineating overlap to ensure animals are not counted twice. Then people use magnifying lenses to count every animal using a number clicker. Those who count caribou on the photos must have a carefully trained eye so they do not miss seeing caribou, or count rocks, trees, or other dots that “could be a caribou.”

Nearly as much effort and expense are expended whether or not a photocensus is successful. Biologists spend days flying and locating radio collars. Extensive experience is needed to determine if the herd is sufficiently aggregated to take photos. The last successful photocensus for the Fortymile herd was in 2010. At that time the herd had at least 51,000 animals. Although biologists are still analyzing the 2015 census, the herd appears to be stable since 2010.

Radio and GPS collars
During the past 35 years, radio collars came into widespread use. These tools allow biologists to track herds from aircraft using radiotelemetry to find collared individuals in the herd. They have revolutionized wildlife management and led to much greater precision in data collection.

A newer and more expensive technology is satellite collars. Using GPS technology and satellite communications, biologists can obtain location data through satellite transmissions, so movements can be tracked without using aircraft to locate individual animals.

It is legal to shoot animals with collars but they are expensive to purchase and deploy, so please avoid it if you can. However, if you do shoot a collared caribou, the collar contains important information and must be returned to ADF&G to help us manage the herd.

Caribou populations
Caribou are known for their dramatic population changes and the Fortymile herd is no exception. These fluctuations are a normal part of caribou herd biology.

Why do herds crash?
- When caribou populations reach their peaks it is usually a short-term occurrence. If a herd is too large for its habitat, animals become nutritionally stressed. Cows generally have fewer calves and survival of both calves and adults decreases as herd size increases. Population peaks also tend to coincide with high parasite loads and disease susceptibility.
- Because of the sheer number of animals, even at low reproductive rates the herd can continue to grow for a while. A massive herd can also support a large number of wolves. But, as productivity and caribou numbers decline, the abundance of predators can begin to play a much larger role.
- Severe weather can make herds susceptible to decline. Animals in poor condition die at a higher rate, particularly calves and older caribou.
- Once the population bottoms out, the herd’s range can recover again. With fewer caribou, predators may eventually decline. With the reduced predator pressure and improved nutrition cows can start producing more and healthier calves. Eventually, depending on predator abundance, the population may increase.
Challenges managing the Fortymile caribou hunt

Most simple solutions to the Fortymile caribou hunt are not currently possible because of many legal requirements and management considerations. Let's take a look at them.

1. The quota

To allow the herd to grow while still allowing hunting, there is a harvest quota. A quota is the number of animals that managers determine can be harvested each year based on herd size, nutritional status, and strategy in the harvest management plan. The Fortymile herd cannot sustain a general season hunt because too many caribou would be harvested. Currently, the only feasible strategy is a registration hunt. Continue reading to find out why.

2. The state and federal subsistence laws

Management of the Fortymile caribou herd must address conflicting state and federal subsistence laws. On the federal side, the Alaska National Interest Lands Conservation Act (ANILCA) in 1980 mandated that rural residents of Alaska would have preference for subsistence harvests of fish and wildlife resources on federal lands in Alaska. Local residents have a subsistence priority on federal public lands when it is necessary for conservation of the resource or to protect continuation of subsistence uses of a population. Under state law, all Alaskans are eligible to participate in subsistence harvests.

The Alaska Board of Game has determined that the Fortymile caribou herd is customarily and traditionally used for subsistence and therefore it must provide reasonable opportunity for subsistence use of this herd. Alaska Statute 16.05.258(f) states: "For purposes of this section, 'reasonable opportunity' means an opportunity, as determined by the appropriate board, that allows a subsistence user to participate in a subsistence hunt or fishery that provides a normally diligent participant with a reasonable expectation of success of taking of fish or game."

Many hunters think we can solve the issues by creating a drawing hunt but a drawing hunt does not provide Alaskans reasonable opportunity to hunt a caribou. Although everyone has an equal chance of drawing a permit, not everyone will receive a permit.

3. Herd location and roads

Another factor that complicates management of the Fortymile herd is its range. The Fortymile caribou range is intersected by two highways; the Taylor Highway and the Steese Highway.

Caribou movements can be unpredictable, and on occasion, caribou can be found in great numbers along these highways. When this happens during hunting season, and hunting conditions are good, the harvest quota can be exceeded in less than a day.

If the caribou are near the highways when the hunting season opens, hunting restrictions may be implemented on short notice to protect caribou near the road and prevent overharvest. For more than 20 years, temporary hunt closures, versus other types of restrictions, have consistently been the preferred alternative among the public who have provided input to the Board of Game.
Spreading out the harvest

To offer opportunity for both fall and winter hunts, the Alaska Board of Game created two registration permit hunts. The fall registration hunt offers opportunity to any resident and some nonresident hunters. The winter registration hunt offers opportunity to any resident. The number of animals allocated for each hunt is spread over three geographic zones.

The largest portion of the winter quota is assigned to either Zone 1 or Zone 3 depending on the location of the bulk of the herd at the beginning of the winter hunting season.

Zone 4 was created because the White Mountains herd and the Fortymile herd intermingle at times. Presently White Mountains caribou in Zone 4 are hunted using the two Fortymile registration permits but quotas are managed with Zone 1.

Quota allocation & harvest

ADF&G attempts to maximize harvest opportunity while conserving wildlife populations into the future. Therefore, when the conditions are ripe for a potential overharvest, managers must be willing to close the hunt. Some people may feel that managers have been too conservative with the quota and intentionally closed hunts early before the quota filled. In reality, quota and harvest data show that in most years we harvest at, close to, or slightly above the quota for the entire hunt.

Quota and harvest data 2004–2015

<table>
<thead>
<tr>
<th>Hunt</th>
<th>Regulatory year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quota/Harvest (# days hunt)</td>
</tr>
<tr>
<td><strong>RC 860 Fall Hunt</strong></td>
<td></td>
</tr>
<tr>
<td>Zone 1 Steese–Chena</td>
<td>230/99 (52 days)</td>
</tr>
<tr>
<td>Zone 2 Roadless</td>
<td>90/123 (52 days)</td>
</tr>
<tr>
<td>Zone 3 Taylor</td>
<td>320/309 (52 days)</td>
</tr>
<tr>
<td>Total Fall Quota/Harvest</td>
<td>640/531</td>
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<tr>
<td><strong>RC 867 Winter Hunt</strong></td>
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</tr>
<tr>
<td>Zone 1</td>
<td>200/174 (91 days)</td>
</tr>
<tr>
<td>Zone 3</td>
<td>135/141 (3 days)</td>
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<td>Annual Quota</td>
<td>850</td>
</tr>
<tr>
<td>Annual Harvest</td>
<td>846</td>
</tr>
</tbody>
</table>

Note: Zone 4 is not listed on table because harvest in that zone is applied to the Zone 1 quota.

* The original 2009 fall quota was 640, but after the fall harvest exceeded the year’s annual quota, state and federal hunt managers and advisory committees adjusted the 2009 fall harvest quota to 1033 animals, canceled the winter quota, and decreased the following year’s annual quota.

Short hunts protect the herd from overharvest!

Caribou are going to do the unexpected. Some years the Fortymile herd may occur in large numbers along the Steese and Taylor highways. During these years, access is easy and potential for overharvest is high. As a result several hunts have been shortened, with harvest quotas met in only a few days. These hunts were not intentionally shortened, ADF&G strives to balance protecting the herd and providing hunting opportunities for users. Shortened hunts are necessary when hunters are concentrated near the herd.
Predator control and the Fortymile herd

Research by ADF&G biologists Rod Boertje and Craig Gardner showed that predation by wolves was the dominant factor limiting Fortymile herd size in 1994–2003. In addition, the two historic rapid increases in Fortymile caribou herd growth likely occurred after periods of greatly reduced wolf numbers.

Today’s predator control programs do not employ the more extreme measures used back in the mid-1900s, thus are unlikely to temporarily reduce wolves to a number necessary to cause the rapid caribou population increases of the past. However, a reduction of wolves in key portions of the Fortymile herd’s range, such as the calving area, may allow improved calf survival.

During 1996–2001, nonlethal control was conducted on 15 wolf packs on or near the calving range at the same time that the herd increased 5–15% annually. Since lethal wolf control began in 2005, the herd has grown by another 10,000 animals.

Still, biologists cannot definitively say that these predator control programs caused the herd growth because other factors, such as favorable weather, were also occurring during the program years. Questions remain about the overall effect of the Fortymile predator control (nonlethal and lethal) programs and their influence on caribou survival and increase in the numbers of caribou. We will continue to rely on information gained from previous and ongoing research to evaluate the results of the Fortymile predator control program to help guide future management of the herd.

The new youth hunt

In 2014 the Fortymile caribou youth hunt began. The hunt was created by the Alaska Board of Game because of a mandate, where possible, to provide youth hunting opportunities. The timing of the hunt allows youth to participate in the Fortymile hunt before the start of school in the fall. Opening prior to the registration hunt also reduces competition between older and potentially more experienced hunters. To avoid access issues, the hunt takes place only in Zones 1 and 3, which are both road accessible.

Both resident and nonresident youth between the ages of 10–17 can apply. If drawn, hunters must wear orange (following hunter education standards) and be accompanied by a licensed adult at least 21 years old. Hunters may only harvest one bull from this hunt in their lifetime. The bag limit counts against the annual limit of both the youth hunter and the accompanying adult.

During the two years that the hunt has been opened, 1,444 youth applied and 67 permits were issued. In total 48 youth hunted, 71% of whom were successful!

Yukoners sacrifice for 21 years

Hunting of the Fortymile caribou herd in Yukon was effectively closed upon implementation of the plan in 1995. Licensed hunters were put on a permit hunt with zero permits available; and the T’ondëk Hwëch’in requested its citizens not to hunt Fortymile caribou. Yukon has not resumed the hunt, opting instead to put Yukon harvest allocation into herd growth with the hope that the herd would eventually reoccupy some of its former range in Yukon.

To date, there has been little demand for Fortymile caribou hunting opportunities by Yukon hunters. However, since 2013, large portions of the Fortymile herd wintered in Yukon. As the herd grows and expands further east, occupying their full historic range, public desire for a Fortymile hunt in Yukon will likely grow.

While Yukon has chosen not to harvest the Fortymile caribou herd in the past, the Harvest Management Coalition fully realizes they might begin harvesting in the future. Prior to any resumption of Fortymile caribou harvest in Yukon, a regulation change to reopen a hunt will be pursued through consultation within the established Yukon comanagement process.

For the first time in over 50 years, in 2013 and 2014, a significant portion of the Fortymile caribou herd expanded their winter range across international borders reoccupying portions of their historical range in Yukon.
Who manages the herd?

The Alaska Board of Game, the Federal Subsistence Board, and the Yukon Fish and Wildlife Management Board have agreed to cooperate in managing the Fortymile herd according to Harvest Management Coalition recommendations.

Coalition representatives:
Darren Taylor: Tr’ondëk Hwëch’in (First Nation)
Art Christiansen: Dawson District Renewable Resources Council
Carol Foster: Government of Yukon
Graham Van Tighem: Yukon Fish and Wildlife Management Board
Will Young: Yukon Fish and Wildlife Management Board
Mike McDougall: Eagle Fish and Game Advisory Committee
Andy Bassis: Eagle Fish and Game Advisory Committee and Eastern Interior Regional Advisory Council
Mike Tinker: Fairbanks Fish and Game Advisory Committee
Vern Aiton: Delta Junction Fish and Game Advisory Committee
Don Woodruff: Eastern Interior Regional Advisory Council
William Glanz: Central Fish and Game Advisory Committee
Leif Wilson: Upper Tanana/Fortymile Fish and Game Advisory Committee
Mel Grove: Matanuska Valley Fish and Game Advisory Committee
Robert Caywood: Anchorage Fish and Game Advisory Committee

Harvest Management Coalition and the Harvest Management Plan

In the early 1990s, Frank Entsminger, the Upper Tanana Fortymile ADF&G advisory committee chairman, received a letter from Steve Taylor, the chief of the Dawson First Nations. Steve was frustrated that the Fortymile caribou herd was no longer in Yukon and the population was not increasing. He asked that the management of the herd be examined. Frank and Steve met with a group of likeminded people to find a solution.

The group’s desire was to change management to recover the herd to its original abundance and range. In 1995, this group—called the Fortymile Caribou Harvest Management Coalition (Coalition)—developed the first citizen-driven Fortymile caribou herd management plan. That plan has gone through three updates—indeed, the most recent one—in 2001, 2006, and most recently, 2012—and the group of citizens developing the plan evolved into the Fortymile Caribou Harvest Management Coalition (Coalition). The three updated plans, called the Fortymile caribou herd harvest plans, have primarily focused on harvest management of the herd.

Coalition recommendations in the harvest management plans have helped guide harvest management.

Who’s on the Coalition?

Membership of the Coalition has evolved over the years. Since the 2001 plan, the state advisory committee membership of the Coalition has been from the Eagle, Central, Fairbanks, Delta Junction, and Upper Tanana Fortymile. For the 2006 and 2012 harvest plans, the Federal Eastern Interior Regional Advisory Council and members of the Yukon contingent were added as members.

As a result of the Fortymile herd growth and expanding harvest opportunities, two additional seats were added for the 2012 harvest plan to represent other Alaska user groups. These seats are currently filled by representatives from both Anchorage and Matanuska Valley advisory committees. Despite the addition of these new members, the Coalition will remain small to ensure high productivity at meetings.

Although the two additional Alaska seats may change, the five original local advisory committees will always hold a majority, and the Eastern Interior Regional Advisory Council and the Yukon contingent will always have representation.

State-federal cooperation

Bureau of Land Management (BLM), National Park Service (NPS) and ADF&G have been cooperating on aspects of management and harvest of the herd since 1992. The partnership has been successful in large part due to a commitment by the agency biologists and managers to provide for recovery of the herd. Currently, the Fortymile caribou harvest seasons are managed under a joint state-federal permit. A joint quota and permit simplifies requirements for all hunters (one permit, a shared quota, and common management goals) and results in timely harvest reporting with better harvest data and increased harvest opportunity.

Hunting requirements have been simplified but there is still some confusion. The state manages the herd harvest by zones while the federal program manages harvest by game management units (Unit). Whatever the geographic breakdown, state and federal managers can close portions or all of a hunt area as quotas are reached or caribou are vulnerable to overharvest. When the state and federal seasons are both open, any Alaska resident can hunt on state and federal lands.

The joint permit doesn’t make everything smooth for hunters. There continues to be differing season dates and complex land status issues, but benefits to hunters outweigh the wrinkles. Fifteen years after the implementation of the joint permit, BLM continues to champion the joint permit and quota and public-initiated goals to manage for herd growth.

Jeff Gross, Tok Area Biologist for ADF&G, talks with Ruth Gronquist, District Wildlife Biologist for BLM.