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Black Bear Population Objective Setting and Harvest Management Guidelines



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1.0 Introduction

The Ministry of Natural Resources' (the ministry's) legislative context for black bear (*Ursus americanus*) management comes from the *Fish and Wildlife Conservation Act, 1997* (FWCA), and its regulations. The ministry's Framework for Enhanced Black Bear Management in Ontario (2009; the 'Black Bear Framework') also provides broad policy direction for the management of black bears.

The Black Bear Framework describes the program goal: to ensure sustainable black bear populations across the landscape and the ecosystems on which they rely for the continuous provision of ecological, cultural, optimal economic and social benefits for the people of Ontario. It also describes objectives and strategies to achieve that goal.

These guidelines directly address commitments made in the Black Bear Framework to ensure responsible and sustainable management of black bears in the province. This includes (but is not limited to):

- monitoring black bear populations through the province's *Barbed-Wire Hair Trap* (BWHT) program;
- developing population objectives; and
- developing of harvest management guidelines to support management decisions.

Black bears are a valuable wildlife species and an integral part of biodiversity with intrinsic value. They support biodiversity through seed dispersal and improve forest regeneration by recycling nutrients through scavenging and foraging and contributing to a healthy ecosystem. Black bears have long been important to the people of Ontario; culturally, as a wilderness symbol, and as a big game species. At times, they are also a cause for real or perceived property or safety concern.

Black bears are common throughout the relatively intact, predominantly forested ecosystems of the Ontario Shield Ecozone (Figure 1), referred to in this policy as *primary black bear range*. Black bears also occur at low densities in the Hudson Bay Lowlands Ecozone, which consists of sparse forests, wetlands, and tundra, extending to the Hudson Bay coast. In the Mixedwood Plains Ecozone, black bears are found in the northern forested areas and fragmented forest habitats but are absent in the heavily developed southern regions. A small, isolated population also persists on the Saugeen Bruce Peninsula.

Black bears are a long-lived, late-maturing species with low reproductive rates relative to other big game species. As such, they can be slow to recover from over-harvest and other mortality pressures. Although a member of the order Carnivora, black bears are omnivorous, feeding primarily on vegetation and colonial insects, and opportunistically taking advantage of spawning fish, ungulate neonates, and carrion. After the breeding season, which typically peaks near the end of June, black bears focus on gaining weight and building fat stores in preparation for the denning season. They frequently travel long distances (100 or more kilometres) from their breeding home ranges to areas with high seasonal abundance of fruits or nuts, such as blueberry barrens, aging clearcuts, and oak stands.



Figure 1: Map of Ontario displaying the Ecozones of Ontario (Crins et al. 2009), and Forest Regions of Canada (Natural Resources Canada 2025, Rowe 1972)

The availability of natural food varies from year to year. When natural food is in short supply, black bears are more likely to seek out human-associated food sources such as agricultural crops, garbage, bird feeders, fruit trees, compost, and barbeques. Research consistently shows that fluctuations in natural food availability are the main factor influencing the frequency of human-bear interactions and conflicts.

Short-term increases in black bear sightings, property damage, and conflicts can create the perception that bear populations are too high. This can reduce public tolerance for black bears and raise safety concerns, leading to calls for increased harvest or relocation.

Management agencies have an obligation to sustainably manage harvested species to ensure populations are maintained over the long term and that harvest opportunities are sustainably allocated among regulated harvest sectors.

There are three harvest sectors that participate in regulated harvest in Ontario:

- resident hunters,
- non-resident hunters who hunt through licensed bear operators (referred to as the ‘tourism industry’ sector), and
- licensed trappers.

Demand for bear hunting opportunities has increased among Ontario residents. Resident harvests increased gradually from 1999 through 2014 and increased markedly with the reinstatement of the spring hunting season (which occurred in some parts of

the province in 2014 and 2015, and province-wide in 2016). As a result, the 4-year average resident harvest has doubled in the past 20 years (~97% increase).

The ministry manages resident harvest using tools such as season length, season timing, and second *tag* availability. However, with open first tag allocations for residents, these tools may be insufficient to address concerns when harvest levels increase.

The tourism industry sector is managed by allocating hunting opportunities to licensed black bear operators as *validation certificates* (VCs). Non-residents must have a VC to hunt black bears in Ontario. In recent years, the tourism industry has faced economic fluctuations, travel restrictions, and changes to bear management, including the reintroduction of the spring season. Allocations have remained largely unchanged since 2016, limiting flexibility and business opportunities. Opportunities are inconsistently allocated across operators and a transparent, equitable allocation process is needed. Additional tools are needed to support consistent allocation in the tourism industry sector and respond to the most current population data.

At high resident harvest levels, and with non-resident harvest continuing to rebound following the COVID-19 pandemic travel restrictions, total resident and non-resident harvest is likely to be regularly above the long-term average, as it was in 2024. Rising demand calls for a modernized approach with updated tools. A responsible, evidence-based bear management framework is essential for sustainability and informed decision-making.

1.1 Purpose and Scope

These guidelines establish a consistent process for setting black bear population objectives and aim to improve consistency and transparency in regulated harvest planning and decision-making. They support the ministry's goal of sustainably managing black bear populations in Ontario, while considering ecological, social, cultural, and economic factors at appropriate management scales. The population objective-setting process is intended for all Ontarians, while the harvest management process is primarily relevant to licensed black bear hunters, the tourism industry, and trappers.

The ministry recognizes Aboriginal and treaty rights of Indigenous communities to harvest black bears, as well as the significance of black bears to many Indigenous communities in Ontario. These guidelines are designed to be compatible with the ministry's evolving relationships with Indigenous communities and to allow the ministry to work productively with rights holding Indigenous communities in the future.

1.2 Guiding Principles

The following guiding principles and considerations direct the ministry's development of black bear population objectives and the implementation of harvest management guidelines described in sections 2 and 3.

1.2.1 Population Objective Setting Guiding Principles

- **Ecological:** Objectives consider the important role that black bears play as a component of biodiversity. Where harvest opportunities are provided, population objectives should be set high enough to ensure black bears continue supporting healthy, resilient ecosystems.
- **Rights-based harvest and cultural significance:** The Aboriginal and treaty rights of Indigenous communities to harvest black bears are appropriately recognized and respected, as is the cultural significance of this species to many Indigenous communities in Ontario.
- **Social and cultural values:** Objectives reflect the broader social and cultural value of black bears, including their intrinsic value and heritage values such as hunting.
- **Economic:** Objectives consider the hunting tourism industry and other economic interests, such as wildlife viewing, and their contributions to Ontario's economy.
- **Achievable:** Objectives are realistic, based on current population estimates, rates of population increase, habitat quality, and pressures such as development and climate change.
- **Transparent:** Objectives are developed using the best available, science-based information and public input and shared with the public.
- **Integrated natural resource management and land-use:** Objectives consider other landscape-level considerations, including development, environmental goals and other land uses.

1.2.2 Harvest Management Guiding Principles

- **Ecological sustainability:** Harvest planning considers the broader ecosystem (e.g., other species, climate, productivity, habitat health) and supports natural processes that maintain healthy black bear populations.
- **Black bear ecology:** Decisions are informed by black bear biology, ecology, and the species' intrinsic value.
- **Rights-based harvest and cultural significance:** The Aboriginal and treaty rights of Indigenous communities to harvest black bears are appropriately recognized and respected, as is the cultural significance of this species to many Indigenous communities in Ontario.
- **Science-based:** Harvest decisions rely on the province's annual BWHT monitoring program and other available data sources to assess *population status*.
- **Adaptive management:** Decisions follow a structured process based on recent population and harvest data. They are reviewed regularly to evaluate progress and adjust as needed.
- **Consistency for the tourism industry:** Harvest opportunities are allocated consistently and equitably amongst licensed operators. Decisions are communicated early and where feasible, held stable throughout the harvest planning cycle to support business certainty.

1.3 Spatial Scale of Management

The spatial scale of management refers to the geographic level at which harvest planning decisions are applied. Black bear management considers three scales:

- **Broad Landscape Scale** – Forest Regions of Canada (Figure 1) represent broad ecological zones where climate and plant communities influence black bear productivity. Areas with more natural food and longer growing seasons support higher bear densities. In these regions, bears reproduce earlier and more frequently. Great Lakes – St Lawrence forests offer more diverse food sources than Boreal forests, and bear productivity increases at lower latitudes.
- **Wildlife Zones** – These are groupings of ecologically-similar *Wildlife Management Units* (WMUs; Figure 2) where bear populations are monitored and assessed. Many WMUs are too small to reflect the long distances bears travel for food. In fall, bears may be harvested in different WMUs than where they den and breed, complicating management at the WMU level. Monitoring and harvest planning is more effective across multiple study areas within larger landscapes, which is not feasible in many smaller WMUs.
- **Management Units and Areas** – These scales are used to distribute and communicate harvest opportunities (Figure 2). WMUs are the land base for local wildlife management and have distinct hunting rules. *Bear Management Areas* (BMAs) are designated areas where licensed operators provide bear hunting services. BMAs also serve as the primary mechanism for allocating harvest opportunities in the tourism industry.

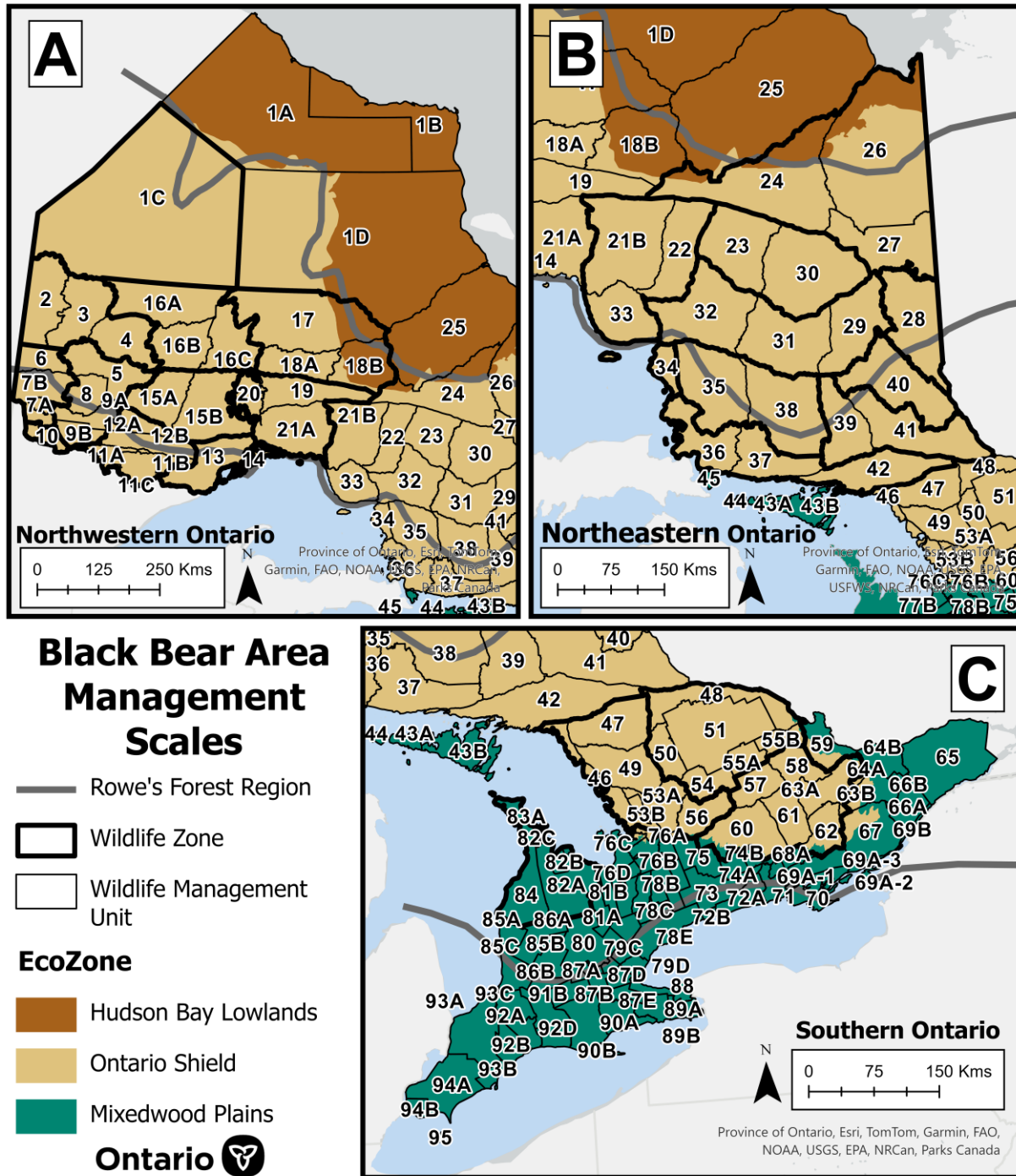


Figure 2: Maps of Ontario divided into three parts (A – Northwestern Ontario, B- Northeastern Ontario, C- Southern Ontario) showing the Broad Landscape Scale (Forest Regions), Wildlife Zones, Wildlife Management Units, and the Ecozones.

1.4 Climate Change Considerations

Climate projections for Ontario include continued warming, drying, and more frequent extreme weather events, which may have mixed effects on black bear populations. As habitat generalists that can adapt to the food sources available to them, black bears are

less vulnerable to climate change than species with more specific diet and habitat requirements. Black bears in Ontario are also genetically diverse and face few movement barriers, except for the isolated population on the Saugeen Bruce Peninsula.

A vulnerability assessment using NatureServe's Climate Change Vulnerability Index (Canadian v3.0) rated black bears as "less vulnerable" with very high confidence. This suggests their abundance and distribution in Ontario are unlikely to change significantly by 2050 due to climate change. It is possible that milder winters and a longer growing season could benefit black bears in some areas. However, research from Ontario indicates that drier conditions and more frequent extreme weather events are expected to cause more frequent and widespread natural food shortages. These shortages are linked with reproductive failures (few cubs are born in winters following food shortages), and higher mortality due to increased hunter success and human-bear conflict.

If natural food shortages become more common, greater emphasis on conflict prevention through the ministry's Bear Wise program may be needed.

These guidelines help the ministry to adapt harvest planning and population objectives in response to long-term changes in habitat, mortality, and population growth rates that influence bear abundance.

2.0 Population Objective Setting Guidelines

A population objective is the desired number of black bears, expressed as a range with an upper and a lower limit, on the landscape based on ecological, social, cultural, and economic considerations. The lower limit of the range should describe the abundance of black bears needed to maintain ecosystem function, support sustainable population management and resilience over the long term, and allow for harvest opportunities. Managing at the lower end of the objective is riskier, particularly in developed landscapes, as unknown bear mortality factors are difficult to account for and may affect the population. The upper limit of the range should represent the abundance of black bears that supports high or increased harvest while remaining within the objective range over the long-term (i.e., 10-15 years), while reflecting socio-economic carrying capacity.

Black bear abundance varies across Ontario due to differences in habitat quality and levels of human-caused mortality, including harvest. In some areas, seasonal movements and dispersal patterns also have an effect. This means that the number of bears estimated to be in each Wildlife Zone might not be the ideal number to manage for. *Population Objective Ranges* (PORs) are set by the ministry using multiple sources of information, not solely on recent population estimates.

PORs are established for Wildlife Zones within Ontario's primary black bear range within the Ontario Shield Ecozone, including the predominantly forested parts of the Boreal and Great Lakes-St. Lawrence Forest Regions (see Figure 3).

The following Ecozones have different use patterns:

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- Hudson Bay Lowlands Ecozone: Bears are present with minimal harvest pressure. Limited access and lack of forest cover prevent BWHT sampling.
- Mixedwood Plains Ecozone: This area is dominated by human activity. Bear populations and harvest depends more on immigration from the primary black bear range. Consequentially, low capture probabilities for the BWHT program reduce the reliability of abundance estimates in this area.

In the absence of regular and reliable abundance estimates in the Hudson Bay Lowlands and Mixedwood Plain Ecozones, the ministry relies on mandatory hunter reporting data to monitor harvest sustainability and to maintain bear presence on the landscape. This approach does not prevent future efforts to estimate bear abundance or establish PORs in these ecozones.

Preliminary Population Objective Ranges are developed using ecological factors. *Final Population Objective Ranges* are established with public input to incorporate social, cultural, and economic considerations. The ministry documents rationale for adjustments to the preliminary PORs based on public feedback received during the guideline review period.

PORs will need periodic review (every 10-15 years) to ensure they remain ecologically appropriate, achievable, and useful for responsive management. The review cycle reflects the gradual pace of habitat change and the time needed for bear populations to respond to management actions. The intent is to manage black bear populations within the established PORs over time, rather than reacting to short-term fluctuations in population estimates. In some cases, earlier review of the PORs may be necessary, (e.g., if ranges are not achievable).

2.1 Population Objective Setting Process

The process for setting the *final* PORs for black bear involves four key steps. It follows the guiding principles outlined in section 1.2.1:

1. Preliminary development: Review bear abundance and habitat productivity data to develop ecologically based *preliminary* PORs for all Wildlife Zones in primary bear range.
2. Consultation: Engage Indigenous communities, stakeholders, and the public to gather feedback on the *preliminary* PORs through the Environmental Registry of Ontario (ERO) and targeted outreach.
3. Revision: Update *preliminary* PORs as appropriate, based on input received through consultation, and document the rationale for all changes.
4. Communication: Finalize and publicly share the PORs for transparency and implementation.

2.2 Developing the Preliminary PORs

The ministry uses estimates of black bear density (number of black bears per 100 km²) from BWHT monitoring and information about habitat productivity as the primary sources to develop *preliminary* PORs. BWHT is a non-invasive genetic survey method, widely recognized as the best practice for estimating black bear populations. It has been used in Ontario since 2004.

To develop *preliminary* PORs, the ministry:

- 1) **Reviews** provincial and federal habitat classification systems, including Ontario's Ecozones, Ecoregions, draft 2014 Black Bear Ecological Zones, Forest Regions of Canada, and Natural Resources Canada's Forest Composition map.
- 2) **Analyzes** *interquartile ranges (IQRs)* of black bear density estimates from BWHT monitoring within Forest Regions and draft Black Bear Ecological Zones.
- 3) **Groups** Wildlife Zones into larger areas of ecologically similar habitats (see Figure 3).
- 4) **Calculates** IQRs of bear densities within these grouped zones to establish proposed upper and lower bounds for PORs.
- 5) **Identifies** areas where current bear densities are below habitat capacity, which may constrain harvest opportunities. In response, lower POR limits are set at or slightly above the first quartile, and upper limits at or slightly above the third quartile.
- 6) **Applies** consistent density-based PORs across Wildlife Zones with similar habitat productivity.
- 7) **Generates** zone-specific population sizes by multiplying bear density PORs by the area of suitable habitat. Suitable habitat includes natural land cover types (e.g., forests, wetlands, clearcuts, meadows) and excludes open water, urban areas, and agricultural land (minus a 200m buffer adjacent to natural cover). In the Far North, open habitats such as wetlands are also excluded.

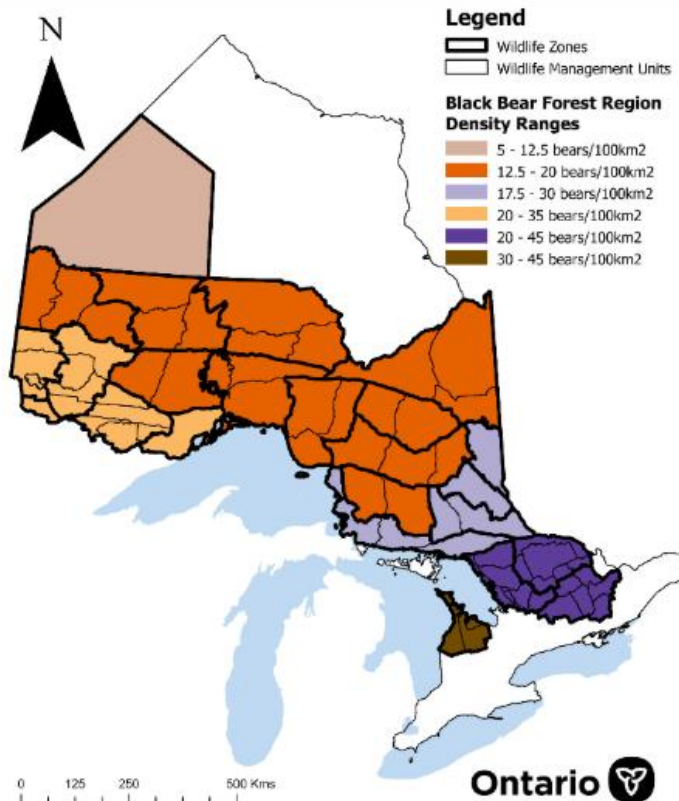


Figure 3. Grouped Wildlife Zones showing the black bear density ranges used in the development of the preliminary Population Objective Ranges.

2.3 Public Consultation on PORs

Each time the ministry reviews and adjusts PORs, it consults on the *preliminary* zone-specific PORs. This process gathers input on social, cultural, and economic factors relevant to each management area, including local land use, community perspectives, cultural values, and tourism interests.

This input, combined with the ecological data used to develop the *preliminary* PORs, informs the development of *final* PORs that reflect both scientific evidence and broader societal and cultural considerations.

Note: To develop the initial set of *preliminary* PORs, the ministry used BWHT data from 2004-2022. The ministry is consulting on those *preliminary* PORs alongside this policy document. Please see ERO posting for *preliminary* PORs.

3.0 Black Bear Harvest Management Guidelines

These guidelines provide a consistent and transparent framework for managing black bear harvest in Ontario. Final PORs define the desired number of black bears in each Wildlife Zone, and harvest decisions are guided by comparing the most recent population estimates to the zone's POR.

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The ministry uses the relationship between the estimated population size and the Wildlife Zone-specific POR to guide harvest decisions as follows:

Populations above POR:

When the estimated population exceeds the upper limit of the POR, the ministry increases harvest opportunities to help manage the population towards the POR.

Populations within POR:

When the estimated population is within the POR, the ministry aims to maintain stable licenced harvest opportunities to support long-term population stability.

Populations below POR:

When the estimated population falls below the lower limit of its POR, the ministry reduces harvest opportunities to support population increase.

Populations in transition:

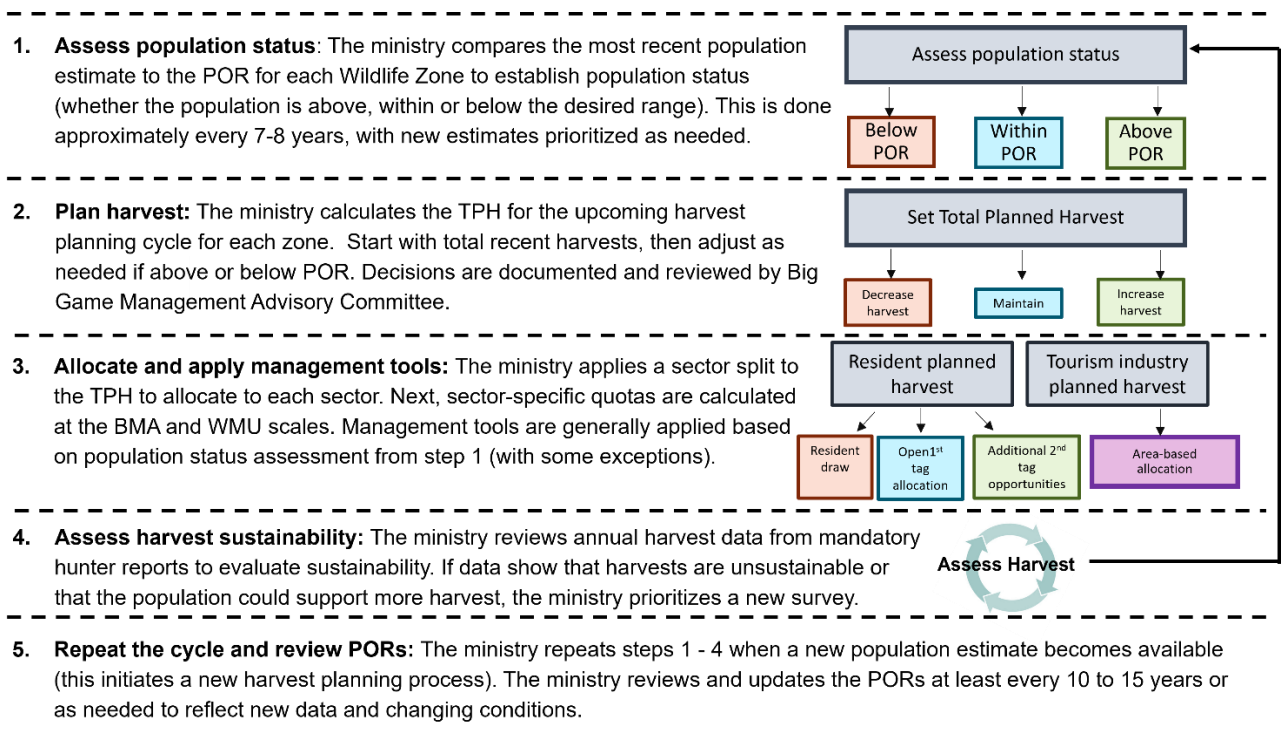
When the population is reassessed and shifts from above or below POR to within the POR, a transitional approach may be applied. In a transitional approach, harvest levels are incrementally adjusted to reflect the population's new status and avoid abrupt changes in management.

A new harvest planning cycle begins when updated population data becomes available for a Wildlife Zone. Updated data informs harvest planning and helps set a *Total Planned Harvest* (TPH) for each zone. The ministry aims to keep allocations stable throughout the cycle, with limited exceptions.

The ministry communicates harvest cycle lengths, timing of BWHT surveys, and quotas for the next cycle in advance to support planning. Quotas are calculated and communicated both at the BMA and WMU levels.

3.1 Black Bear Harvest Management Process

Section 3 outlines the harvest planning process in detail, which follows this cycle:



3.1.1 Prioritization for BWHT monitoring

The ministry conducts annual monitoring of Wildlife Zones through the BWHT program to assess the population of black bears in an area. Each year, a minimum of three Wildlife Zones are selected for monitoring. Selection is based on the time since last survey, indicators from harvest data that suggest potential risks or opportunities, and the need to evaluate current management strategies. Wildlife Zones that have not been surveyed in over 11 years are given priority.

Population estimates are typically updated every 7 to 8 years, with a minimum interval of 5 years and maximum interval of 12 years between surveys. The Saugeen Bruce Peninsula is an exception where the minimum interval is 3 years due to the unique challenges with that population. Updated population estimates are used to assess population status and inform TPH decisions using current, science-based information.

3.2 Setting Total Planned Harvest

During each harvest planning cycle, the ministry calculates a TPH for each Wildlife Zone with an established POR. The TPH should reflect a sustainable level of harvest that maintains the population within POR. If the population is outside POR, the TPH is the level of harvest that should guide the population towards the objective range.

TPH is based on the mean total harvest (resident and non-resident) from the previous 4 years. This method reduces the influence of short-term fluctuations in food availability and hunter effort while capturing recent trends of hunter numbers and harvest success.

Where applicable, to apply the management action consistent with the assessed POR status, the ministry increases the TPH if the population is above POR or decreases TPH if the population is below POR, resulting in an *adjusted total planned harvest*.

Other sources of bear mortality, including but not limited to Aboriginal or treaty rights-based harvest, trapper harvest, motor vehicle mortality, or protection of property mortality also affect bear abundance. If total mortality causes the population to fall below POR, the ministry reduces licensed harvest to prioritize ecological function and Aboriginal or treaty rights-based harvest and account for unknown amounts of other mortality.

3.2.1 Increasing Total Planned Harvest

When the estimated population exceeds the upper limit of its POR, the ministry increases harvest opportunities to help return the population to within range. Incremental increases to the TPH (e.g., 15-25%) are applied to assess whether the population can support higher harvest levels. The ministry monitors the increase throughout the harvest planning cycle and applies further increases if the population remains above POR in the next cycle.

The magnitude of increase is informed by historical harvest levels within the zone or comparable zones in the Forest Region. All adjustments are documented with clear rationale and are reviewed with the Big Game Management Advisory Committee, and finally reviewed and approved by the Minister. The adjusted TPH is distributed according to the established *sector split*, ensuring proportional increases across all sectors.

3.2.2 Reducing Total Planned Harvest

When the estimated population falls below the lower limit of its POR, the ministry reduces harvest opportunities to support population increase. Harvest reductions should be large (e.g. 20-30%) given the relative sensitivity of BWHT surveys to detect population declines and to support growth, rather than maintaining a small population size that cannot support harvest opportunities.

The magnitude of reduction is informed by recent changes in harvest levels and population trends. If harvest levels have recently increased, a smaller reduction may be sufficient to manage towards POR. Conversely, if harvest levels and hunter success have declined, a larger reduction may be necessary.

BWHT estimates are used to determine whether further reductions are warranted. If the population continues to decline, the ministry may consider additional measures such as shortening or closing the season. All decisions are documented with supporting rationale, reviewed by the Big Game Management Advisory Committee and finally reviewed and approved by the Minister.

3.2.3 Populations in transition

When a population transitions from above or below its POR to within POR, the ministry may apply a transitional management approach.

The ministry reviews all available information (e.g. population estimates, hunter reporting data, comparisons to other zones, local events) to assist in understanding the drivers of population change. This assessment helps determine whether regulated harvest or other factors caused the shift and guides appropriate management actions. In some cases, the previously adjusted TPH should be maintained rather than immediately reverting to earlier harvest levels.

The goal is to evaluate whether the population can support a return to previous harvest levels or if stability is achieved at the new level. For example, harvest levels high enough to reduce a population from above to within POR may continue to drive declines if maintained, rather than supporting population stability.

For populations transitioning from below to within POR, the ministry incrementally increases the TPH to avoid reversing population gains. During this period, harvest controls such as a resident draw remain in place until the population can support higher harvest levels.

3.2.4 Exceptions

In specific circumstances, the ministry may adjust the TPH and allocations within an active harvest planning cycle. These adjustments respond to unexpected changes that require timely action, especially when BWHT monitoring cannot confirm the status within the calendar year.

Exceptions include:

1. Geographically or reproductively isolated populations at risk of extirpation (e.g., the Saugeen Bruce Peninsula).
2. Changes in land use designations that affect allocation.
3. Strong and consistent patterns across metrics in hunter reporting data that indicate harvest may be well above or below the level needed to achieve or maintain a population within POR.
4. Catastrophic population declines (e.g., a shift from above to below POR from one cycle to the next).

In these cases, the ministry documents and justifies all changes with clear rationale and supporting evidence. These decisions are reviewed through the harvest planning process with the Big Game Management Advisory Committee, and finally reviewed and approved by the Minister. Where appropriate, alternative management actions, such as shortening or closing the hunting season, are considered alongside quota adjustments to ensure sustainable outcomes.

3.3 Allocation Between Sectors

The ministry allocates the TPH among the two main sectors involved in Ontario's regulated black bear hunt: resident hunters and the tourism industry. The sector split is based on each sector's proportional use of the harvest during the most recent harvest planning cycle in each Wildlife Zone. This proportion is applied to the TPH to establish the planned harvest for each sector.

A minimum 10% of the TPH is allocated to both the tourism industry and resident hunters in each Wildlife Zone. For the first harvest planning cycle, the ministry uses a 4-year mean to calculate the sector split. If a sector's participation was disrupted during the most recent harvest planning cycle (e.g., due to COVID-19), the ministry may use an alternative period with justification and documentation.

The sector split is reviewed during each harvest planning cycle. If harvest patterns or demand have shifted, the ministry may adjust the sector split to reflect these recent patterns and demands.

3.4 Allocation Within Sectors

To distribute hunting opportunities within each sector, a mechanism is required to apply quotas at the management area level.

3.4.1 Resident Hunter Harvest Distribution

For populations above POR, harvest opportunities are increased. If the recent 4-year average resident harvest is below the *resident planned harvest*, the ministry provides additional opportunities through second bear tags in applicable WMUs or groupings of WMUs.

For populations within POR, first tag allocations for resident hunters are managed through an open allocation system.

For populations below POR, direct harvest control is required and implemented through a random draw. Hunting opportunities are allocated through area-specific tag quotas (i.e., WMUs or groupings of WMUs). These quotas are calculated by dividing the

resident planned harvest by the 4-year average tag *fill rate*, aligning actual harvest with the planned harvest for the resident sector.

3.4.2 Licensed Operator Harvest Distribution: Area-based Allocation

Harvest opportunities for non-resident hunters are issued as black bear hunting VCs, which are provided to the tourism industry. The ministry uses an *area-based allocation* method to distribute the *tourism industry planned harvest* equitably among licensed operators within each Wildlife Zone. This process includes:

1. **Calculating Total VCs:** The tourism industry planned harvest is divided by the 4-year average VC fill rate to determine the total number of VCs allocated to a Wildlife Zone.
2. **Allocating to the tourism industry:** Each licensed operator receives a portion of the available VCs based on the proportion of licensed land (Crown Land and/or private land with written permission) that they hold within the zone.

Operators receive their total annual allocation of VCs in advance of each harvest planning cycle.

Transition phase

To support fair and effective area-based allocation, BMAs are not held vacant for sustainability reasons. Instead, sustainability is addressed through the harvest planning process, which distributes the tourism industry's planned harvest proportionally across all allocated BMAs. Before the first harvest planning cycle begins, the ministry will try to:

- adjust undersized BMAs to improve business viability (e.g., by changing boundaries or merging BMAs),
- create new BMAs on eligible Crown Land, and
- allocate all eligible, vacant BMAs through a competitive process, as outlined in operational policy.

Most BMA adjustments are completed during this transition period to minimize future changes once area-based allocation is in place. Some adjustments may still be needed over time. Eligible private land may be added to an operator's licence periodically. Any new land added or removed will be accounted for at the start of the next harvest planning cycle, regardless of when the request is made, to keep allocations consistent during the active cycle.

3.4.3 Trapper Harvest Distribution

Licensed trappers account for a small share of Ontario's annual black bear harvest (1%, or roughly 100 black bears per year). Due to this low level of harvest, the ministry does

not calculate a formal allocation for this sector. Trapper harvest is managed through the existing licensing process by applying quotas to licences.

In Wildlife Zones where harvest reductions apply to other sectors, corresponding quotas will be applied to trapping licences to ensure consistent management across all sectors.

If harvest by trappers increases, the ministry will incorporate this sector into the harvest planning framework appropriately and allocate harvest opportunities accordingly.

3.5 Assessing Harvest Sustainability

Harvest data is collected annually through mandatory hunter reports. All licence holders must submit a report, even if they did not hunt or harvest a bear.

In isolation, harvest data does not consistently indicate changes in population size. Instead, various metrics from hunter reports help assess harvest sustainability (see Table 1 and McLaren et al. 2009). In some cases, these metrics can indicate population trends.

Conclusions about whether harvest levels are sustainable, or could be increased, should be based on consistent patterns across multiple metrics. For example, an increase in total harvest driven by more hunter effort, but without changes in hunter success or the proportion of females harvested, does not necessarily mean the harvest is not sustainable. Decisions should not rely on a single metric as hunter success can vary with both effort and bear abundance.

Data interpretation often requires separating it by season and sector. Interpretation should focus on spring harvests, which affect bears that den and breed in the same zone, and on the dominant harvest sector. A long-term dataset of at least 10 to 12 years is generally needed to identify real trends and account for short-term fluctuations.

Table 1. Metrics from hunter reporting data that can inform the sustainability of harvests.

Metric	How it informs sustainability
Numbers of hunters	Describes hunter effort.
Bears harvested	Measures bear mortality.
Hunter success rates	A measure of harvest per unit of effort; shows bear availability per hunter but requires effort data to interpret. Can be standardized by the number of days hunted.
Percent females in the harvest	Informs potential impact on reproduction and population growth.

In all Wildlife Zones where black bears are harvested, the ministry assesses harvest sustainability each year using hunter reporting data. Patterns in harvest metrics can suggest different trends in bear populations, so any changes are documented and rationalized through the harvest planning process in consultation with the Big Game Management Advisory Committee and reviewed and approved by the Minister.

In Wildlife Zones without PORs, hunter reporting data informs adjustments to allocations, quotas, and seasons.

In Wildlife Zones with PORs, where the data suggests harvest levels may be above sustainable limits:

- The ministry can prioritize the zone for a BWHT survey.
- In exceptional cases, strong and consistent patterns in the harvest data may lead to a recommendation to reduce harvest levels.

If data suggests populations could support higher harvests without risk of decline:

- The ministry can prioritize the zone for a BWHT survey. In appropriate cases, strong and consistent patterns in the harvest data can lead to a recommendation to increase harvest levels.

Note: Zones with sustainability concerns or no survey in the past 12 years take precedence.

4.0 Guideline Outcomes and Effectiveness Evaluation

The intended outcomes are:

- Black bear populations are maintained within their respective PORs to ensure that total harvests are sustainable and contributions to ecosystem function are not compromised.
- The Aboriginal and treaty rights of Indigenous communities are recognized and respected, as are the perspectives and the significance of black bears to Indigenous communities in Ontario.
- Resident hunting opportunities align with final black bear PORs.
- Economic opportunities through the tourism industry align with final black bear PORs.

This policy should be reviewed and/or renewed in 10-15 years, to ensure it continues to deliver the intended outcomes and aligns with black bear management goals and objectives.

Appendix A: Harvest Determination Math

A *fill rate* (tag or VC) = the number of black bears harvested divided by the number of tags or VCs issued in a given timeframe (year and season).

For example, the *4-year mean tag or VC fill rate* is the mean of the previous management area 4-year fill rates (sum of 1-year management area fill rates divided by 4) where the fill rate is management area harvest/ tags or VCs issued.

Total Planned Harvest = the 4-year mean of the licensed resident and non-resident harvest. Mathematically: (the sum of the 4 years resident and non-resident hunter harvest) divided by 4, rounded to the nearest whole number.

Sector Planned Harvest = either *resident planned harvest* or *tourism industry planned harvest*, defined as total planned harvest multiplied by the sector allocation proportion for the Wildlife Zone.

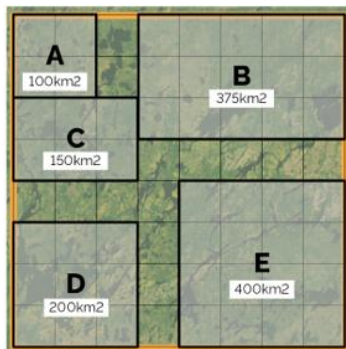
Area-based Allocation = each operator receives a *proportion* of the total available VCs proportional to their BMA and private land relative to all BMA and private land within that management zone.

An individual operator's VCs = *Total zone VCs* × *the operator's VC proportion*

Where:

$$\text{An operator's VC portion} = \frac{\text{The operator's total BMA and private land area within a zone}}{\text{The sum of BMA and private land area in that zone}} \times 100$$

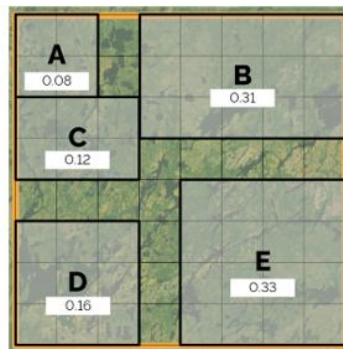
For example:



Five operator licences showing their *total land under licence* within a Wildlife Zone.

Total VCs available = 100

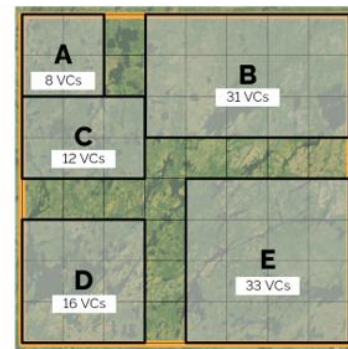
Total Area = 1225km²



The operator's proportional allocation is calculated by dividing their licence area by the total land under licence in the zone.

Operator proportion = Land under licence/Total land under licence in the zone.

Example A: 100km²/1225km² = 0.08



Each operator's VC allocation is then calculated using the proportion of area and the total validation certificates available for the zone.

Operator VC allocation = Total VCs available × Operator's proportion

Example A: 100VCs × 0.08 = 8 VCs

Appendix B: Glossary

Adjusted Total Planned Harvest: The new Total Planned Harvest for a bear population in a Wildlife Zone that has been either increased (if population is above POR) or decreased (if population is below POR).

Area-based allocation: the method for distributing the tourism industry's planned harvest among Bear Management Areas.

Barbed-wire hair trap (BWHT): a non-invasive means of collecting hair through barbed wire used to snag fur from black bears and estimate black bear densities and population sizes within Wildlife Zones. This is the province's black bear monitoring program.

Bear Management Areas (BMAs): areas of Crown land and private land located within the boundaries designated on the licence (with landowner's permission) where licensed operators provide bear hunting services and opportunities.

Wildlife Management Units (WMUs): the geographic areas within which wildlife, including bears, are managed.

Wildlife Zones: Groupings of ecologically similar Wildlife Management Units. This scale is used for monitoring bear populations and for harvest planning.

Interquartile ranges (IQRs): the spread of the middle half of a distribution of data (between the first and third quartiles).

Management units and areas: WMUs or BMAs used to distribute and communicate harvest opportunities.

Population objective range (POR): A population objective is the desired number of black bears, expressed as a range with an upper and a lower limit, on the landscape based on ecological, social, cultural, and economic considerations.

Preliminary population objective range: This is the initial population objective range calculated by the ministry, based primarily on ecological factors. It is shared with the public through a consultation process for feedback.

Final population objective range: The final, approved population objective range. It is developed by refining the *preliminary* population objective range using public feedback to describe the social, cultural and economic considerations that need to be considered.

Primary black bear range: The relatively intact, predominantly forested ecosystems of the Ontario Shield Ecozone. This area includes breeding and denning range.

Population status: The state of the population assessed by comparing the most recent population estimate to the POR. This refers to whether the population is within, above, or below POR.

Sectors: Includes resident hunters, the tourism industry (non-resident hunters and licensed operators), and licensed trappers that harvest black bears under the authority of their trapping licence.

Sector Split: Calculated based on each sector's proportion of the harvest over the most recent harvest planning cycle in each Wildlife Zone. This proportion is applied to the TPH to determine the planned harvest for each sector.

Tag: the licence component enabling a black bear licence holder the opportunity to harvest one black bear. Resident and non-resident hunters both require a tag, but non-residents additionally require a validation certificate.

Total Planned Harvest (TPH): The intended annual harvest of black bears by resident and non-resident hunters for each Wildlife Zone. The TPH should represent a sustainable harvest level that maintains the population within the POR or moves it towards the POR if the population is currently above or below it.

Validation Certificate (VC): a component of a non-resident bear licence that, together with a tag, authorizes a non-resident bear licence holder to hunt black bear in Ontario.

Appendix C: Available harvest management tools

The tools available to manage black bear hunting opportunities include:

- Allocation of validation certificates (non-resident harvest)
- Season length and timing
- Season closures
- Use of bait restrictions
- Party hunting restrictions
- Harvest (tag) quotas applied through a random draw
- 2nd tag allocations to residents

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