

Black Bear Den Winter Occupancy Check Protocol – West Coast Region

Background

Black bears use dens during periods of low food availability and low temperatures during which they enter a state of hibernation or torpor to reduce energy expenditures. Females give birth to cubs while in the dens, usually in January or February, and will often den with their cubs the following winter.

Black bear dens in the West Coast Region are not legally protected outside of Haida Gwaii and the Great Bear Rainforest. However, Qualified Professionals (QPs) are expected to follow best practices to mitigate the risk of disturbance during the winter hibernation season and avoid direct impacts to the den structure. Note that Haida Gwaii has a specific version of this protocol co-developed with the Council of the Haida Nation relevant to the Haida Gwaii Land Use Order.

The Province of BC recommends following available best practices that restrict forestry activities, including hauling, within specific buffer distances of known dens during the winter hibernation season. For example, some Forest Stewardship Plan holders, such as [BC Timber Sales](#) Strait of Georgia Business Area, have best practices for bear dens that recommend a 200m buffer distance for primary harvesting, falling, road construction (except blasting) and hauling, and a 1000m buffer for blasting and helicopter-yarding (summarized Table 1 below). Other existing protocols use similar buffer distances (e.g., [Artemis Wildlife Consultants](#)). These distances are considered default recommendations until additional information is available. An ongoing bear den study led by the Ministry of Water, Land and Resource Stewardship (WLRS) in the West Coast Region (WCR) will be used to help validate and refine these recommendations. *Data collected by licensees and Qualified Professionals related to den locations and disturbance around dens (e.g., incidental activity, distance, observed bear behaviour) should be submitted to WLRS WCR to contribute to this study.*

Adherence to the recommended best practice disturbance buffers may result in the need for winter den checks to assess den occupancy. However, winter den checks themselves have a high potential to disturb bears during the critical denning period and pose a safety risk from bears for the surveyor. This protocol has been developed as a recommended best practice to reduce the number of den checks being completed, help mitigate disturbance and minimize risk to surveyors.

Den check timing

Bear den entrance and emergence dates are variable, they are affected by sex of the bear, latitude, fall food availability and snowfall among other factors (Linnell et al. 2000, Gaines 2003, Fowler et al. 2019). Similar latitudes in North America typically see black bear den entrance in mid-October to late-November and emergence in early-April to mid-May (Gaines 2003, Fowler et al. 2019). Limited data on coastal B.C. chronology indicate similar dates (Davis 1996), with some entrance dates through December, and bears have been detected on remote cameras as late as January 10th (unpublished BC Government data). Bear activity from remote cameras in the WLRS WCR den study may be used to refine this protocol.

In line with existing best practices noted above, this protocol uses November 1st to May 15th as the **denning period** within which to avoid disturbance to dens within recommended disturbance buffers. Note that in some cases bears may begin to use dens earlier than Nov 1. There is a risk that dens that are assessed and determined to be inactive prior to January 10 may be incorrectly classified as inactive for the entirety of the denning period, since den initiation appears to range from mid-October to early January in the WCR.

If den checks are required for potentially disruptive activities occurring **after Jan. 11**, this protocol (pg. 4-5) recommends only checking dens once – after January 11th – to avoid multiple or additional checks throughout the denning period. If dens are active at this time, it is assumed they will be active until the end of the denning period. If activities are happening **before Jan. 11**, see protocol pg. 3 last box. Once a den is determined to be occupied it should not be checked again.

Qualified Professional

Consistent with the Professional Governance Act, the Province of BC wants to ensure that confirmation of den status during the denning period is completed by a Qualified Professional (QP); hereafter defined as a registrant in good standing with the College of Applied Biology and working within their area of expertise and scope of practice.

Safety

Winter den checks are not recommended if avoidable. If a QP determines that a winter den check is required, ensure the following minimum safety requirements are met: an additional crew person is nearby, bear spray is accessible, and an escape route is planned. Never enter a den or reach into a den during the winter hibernation season unless it is confirmed inactive by lower-risk methods described below. Note that some dens, due to their structure and configuration, cannot be confirmed inactive through low-risk methods. Outside of the denning period (especially throughout late September and October), surveyors should use reasonable caution when approaching dens, such as being aware of signs of bear activity and observing the den entrances from afar before approaching.

Identifying and marking dens

When identifying and marking known dens outside the winter hibernation season, some best practices can be taken to assist in locating the den in the event a winter check is required. Adequate signage and marking with flagging tape (e.g., four corner flags rather than a single wrap around the den tree itself) will reduce the amount of time it takes to find and assess the den for occupancy. Marking should not be easily visible from roads (to minimize investigation by the public) but easily seen by personnel checking for occupancy. Photos of this marking and the den should be taken so they can be reviewed by the QP prior to checking for occupancy.

Den check protocol

This protocol is divided into two flowcharts; the first is to provide guidance on when a den occupancy check is needed and the timing of den checks. The second guides through the den assessment methods. The recommended approach to assessing den occupancy is to first use a *low-risk method*, which is from >10m from the den, recognizing this is usually only possible with planning prior to the denning period (except for dens with clear site lines into chamber). If this low-risk method indicates unlikely use, then the surveyor can move to *high-risk methods* (outlined on final page) to confirm occupancy.

In cases where low-risk assessment methods are not possible (e.g., due to timing of finding den or planned activity, layout of den structure or sight lines), the QP must carefully consider whether to move directly to high-risk assessment methods. WLRS Biologists can be contacted for guidance.

For some dens, it is accepted that there is no sure way of determining whether it is occupied or not (e.g., an arboreal den with no monitoring device in place or a basal den where the den chamber is not easily visible due to internal walls or steep angles). In these cases, the precautionary principle should be used (minimum disruptive distances should be adhered to) unless an RPBio determines the risk of den abandonment due to the planned activity is minimal.

Is a winter den assessment needed?

Default disturbance buffer distance recommendation (until updated information): >200m for primary harvesting, falling, road construction (other than blasting), hauling, >1000m for blasting and helicopter logging.

Are there planned operational activities within the recommended buffers distances from a den during denning period (Nov 1 to May 15)?

Yes

No

Is it practicable to cease planned activities within recommended buffers of dens during denning period?

Avoid den disturbance

No

Yes

Avoid den disturbance

Is it practicable to cease activities within recommended buffer distances Nov 1 to Jan 11?

No

Yes

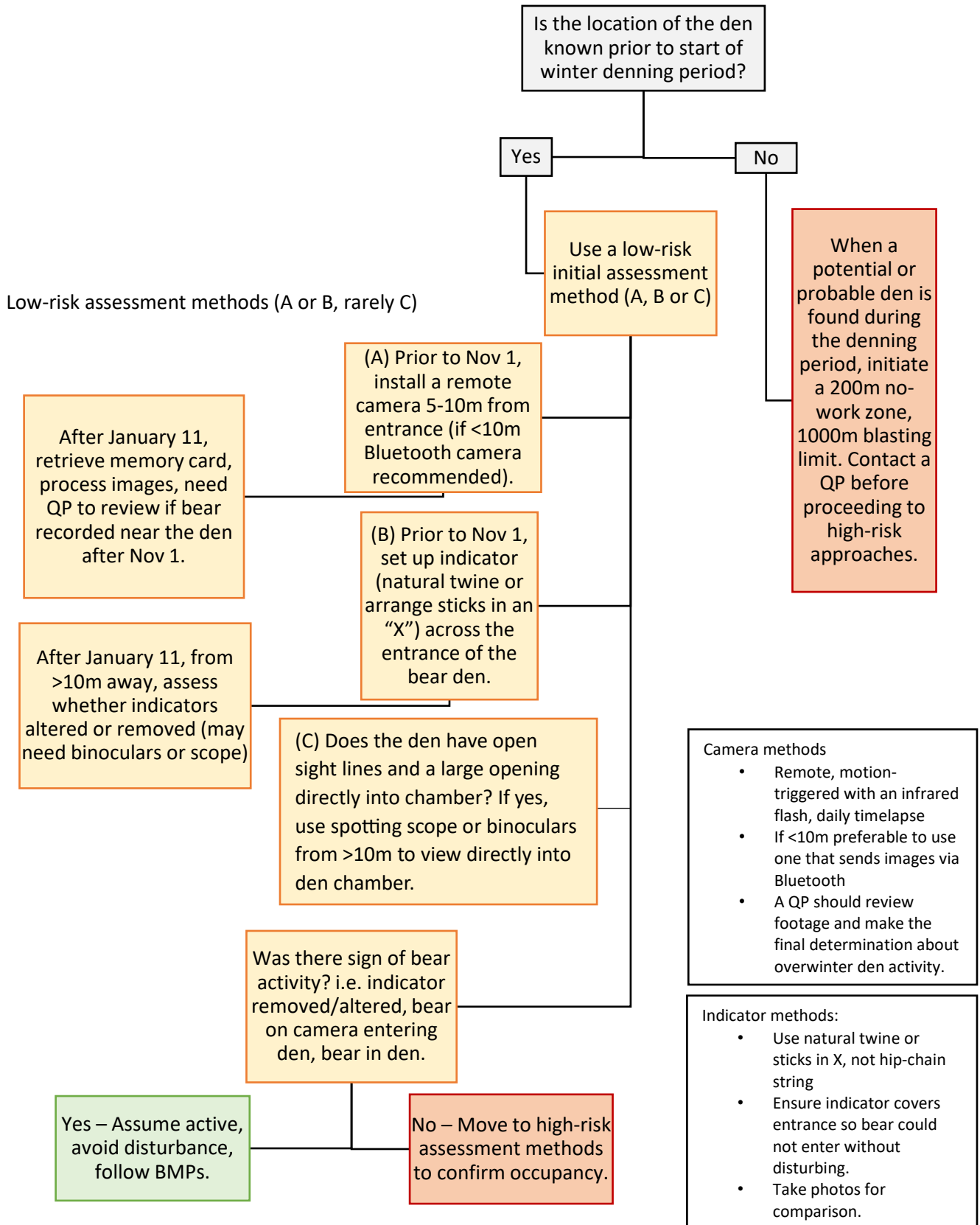
Have a QP follow low-risk protocol (next page) or equivalent QP risk-reduction method after Jan. 11

Activity commencing prior to Nov 1, continuous (≤5 days without activity at any time): Contact QP, may assume den will not be used until activity ceases unless can check with low-risk method.

Activity commencing (or re-starting after >5 day pause) after Nov 1: Contact QP, den occupancy needs to be assessed before activity (≤5 days) and again if paused for >5 days. If den known prior to denning period, use low-risk protocol (next page) or equivalent QP methods. Multiple checks using higher-impact methods are rarely warranted.

If den active at any time, cease checks for rest of denning period.

Winter den occupancy assessment risk-mitigation approach



High-Risk Assessment Method

- i) Use binoculars or a spotting scope from >10m from entrance to view den entrance for signs of activity/use (e.g., digging, fresh biting on den entrance or fresh scratching on nearby trees, loose vegetation such as tree or shrub boughs or ferns that may have been gathered for bedding) or for bear inside den chamber (possible only for some dens, depending on physical layout – if you can see inside chamber this is low-risk method).
- ii) Use an infrared camera, when available, to indicate whether bear is inside den (note some cameras may only sense from quite close to den).
- iii) Shine a flashlight into the den cavity from a distance. Look for signs of a bear (i.e., eye shine, fur) and movement.
- iv) Use a GoPro or camera on a telescoping stick to view arboreal dens or in some cases this may work with other den types. Keep camera outside of the chamber entrance.
- v) Only when all other available methods have indicated that a den is inactive should the Qualified Professional consider approaching a den and physically checking.

Summary

The primary scenarios for bear den best management practices related to disturbance are as follows. In all scenarios, the best practices related to feature management and protection apply and should be followed (see BCTS and Artemis Wildlife Consultants links above).

- Forestry or road activities can be modified to respect recommended disturbance buffer distances (Table 1): No den assessment needed.
- Den assumed or confirmed to be occupied, following timing and protocols of den occupancy checks above: avoid disturbance within recommended buffer distances (Table 1) until May 15.
- Den confirmed to not be occupied, following timing and protocols of den occupancy checks above: disturbance buffers are not required.

Table 1: Recommended disturbance buffer distances

| Activity | Disturbance buffer |
|----------------------------------------------------------------------------|--------------------|
| Primary harvesting, falling, road construction except blasting and hauling | 200m |
| Blasting and helicopter-yarding | 1000m |

Ministry of Water, Land and Resource Stewardship Biologist are available to provide guidance and should be contacted especially if repeated high-risk assessment methods are being considered.

Contact West Coast Region Nanaimo office at 250 751-7220 and request WLRS LUPPE Ecosystems

References

Davis, H. 1996. Characteristics and Selection of Winter Dens by Black Bears in Coastal British Columbia. Thesis. Simon Fraser University, Burnaby, BC.

Fowler, N. L., Belant, J. L., Wang, G. and Leopold, B. D. 2019. Ecological Plasticity of Denning Chronology by American Black Bears and Brown Bears. Global Ecology and Conservation 20: e00750.

Gaines, W. L. 2003. Black Bear, Ursus americanus, Denning Chronology and Den Site Selection in the Northeastern Cascades of Washington. The Canadian Field-Naturalist 117: 626-633.

Linnell, J. D. C., Swenson, J. E., Anderson, R. and Barnes, B. 2000. How Vulnerable are Denning Bears to Disturbance? Wildlife Society Bulletin 28:400-413.