

Marbled Murrelet Order **Review and Comment Aid**

About this Document

Along with the *Questions and Answers to guide review of the proposed Marbled Murrelet Order*, this *Review and Comment Aid* is intended to support review and comment on the proposed Marbled Murrelet Land Use Objectives Regulation Order; hereafter the MAMU Order.

Summary

The Marbled Murrelet (MAMU) is a seabird that nests predominantly on mossy platforms on old trees and is listed under the federal *Species at Risk Act* as Threatened primarily due to habitat loss. A Federal Recovery Strategy was finalized in 2014 and BC announced their Marbled Murrelet Implementation Plan in 2018. BC is focusing additional conservation efforts on Vancouver Island and the Southern Mainland Coast. For the East Vancouver Island Conservation Region, the amount of suitable nesting habitat is below the minimum habitat threshold and all suitable habitat will be retained by the MAMU Order. For the West and North Vancouver Island and Southern Mainland Coast, the minimum habitat threshold will be met for the Conservation Region through the protection of suitable habitat by the MAMU Order. Minimum habitat thresholds will be established at the Landscape Unit (LU) and LU aggregate scales to ensure habitat is well distributed across the species' range. Outside the scope of this order, a revised Section 7 notice is proposed to be established under the *Forest Planning and Practices Regulation* of the *Forest and Range Practices Act* to maintain spatial planning options for forest licence holders until new or revised Wildlife Habitat Areas and Old Growth Management Areas are legally established to meet the spatial commitments of the Implementation Plan.

Background and Context for the MAMU Order

Marbled Murrelet

The Marbled Murrelet is a small seabird found along the Pacific coast from California to Alaska. Marbled Murrelets spend most of their time at sea, returning to land to breed, nest and rear their young. They nest as solitary pairs at low densities, typically within 30 km of the sea, but nests have been located up to 65 km inland (Burger 2002; Lank *et al.* 2003; Piatt 2007). They do not construct nests but lay a single egg generally on a moss-covered branch in old-growth forest stands; their preferred nesting habitat (Burger 2002). The primary terrestrial threat to Marbled Murrelets is the loss and fragmentation of their old-growth nesting habitat.

Recovery Planning

The Canadian Marbled Murrelet Recovery Team Conservation Assessment Part A (Burger 2002) and Part B (Canadian Marbled Murrelet Recovery Team 2003) recommended recovery objectives for the

maintenance of Marbled Murrelet nesting habitat in British Columbia (BC). Considered science advice, these recommendations have influenced the management and protection of Marbled Murrelet nesting habitat through a variety of conservation designations on provincial Crown land (e.g., parks and protected areas, *Land Act* reserves, old growth management areas [OGMAs], wildlife habitat areas [WHAs], ungulate winter ranges [UWRs]) and other lands (e.g. national parks, municipal government lands and private conservation lands). As a result, Marbled Murrelet nesting habitat already receives considerable protection in BC.

Federal Marbled Murrelet Recovery Strategy

Environment and Climate Change Canada posted a final recovery strategy for Marbled Murrelet in June 2014 which includes the partial identification of nesting critical habitat. The Federal Recovery Strategy (Environment Canada 2014) adopts many recommendations from the Marbled Murrelet Recovery Team and sets a population objective that requires retention of nesting habitat at 70% (or greater) of 2002 amounts by 2032 province-wide. Distribution objectives are achieved through the identification of different levels of habitat retention expressed as minimum habitat thresholds for each of the seven conservation regions in BC.

Provincial Marbled Murrelet Implementation Plan

The *Implementation Plan for the Recovery of Marbled Murrelet (Brachyramphus marmoratus) in British Columbia* was approved in February 2018 and outlines direction provided by the provincial government to manage Marbled Murrelets in BC. The Implementation Plan is limited to the terrestrial (nesting) habitat for Marbled Murrelets and adopts many of the key recommendations from the Marbled Murrelet Recovery Team and the Federal Recovery Strategy applied to provincial Crown land.

Short-term Population and Distribution Objective

The short-term population and distribution objective for Marbled Murrelet recovery in the Implementation Plan is to halt the decline of the BC population related to terrestrial threats. Specifically, by 2032, decline of the provincial population and area of its nesting habitat will have ceased and the total population and area of nesting habitat will have stabilized above 70% of 2002 levels, with areas of nesting habitat in the seven conservation regions sufficient to support population objectives.

For six of the seven conservation regions, the following short-term recovery objectives have been adopted from the Canadian Marbled Murrelet Recovery Team recommendations (2003) and the Federal Recovery Strategy.

- Southern Mainland Coast Conservation Region – retain at least 85% of 2002 populations by retention of proportionate amounts of 2002 nesting habitat.
- Haida Gwaii, Northern Mainland Coast, Central Mainland Coast, and West and North Vancouver Island Conservation Regions – retain at least 68% of 2002 populations by retention of proportionate amounts of 2002 nesting habitat.
- Alaska Border Conservation Region – retain at least 70% of 2002 populations by retention of proportionate amounts of 2002 nesting habitat.

Habitat analysis in the East Vancouver Island Conservation Region indicates that the amount of suitable nesting habitat is already below the Canadian Marbled Murrelet Recovery Team (and federal) recommendation to retain 90% of 2002 suitable habitat. For this region, the short-term recovery objective is as follows:

- East Vancouver Island Conservation Region – retain 100% of currently suitable nesting habitat.

Northern Conservation Regions

In northern conservation regions (i.e., Alaska Border, Northern Mainland Coast, and Central Mainland Coast), minimum habitat thresholds for Crown land can be achieved through a combination of nesting habitat that is (or will be) protected through existing land use planning in addition to nesting habitat that is characterized as being outside the timber harvesting land base (THLB). No additional habitat management provisions are proposed in these Conservation Regions and suitable nesting habitat availability will be monitored over time to ensure amounts meet or exceed minimum habitat thresholds for these Regions.

Southern Conservation Regions

In southern conservation regions (i.e., East Vancouver Island, West and North Vancouver Island, and Southern Mainland Coast), the combination of nesting habitat that is (or will be) protected through existing land use planning, plus nesting habitat that is characterized as being outside the THLB, does not meet or exceed the minimum habitat threshold and habitat within harvestable lands (i.e. the THLB) is required to achieve these thresholds for Crown land.

In southern conservation regions (East Vancouver Island, West and North Vancouver Island, and Southern Mainland Coast), without additional protection of nesting habitat, habitat availability is at risk of decreasing to levels below minimum habitat thresholds for Crown land. This proposed order will ensure that amounts of suitable nesting habitat meet or exceed the minimum habitat thresholds for the West and North Vancouver Island and Southern Mainland Coast Conservation Regions. Due to the extent of habitat loss in the East Vancouver Island Conservation Region, all remaining suitable nesting habitat on Crown land, plus second-growth, long-term recruitment areas, will be required to achieve the minimum habitat threshold for this Region.

Clayoquot Sound

In 2008, an order established land use objectives for Clayoquot Sound and enabled the contents of the Clayoquot Sound Watershed Plans to be reflected in forest stewardship plans approved under the *Forest and Range Practices Act*. The Watershed Plans guide forest planning and harvesting in accordance with the Science Panel recommendations for sustainable ecosystem management in Clayoquot Sound and designate areas set aside as reserves to protect a range of forest values, including Marbled Murrelet nesting habitat. The Plans also designate harvestable areas outside of reserves where sustainable forest harvesting can take place. Within harvestable areas, special management zones are also identified to maintain special and sensitive values, including scenic, recreation, tourism and ecosystem values.

Habitat analysis for Clayoquot Sound indicates that habitat availability will likely exceed the minimum habitat threshold for that planning area. Therefore, no additional measures for the maintenance of Marbled Murrelet nesting habitat are proposed and the amount of suitable habitat will be monitored over time to ensure amounts meet or exceed Clayoquot Sound's contribution to the minimum habitat threshold for the South Island Natural Resource District and West and North Vancouver Island Conservation Region.

General Concepts for Identifying Suitable Marbled Murrelet Nesting Habitat

The Marbled Murrelet suitable habitat layer on Crown Land maps the best available spatial information for Marbled Murrelet nesting habitat in a given area based on one of several methods used to classify habitat quality. The Marbled Murrelet suitable habitat layer on Crown land has been updated to 2018 conditions with areas removed due to forest harvesting, road building, and fires. It should be noted that all methods of Marbled Murrelet habitat mapping contain some degree of uncertainty. In the Vancouver Island and Southern Mainland Coast Conservation Regions, these methods include:

Low-level Aerial Surveys

Habitat assessment by low-level aerial surveys (LLAS) is considered the most accurate classification of habitat suitability and is the most common method used to identify nesting habitat in the suitable habitat layer. LLAS are conducted from a helicopter by qualified observers who assess forest stand attributes associated with nesting habitat (e.g., presence of nest platforms, large trees, and canopy structure). LLAS surveys map nesting habitat using a six-class ranking system from 1 = very high to 6 = nil. Classes 1–3 are considered suitable nesting habitat and are included in the suitable habitat layer.

The BC Model

The BC Model (<http://jem-online.org/index.php/jem/article/view/11>) is an aggregate of predicted suitable habitat primarily from a habitat algorithm (forest age >141 years, forest height >28.5m, elevation <900m) using Vegetation Resource Inventory (VRI) data. Suitable habitat on Crown land identified by the BC Model is located mostly in parks and protected areas. In addition, the BC Model maps suitable habitat in Clayoquot Sound using a different algorithm. The BC Model only represents one class of suitable habitat (i.e., suitable or not suitable).

Federal Critical Habitat

The Federal Marbled Murrelet Recovery Strategy includes the partial identification of nesting critical habitat. The spatial depiction of federal nesting critical habitat is represented by an amalgamated layer of several methods that identify suitable nesting habitat. The entire layer is not considered critical habitat. Critical habitat is a proportion of the suitable habitat identified in the federal critical habitat layer. The provincially managed Marbled Murrelet suitable habitat layer only includes the best available indication of suitable nesting habitat for a given area, while the federal critical habitat layer includes all methods combined. Therefore, in an area with LLAS and the BC Model, the provincial suitable habitat layer only includes data obtained via LLAS (class 1-3), considered the most accurate method of

classifying habitat, while the federal critical habitat layer contains both the LLAS suitable (class 1-3) habitat and any area outside that the BC Model indicates is suitable habitat.

Legislative Context for the MAMU Order

Relationship to the *Forest and Range Practices Act (FRPA)*

The provincial *Forest and Range Practices Act (FRPA)* framework relies on the establishment of objectives to provide the overarching direction for forest management in BC. This Order proposes to establish Objectives under Section 93.4 of the provincial *Land Act*. These Objectives are established for the purposes of FRPA and trigger the requirement for provincial *Forest Act* agreement holders to develop results or strategies in Forest Stewardship Plans to be consistent with the Objectives outlined in the Order. In addition, woodlot licence plans will also be amended to be consistent with the Order. Implementation guidance is provided later in this document and an Implementation Guide will accompany the establishment of this Order.

Outside the scope of this Order, a spatial habitat management approach has been developed to achieve the spatial habitat management commitments outlined in the Implementation Plan. A revised Section 7 Notice is proposed to be established under the *Forest Planning and Practices Regulation* of the *Forest and Range Practices Act* to maintain spatial planning options for forest licence holders. This approach will support the future establishment of mapped reserves containing Marbled Murrelet nesting habitat, including WHAs under the *Government Actions Regulation (GAR)* under FRPA, and OGMAs under the *Land Act* (see *Spatial Habitat Management* below).

Relationship to the Non-Spatial Old Growth Order

The provincial Non-Spatial Old Growth Order legally establishes old growth objectives for LUs across the Province that do not have spatial old growth objectives established. The legal establishment of spatial OGMAs on Crown land under the *Land Act* on Vancouver Island and the Southern Mainland Coast has been ongoing for several years. At this time, several LUs have legally established OGMAs and the Non-Spatial Old Growth Order has ceased to have effect for those areas.

Due to the linkage between Marbled Murrelet nesting habitat and old growth forests, LU planning provides the opportunity to establish OGMAs that address the joint priorities of conservation of biological diversity and the protection of Marbled Murrelet nesting habitat.

Although outside the scope of this Order, a spatial habitat management approach has been developed to achieve the spatial habitat management commitments outlined in the Implementation Plan. This approach will support the future establishment of OGMAs under the *Land Act* to meet objectives for old forest and Marbled Murrelet nesting habitat.

Future Amendments to the MAMU Order

Significant effort has been made in recent years to improve the MAMU nesting habitat mapping on Crown land. It is anticipated that improvements to the habitat mapping will continue over time. As habitat mapping is improved, changes to the amounts of suitable habitat and protected habitat on Crown Land may influence minimum habitat thresholds. Therefore, it is anticipated that this Order will be amended in five years to be consistent with the best available information.

Marbled Murrelet Objectives Intent

Objectives for the East Vancouver Island Conservation Region

The objective for the East Vancouver Island Conservation Region on Crown land is to retain 100% of currently suitable nesting habitat. Provisions in the Order are proposed in the East Vancouver Island Conservation Region to avoid isolating and preventing access to natural resources and addressing safety concerns. It is anticipated these provisions will provide very limited opportunities to harvest suitable habitat only in instances where there is no other practicable option.

Because Marbled Murrelets depend on old-growth forest structure for nesting (i.e., large diameter limbs and mossy platforms high in the forest canopy), habitat recruitment opportunities are considered limited due to the length of time these structural attributes take to develop. Maintaining currently suitable habitat is thus the highest management priority. In the East Vancouver Island Conservation Region, where historic forest harvesting has been extensive and habitat availability is below Crown land minimum habitat thresholds, habitat recruitment will be required to achieve the minimum habitat threshold for Crown land over the long term. Several protected areas on Crown land in this region contain mature forests that, over time, may develop the structural attributes Marbled Murrelets require for nesting. Stands with retained veteran trees after previous disturbances may also offer potential opportunities for recruitment.

Objectives for the West and North Vancouver Island and Southern Mainland Coast Conservation Regions

Consistent with the Marbled Murrelet Recovery Team recommendations and the Federal Recovery Strategy, additional habitat loss above current habitat amounts can occur in these Conservation Regions and habitat availability will still meet or exceed minimum habitat thresholds. Therefore, not all suitable habitat in these Regions is required to be maintained. The objective for the West and North Vancouver Island and Southern Mainland Coast Conservation Regions is to maintain 68% and 85% respectively of the amount of suitable nesting habitat that existed in 2002.

In these Conservation Regions, the amount of suitable habitat to be retained exceeds minimum habitat thresholds. This provides operational flexibility for resource development because some level of choice exists where suitable nesting habitat will be maintained. This flexibility helps minimize impacts to timber supply and high priority resource development opportunities and provides opportunities to meet other objectives including priorities identified by First Nations. The Implementation Plan objective that

up to 20% of the minimum habitat thresholds in these conservation regions can be managed aspatially (habitat maintained on the land base but not identified in mapped reserves) also confers additional management flexibility.

Spatial Scale of Implementation

The provincial Implementation Plan set minimum habitat thresholds as amounts (hectares) of suitable habitat to be retained on provincial Crown land in each conservation region in BC. This Order proposes to establish objectives at smaller spatial scales that will assist implementation, allow progress to be tracked and ensure the amount of suitable habitat meets or exceeds Conservation Region minimum habitat thresholds.

Landscape Unit Aggregates

This Order proposes to establish minimum habitat thresholds at the scale of the Landscape Unit (LU) and LU aggregate – groups of LUs that are usually geographically adjacent and generally located within the same natural resource district and conservation region. This Order proposes that there is no flexibility to deviate from LU and LU aggregate minimum habitat thresholds. This approach ensures that suitable habitat amounts will meet or exceed minimum habitat thresholds at the natural resource district and conservation region scales.

Landscape Units

In addition to LU minimum habitat thresholds, this Order proposes to establish suitable (not minimum) habitat targets at the scale of the LU. The LU minimum habitat thresholds equate to 80% of the LU suitable habitat targets. Combined, the suitable habitat targets for the LUs within an LU aggregate equal the minimum habitat threshold for the LU aggregate. By establishing minimum habitat thresholds at the larger LU aggregate scale, the Order allows for the flexibility to deviate from LU suitable habitat targets as long as the amount of Suitable Habitat in LUs exceeds minimum habitat thresholds.

Prioritizing Suitable Habitat to be Retained

Habitat Quality

For most of the crown forest land base, the suitable habitat layer is represented by an amalgamation of LLAS class 1, 2 and 3 habitat. Class 1 and 2 habitat offer the most opportunities for nest platforms and habitat structure with selectivity indicated for these classes. Generally, the LLAS suitable habitat is mapped at a coarser scale; however, at finer spatial scales, class 1 and 2 habitats have been shown to have a higher likelihood of nesting birds and are therefore the highest priority for conservation. Ideally, the retention of equal or higher proportions of class 1 and 2 habitat compared to what is available in a given area is a desirable outcome that will increase the likelihood retained habitat will provide viable nesting opportunities.

Spatial Considerations

Outside the scope of this proposed order, the proposed spatial habitat management approach (see below) outlines several factors that are important considerations for prioritizing habitat to be retained; all related to increasing the likelihood retained habitat will be well distributed and continue to function unaffected by fragmentation and known negative edge effects. In addition to habitat quality, other factors contribute to prioritizing areas of suitable habitat to be retained including:

- Nest sites, known use, and occupied detections;
- Field verified habitat (by qualified professionals at finer spatial scales);
- Large patch sizes (compared to available patch sizes in a landscape unit);
- Distribution across landscape units;
- Habitat <30 km from the ocean (versus habitat 30-50 km from ocean);
- Interior forest condition (to mitigate negative edge effects);
- Additional information (e.g. LiDAR crown height models)

Implementation Guidance

Minimizing Resource Development Impacts

Much of the provincial Crown land base on the BC coast is tenured under the *Forest Act*. This proposed Order attempts to disperse habitat retention requirements across tenure holders in a fair and equitable manner, to the extent the distribution of nesting habitat permits. The current approach fully accounts for the contribution of existing protected areas on Crown land and strives to maximize the contribution of suitable habitat outside of protected areas that is also located outside the THLB; the area not considered operable for timber harvest and not contributing to the allowable annual cut. The remaining habitat in the THLB required to meet or exceed minimum habitat thresholds is then distributed across Crown land as an equal proportion of the amount of unprotected nesting habitat in the THLB. For example, after accounting for all habitat that is protected and all habitat outside the THLB on their respective forestry tenures, a forest licensee with ten times the amount of unprotected nesting habitat in the THLB as another licensee will have ten times the habitat retention requirements for nesting habitat in the THLB.

Management Flexibility

The flexibility to deviate from LU-scale suitable habitat targets helps minimize operational impacts to resource development, contributes to habitat distribution objectives, and helps address the uncertainty in the accuracy of the Suitable Habitat mapping. It is anticipated that the LU suitable habitat targets will be implemented as a default approach in some LUs.

This flexibility is intended to be implemented at the discretion of District Managers, the decision makers for operational plans under FRPA, and will be based on a review of the distribution, amount and operability of habitat across forestry tenures within LUs and LU aggregates to ensure that collectively, habitat availability meets or exceeds minimum habitat thresholds. If this flexibility provision is implemented, the outcome of this proposed approach will ensure habitat availability meets or exceeds

minimum habitat thresholds for LU aggregates, while in some LUs within that aggregate, habitat availability may differ from LU suitable habitat targets.

This proposed Order recognizes that management flexibility is a greater priority in some areas, while in other areas, less management flexibility will provide increased land base certainty and increase the likelihood objectives will be met. This proposed Order also provides the opportunity to co-locate retained Suitable Habitat with other values, including First Nations priorities.

Working Together within LUs and LU Aggregates

Additional implementation guidance will be provided when the Order is established and the BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development staff will be available to assist with implementation within each Natural Resource District.

Given that multiple forestry licensees could operate within the same LU and LU Aggregate, the successful implementation of this Order will require *Forest Act* agreement holders with area-based forestry tenures or access to timber within volume-based forestry tenures within the same LU or LU aggregate, work together with First Nations. They will need to develop results and strategies that, collectively, specify how the minimum habitat thresholds and suitable habitat targets are to be divided up between all forestry licensees in a way that will ensure nesting habitat availability meets or exceeds LU and LU aggregate minimum habitat thresholds.

An initial or default approach would be for licensees to achieve the suitable habitat target within all LUs, and where multiple licensees operate within a LU, it is expected that licensees each maximize their contribution of suitable habitat in the non-contributing and partially contributing land base and then divide up the remaining habitat requirements based on a proportionally equal amount of harvestable habitat. By working together, licensees can utilize the flexibility between LUs within LU aggregates to further reduce impacts to the harvestable land base and reduce overall THLB impacts of implementation.

For example, if a result or strategy proposes that the amount of suitable habitat be reduced below a LU suitable habitat target (it must meet or exceed the minimum habitat threshold for that landscape unit) the amount of suitable habitat to be maintained in another LU or LUs within the same LU aggregate must be increased by that same amount to compensate for the proposed reduction. Collaboration with First Nations will provide opportunities to maintain habitat in areas that First Nations have identified as priorities and may be considered for establishment of spatial reserves.

Proportionality and Maximizing Habitat Maintained Outside the THLB

Where multiple forest licensees are collaborating to develop proposed results and strategies to meet objectives in this Order, one of the important steps will be to determine how the additional habitat protection requirements will be distributed while ensuring the total habitat to be maintained collectively meets or exceeds LU and LU aggregate minimum habitat thresholds. It is expected that licensees will

engage with District Managers and their staff to ensure their perspectives and expectations are incorporated into developing results and strategies.

Where multiple licensees operate in a LU or LU aggregate, results and strategies that demonstrate a licensee's commitment to maintain a fair and proportionate share of the suitable habitat will be required. Where licensee tenures do not overlap an entire LU aggregate, then this concept can be applied at the scale of the LU. For example, if a licensee overlaps one LU, then a result or strategy that maintains the LU suitable habitat target (the default approach) is a reasonable approach. In this situation, other licensees within the same LU aggregate could propose to deviate from other LU suitable habitat targets but their results or strategies collectively would be required to exceed LU and LU aggregate minimum habitat thresholds. If a licensee proposes to maintain an amount of habitat that does not meet a LU suitable habitat target, they must demonstrate how the shortfall will be made up by increasing habitat retention commitments in another LU or LUs in that LU aggregate.

To minimize the overall impacts of implementation of this proposed order, licensees developing results and strategies in FSPs must make it a priority to maximize the contribution and maintenance of suitable habitat in areas that are not harvestable. As described above, this is fundamental to how habitat is intended to be retained across Crown land to minimize overall impacts to timber supply. To achieve minimum habitat thresholds in southern conservation regions, habitat must be retained in the THLB. To minimize overall impacts, this approach proposes that habitat be retained in areas that contribute to other priority objectives (i.e. co-location with First Nations priorities and other values), areas with partial harvesting constraints, and areas that represent lower priority forest development opportunities.

Spatial Habitat Management

The Implementation Plan outlines that at least 80% of the minimum habitat threshold for Crown land will be spatially protected (i.e., mapped) in the West and North Vancouver Island and Southern Mainland Coast Conservation Regions. To support the commitment to maintain 80% of the minimum habitat threshold in the southern conservation regions, a spatial habitat management approach has been proposed to guide the design and implementation of spatial reserves, including WHAs established under FRPA and OGMAs established under the *Land Act*. Spatial habitat management goals include maintaining functional nesting habitat, minimizing socio-economic impacts, and increasing certainty on the land base.

Although complementary, the spatial habitat management approach developed to meet this objective is outside the scope of this proposed Order. The spatial habitat management approach is intended to improve the likelihood that some of the suitable nesting habitat will continue to function unaffected by forest fragmentation and negative edge effects. To increase resource management flexibility, in some areas, the specific locations of the remaining habitat ($\leq 20\%$ of the minimum habitat threshold) will not be mapped.

It is anticipated that the extent of spatial habitat management will vary across natural resource districts to address differences in the extent of area-based and volume-based forestry tenures and to ensure the amount of suitable habitat will meet or exceed minimum habitat thresholds for the conservation regions.

Relationship to the independent panel old-growth report

As part of an Old Growth Strategic Review, the Government of British Columbia recently released the independent report on old-growth management in B.C. The province recognizes the importance of old-growth for Marbled Murrelet habitat needs. The report provides context for which temporary deferral areas can be considered to allow for conversations on the future of old-growth forests. Old-growth forests provides for many values – social, environmental, economic and cultural and the report provides an opportunity to consider old-growth for all values including important Marbled Murrelet habitat. The province is committed to engaging with the public and stakeholders and consulting with First Nations on the future of old-growth forests including needs for species at risk.