

# Proposed Revisions to the Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales

Ministry of Natural Resources

November 2025

## **1. Introduction**

The Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales (Stand and Site Guide) is part of a series of forest management guides in Ontario's forest policy framework. The Stand and Site Guide is enabled to provide direction to forest management planning teams by the Forest Operations and Silviculture Manual (FOSM) and Forest Management Planning Manual (FMPM), which are regulated under section 68 of the *Crown Forest Sustainability Act, 1994* (CFSA). Forest management plans identify where, and how, the activities of forest access, harvest, renewal, and maintenance (i.e., tending and protection) will occur during the plan period.

The Stand and Site Guide provide direction for conserving biodiversity and wildlife habitat management at spatial scales below the landscape level by emulating natural disturbance patterns and protecting forest values and features (e.g., aquatic ecosystems, special habitat features, species at risk, forest soils).

## **2. Stand and Site Guide Review**

In accordance with the Forest Operations and Silviculture Manual the review of a forest management guide will occur at least once every ten years to ensure it reflects best available evidence, such as published and unpublished literature, and Indigenous traditional knowledge and community perspectives. The Stand and Site Guide was reviewed in 2015-16. Review results generally supported current direction in the guide, however, more than 100 recommendations were identified to be addressed. Based on the number and nature of these recommendations, the authors of the review suggested there was sufficient justification to initiate a revision of the guide. Proposed revisions to the Stand and Site Guide, and consequently the Background and Rationale document, have been made to address recommendations in the 2015-2016 review of the guide. Revisions have also been made to address input received from the Provincial Forest Technical Committee, the revision Technical and Indigenous Advisory Teams, and subject matter experts.

## **3. Key Proposed Revisions**

The Ministry of Natural Resources regularly revises its forest policy framework so that the most up to date guidance and direction is available for the continued

sustainable management of Ontario's forests. The proposed revisions to the Stand and Site Guide are focused on modernizing, clarifying, and improved consistency of direction to forest management planning teams.

The following is an overview of some of the key proposed revisions:

- Added a new climate change section (Section 1.7) that covers climate change considerations at the stand and site scale and in this guide direction;
- Changes to wildlife tree direction including the retention of more supercanopy trees and providing a maximum number of wildlife trees for the clearcut silviculture system;
- Revisions to direction for white-tailed deer and moose habitat management based on new science and knowledge;
- Revised classification of potential sensitivity of standing and flowing water features and permitting carefully implemented clearcut harvest to shore on some streams;
- Changes to guide direction for Provincially Significant Wetlands;
- New direction to protect hydrological function in wetlands and areas of hydrological connection between terrestrial and aquatic systems;
- New direction for high-risk self-sustaining lake and brook trout lakes and ponds;
- Minor changes for bird nest site direction including changes to AOC dimensions, nest classification, and new direction for trumpeter swan nest sites;
- Increased operational flexibility for use of existing roadbeds in some bird nest site and species at risk areas of concern; and
- Re-evaluation of key uncertainties identified for guide effectiveness monitoring.

All identified revisions (Sections 4) are proposals and are subject to consultation with Indigenous communities, as well as review and comment by stakeholders and the public.

#### 4. Proposed Revisions to the Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales

| Current Section | Current Stand and Site Guide direction or content                                                                                                                                                              | Proposed revision to direction or content and rationale                                                                                                                                                                                                                                                                                       | New Section |
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| 1.2.2           | Numerous guidelines stipulate that “reasonable efforts” will be made to undertake a specific course of action (e.g., avoid new constructing new roads in an AOC).                                              | Replaced “reasonable efforts” with either “with Ministry notification” or “with Ministry approval” based on activity risk. Procedures for Ministry notification and approval defined in new Appendix 1b. <u>Provides flexibility to address local variation/uncertainty</u> while making direction enforceable from a compliance perspective. | N/A         |
| 1.2.2           | “Extraordinary circumstances” process and documentation requirements.                                                                                                                                          | Provided additional clarification for process and documentation of ‘extraordinary circumstances’ in Section 1.2.2 and in definition in glossary.                                                                                                                                                                                              | N/A         |
| N/A             | N/A                                                                                                                                                                                                            | Added new section for exceptions (as defined in the FMPM) that <u>provides clarification for associated exceptions process</u> when deviation from mandatory direction in the guide is necessary or desired.                                                                                                                                  | 1.2.3       |
| 1.5             | Pilot testing section summarizes testing of direction by FMP planning teams undertaken on relevant portions of the entire guide including wildlife tree, moose, shoreline harvesting.                          | Pilot testing section updated to reflect activities undertaken to assess effectiveness of new/revised direction including reclassifying the potential sensitivity of water features and rutting coverage in partial harvest systems.                                                                                                          | 1.5         |
| 1.6             | Socio-economic impact analysis section summarizes modelling exercise undertaken to assess potential impact of guide direction (compared to status quo) on wood supply, wood costs, and operational efficiency. | Socio-economic impact analysis section updated to reflect GIS-based spatial analysis on five forest management unit to assess the potential impact of new/revised direction on wood supply and wood costs. Changes to AOC dimensions for flowing water features, bird nest sites, and species at risk were the focus of the analysis.         | 1.6         |

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| N/A     | N/A                                                                                                                             | Added new section on climate change (as per recommendation in guide review) including impacts on Ontario's forests (Section 1.7.1), how guide direction addresses climate change (Section 1.7.2) and direction flexibility that enables forest managers to adapt to climate change (Section 1.7.3).                                                                                                                                                    | 1.7     |
| 2.2     | Guide enables planning teams to amend new or revised guide direction into currently approved FMPs should they choose to do so.  | Enabled all or only portions of the new or revised direction be amended into a currently approved FMP to acknowledge that the workload/resources required to amend all the new or revised direction may not be practical or feasible.                                                                                                                                                                                                                  | 2.2     |
| 2.3     | This section (Previous guides replaced by the Stand and Site Guide) lists previous guides replaced by the Stand and Site Guide. | Removed this section as the revised version of guide is no longer directly preceded by the previous guides that were replaced by the 2010 Stand and Site Guide.                                                                                                                                                                                                                                                                                        | N/A     |
| 3.2.3.1 | Requires the retention of an average of 10 large (>25 cm dbh) wildlife trees per hectare for the clearcut silviculture system.  | Specified for the 10 large wildlife trees per hectare, that 1 supercanopy (>60 cm dbh) tree per 2 hectares and all living, hollow 'chimney' trees be retained for the (where available) due to high wildlife habitat value (including species at risk).                                                                                                                                                                                                | 3.2.3.1 |
| N/A     | N/A                                                                                                                             | Established a maximum density of wildlife trees for the clearcut silviculture system of 100 stems/ha for the regeneration of shade intolerant tree species and 150 stems/ha for more shade tolerant regeneration. This density threshold has been established to ensure optimal light conditions for the establishment and growth of shade intolerant tree species and provision of habitat for early successional habitat-dependent wildlife species. | 3.2.3.1 |
| N/A     | N/A                                                                                                                             | Enabled felling of unmarketable, merchantable trees at stump to meet post-harvest light requirements in the clearcut silviculture system provided it is rationalized and approved in FMP (as per Scaling Manual) and is implemented so to not impede future silviculture operations or compromise ability of the site to achieve the regeneration standards of assigned silvicultural ground rule.                                                     | 3.2.3.1 |
| 3.2.3.1 | Includes a best management practice to retain large, hollow trees in selection and shelterwood silviculture systems.            | Requiring mandatory retention of reasonably identifiable large living (≥50 cm dbh) hollow 'chimney' trees and living trees with pileated woodpecker nest or roost cavities due to wildlife habitat value, especially to some species at risk (e.g., bats and chimney swift).                                                                                                                                                                           | 3.2.3.1 |

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| 3.2.3.1 | Requires the retention of an average of $\geq 1$ supercanopy tree/4 ha (when available).                                                                                                                                                                                  | Increasing quantity of supercanopy trees retained to $\geq 1$ supercanopy tree/ha (when available) as they provide wildlife habitat and vertical canopy structure diversity and are culturally and spiritually important to Indigenous communities.                                                                                | 3.2.3.1 |
| 3.3.3   | Addresses deficiencies in the amount of critical thermal cover for white-tailed deer through a long-term silvicultural objective to increase the amount of thermal cover over time.                                                                                       | Maintenance of habitat within winter deer emphasis areas addressed through long-term strategic targets for both a consistent supply of browse and winter cover habitat.                                                                                                                                                            | 3.3.1   |
| 3.3.3   | Provides direction for white-tailed deer winter cover requirements to be applied within stratum I (core deer yard) of deer emphasis area only.                                                                                                                            | Winter cover requirements now applied within both stratum I (core deer yard) and stratum II (general deer yard) of deer emphasis area due to shifting use patterns within deer concentration areas due to variable winter severity.                                                                                                | 3.3.1   |
| 3.3.3   | Current direction focuses on limiting harvest block size within stratum I of the deer emphasis area to maximize use of the area by deer.                                                                                                                                  | Revised direction shifts focus to identifying and maintaining patches of access cover and security cover within harvest areas to maximize use of the area by deer.                                                                                                                                                                 | 3.3.1   |
| 3.3.3   | Current direction related to white-tailed deer winter cover requirements are applied as a percentage of the area of the stratum I area (i.e., 10-30% of stratum I retained as winter cover).                                                                              | Winter cover requirements now applied using mapped cover patches arranged to limit distances between cover patches to a maximum of 600 m.                                                                                                                                                                                          | 3.3.1   |
| 3.3.4   | Requires habitat within moose emphasis areas (MEA) to be maintained within specific ranges for 3 separate habitat categories (young forest, mature conifer, and hardwood/mixedwood forest). A single set of habitat ranges is prescribed for all forest management units. | Requires habitat within moose emphasis areas be maintained within specific ranges for 5 separate habitat categories (young forest, hardwood forest, mixedwood forest, upland conifer forest, and lowland conifer forest). Habitat ranges are specific to either Boreal or Great Lakes St.-Lawrence forest region management units. | 3.3.2   |
| 3.3.4   | Current approach related to maintenance of summer thermal cover in MEAs focuses on retaining 15 ha of summer thermal cover within each 500 ha area of the MEA.                                                                                                            | Revised direction prescribes retaining mapped patches of summer thermal cover to ensure any point within the MEA is within 750 m of a mapped summer thermal cover patch (direction changed from a proportion requirement to a cover-to-cover requirement).                                                                         | 3.3.2   |
| 3.3.4   | N/A – current guide section does not include direction relating to security cover.                                                                                                                                                                                        | New direction related to the mapping of security cover is added to enhance access to browse within clearcut harvest areas with any point within planned clearcuts to be within 200 m of a mapped patch of security cover.                                                                                                          | 3.3.2   |

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| 3.3.4           | N/A – current guide section does not include direction relating to existing access levels and selection of MEAs.                                                                                                                                                   | New direction added to ensure preference for MEAs with low levels of existing access during the MEA selection process.                                                                                                                                                                                                                                                                                                                                        | 3.3.2 |
| 4.0             | Section 4.0 provides a preamble on interpreting and implementing fine filter AOCs for site-specific values in the subsequent sub-sections 4.1, 4.2, and 4.3.                                                                                                       | Section 4.0 has been revised to provide additional context and clarification for when AOCs overlap and the most restrictive direction is not intended to be followed, that it will be considered an exception to the guide. Preamble provides advice to be considerate of areas with high densities of values when making strategic landscape decisions to avoid potential conflicts between landscape level objectives and application of AOC prescriptions. | 4.0   |
| 4.1.1,<br>4.1.2 | Requires the retention of at least 10 living trees/100 m of shoreline spaced about 10 m apart as a potential source of future aquatic coarse woody material.                                                                                                       | Revised direction requires the retention of at least 2 living trees/10 m (i.e., 20 living trees/100m) to address Indigenous community concerns about adequate woody material inputs for fish habitat/structure and based on research showing 20 trees/100 m of shoreline provides a more reasonable expectation that a range of 10-15 trees/100 m will actually enter the water.                                                                              | 4.1   |
| 4.1.1           | Area of concern (AOC) prescriptions for standing waters (lakes and ponds) based upon potential sensitivity of the water feature with 3 classifications of potential sensitivity being assigned (high, moderate, or low potential sensitivity).                     | Revised direction still has AOC prescriptions based on potential sensitivity of water feature but now assigns water features to one of two classifications (high or low potential sensitivity).                                                                                                                                                                                                                                                               | 4.1.1 |
| 4.1.1           | Current direction has high potential sensitivity lakes and ponds receiving a variable width slope dependent 30-90 m AOC, while moderate potential sensitivity ponds receive a fixed 30 m AOC, and low potential sensitivity ponds receive a fixed 15 m AOC.        | Revised direction provides variable width slope dependent AOCs for all lakes and ponds with high potential sensitivity lakes and ponds receiving a 30-90 m AOC and low potential sensitivity ponds receiving a 15-45 m AOC. New flexibility included for harvest or road construction within the AOC beyond the height of land.                                                                                                                               | 4.1.1 |
| 4.1.2           | Area of concern (AOC) prescriptions for flowing waters (streams and rivers) based upon potential sensitivity of the water feature with 3 classifications of potential sensitivity being assigned (high, moderate, or low potential sensitivity).                   | Revised direction still has AOC prescriptions based on potential sensitivity of water feature but now assigns water features to one of two classifications (high or low potential sensitivity).                                                                                                                                                                                                                                                               | 4.1.2 |
| 4.1.2           | Current direction has high potential sensitivity streams and rivers receiving a variable width slope dependent 30-90 m AOC, while moderate potential sensitivity streams receive a fixed 30 m AOC, and low potential sensitivity streams receive a fixed 15 m AOC. | Revised direction provides variable width slope dependent AOCs for all streams and rivers with high potential sensitivity streams and rivers receiving a 30-90 m AOC and low potential sensitivity streams receiving a 15-45 m AOC. New flexibility included for harvest or road construction within the AOC beyond the height of land.                                                                                                                       | 4.1.2 |
| 4.1.2           | Potential sensitivity of streams based upon factors including flow regime (permanent/intermittent), species presence, and catchment size.                                                                                                                          | Revised direction removes flow regime as a determinant for potential sensitivity of streams. Potential sensitivity for flowing waters based on catchment size and presence of sensitive species or species at risk.                                                                                                                                                                                                                                           | 4.1.2 |

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| 4.1.2 | Current direction requires that all high and moderate potential sensitivity streams have 15 m of mature forest retained on both sides for shading. Shading is not required on low potential sensitivity streams.            | Revised direction requires the maintenance of 15 m of mature forest on streams that support fish that are sensitive to changes in water temperature or streams that are identified as cold from local knowledge or from thermal classification tools.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4.1.2 |
| 4.1.3 | Includes a standard AOC to be applied to all provincially significant wetlands in managed forest (i.e., prescriptions/conditions including an environmental impact study (EIS) to conduct harvest operations within a PSW). | Removing standard PSW AOC (hence also removing requirement for EIS to conduct harvest operations within a PSW) and requiring FMP planning teams to develop individual AOC prescriptions/conditions for each PSW that results in no or an acceptable loss of natural features or ecological functions that make wetland significant. New Appendix 4.1a provides considerations for planning teams developing AOCs for individual PSWs.                                                                                                                                                                                                                                                                                                 | 4.1.3 |
| N/A   | N/A                                                                                                                                                                                                                         | Including new mandatory direction for constructing roads in wetlands to maintain wetland hydrological flow.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 4.1.3 |
| 4.1.3 | Description of mapped non-forested wetlands does not integrate standard wetland classification.                                                                                                                             | Revising description for non-forested wetlands to integrate standard wetland classification as defined by the Ontario Wetland Evaluation System. Wetland type-specific direction provided based on hydrological sensitivity; marshes and fens receive more protection than bogs and swamps.                                                                                                                                                                                                                                                                                                                                                                                                                                           | 4.1.3 |
| 5.2.5 | Current direction for recognizable ephemeral surface and shallow groundwater flow focuses on not impeding, accelerating, or diverting water movement.                                                                       | New section replacing current Section 5.2.5 (hydrological impacts) so hydrological connections that channel ephemeral surface and shallow groundwater flow are addressed more similar to other water features given growing recognition of the ecological importance of small headwater features to the integrity of downstream ecosystems. New direction being proposed including mandatory and best management practices for operator due diligence in identifying and crossing these features with machinery. Making available to SFL holders the Ministry's predicted flowpath spatial product that can assist operations staff with residual retention planning in riparian zones and in-block road and extraction trail layout. | 4.1.4 |
| N/A   | N/A                                                                                                                                                                                                                         | New section providing fine filter direction for high-risk, self-sustaining lake and brook trout lakes/ponds that restricts new or improved road access to minimize potential adverse effects of unsustainable harvest and/or introduction of alien aquatic species. Providing new appendix to assess risk of self-sustaining lake and brook trout lakes/ponds.                                                                                                                                                                                                                                                                                                                                                                        | 4.1.5 |



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| 4.2.2.2 | Current direction for eagle and osprey nests includes separate prescriptions for primary, alternate, and inactive nests with limited flexibility for road construction. Inactive nests of eagle and osprey receive AOCs of 100 m and 75 m radius respectively. | Revised direction for eagle and osprey reduces the number of prescriptions from 3 to 2 with nests being classified as either active or inactive. Revised prescriptions have additional flexibility for road construction. Inactive nests of eagle and osprey reduced to a 30 m radius AOC.                                                             | 4.2.2.2 |
| 4.2.2.3 | Current guide provides different direction for small and large great blue heron colonies, with large colonies requiring the maintenance of residual forest in the outermost zone. Inactive colonies addressed through an AOC prescription.                     | Revised direction has a single prescription for all great blue heron colonies with additional harvesting opportunities within the outermost zone of the AOC allowing for selection and all stages of shelterwood harvest. Inactive colonies are now addressed through conditions on operations.                                                        | 4.2.2.3 |
| 4.2.2.4 | Current guide provides direction for red-shouldered hawk nests based on nest being a primary, alternate, or inactive nest. Primary nests require the maintenance of 28 ha of suitable habitat within 400 m of the nest.                                        | Revised guide provides direction to either nests based on being either active or inactive. Active nests receive a 300 m radius AOC and do not require the identification and maintenance of suitable habitat.                                                                                                                                          | 4.2.2.4 |
| N/A     | N/A                                                                                                                                                                                                                                                            | New direction specific to active trumpeter swan and sandhill crane nests.                                                                                                                                                                                                                                                                              | 4.2.2.8 |
| 4.3     | The current guide references the ESA, in particular that the ESA may contain additional species-specific direction that supersedes direction in the current guide.                                                                                             | Removing references to the ESA, with the exception of references to Ontario Regulation 230/08 the SARO list. The CFSA was amended in 2020 (section 47.1(1)) "Clause 9(1) (a) and subsection 10 (1) of the ESA do not apply while the person is conducting forest operations, in a Crown forest in accordance with an approved forest management plan." | N/A     |
| 4.3.1   | Direction for flooded jellyskin habitat                                                                                                                                                                                                                        | Removing direction for flooded jellyskin habitat. This species was removed from the SARO list and coarse filter direction will address minimizing adverse effects.                                                                                                                                                                                     | N/A     |
| 4.3.1   | Direction for Ogden's pondweed.                                                                                                                                                                                                                                | Removing direction for Ogden's pondweed. This species was removed due to its very limited range in the Managed Forest. If encountered planning teams can develop an AOC as needed as per the FMPM.                                                                                                                                                     | N/A     |

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| 4.3.1 | Current direction for American ginseng large patches focuses on avoidance of impacts on the patches of ginseng comprised of $\geq 20$ plants (within 40 m of each other) and the area within 120m of the patch periphery.                            | Revised direction defines large patches as $\geq 30$ plants, a science based 'extinction threshold', and plants within 10 m of each other. Revised direction focuses on literature addressing 'distance of edge influence'. <u>Revised direction provides more flexibility for operations and access.</u>                                                                                                                                                                  | 4.3.1 |
| 4.3.1 | Current direction for American ginseng small patches is defined as $< 20$ plants (within 60 m of each other).                                                                                                                                        | Revised direction defines small patches as $< 30$ plants, a science based 'extinction threshold', and plants within 10 m of each other. Revised direction provides more flexibility for operations and access.                                                                                                                                                                                                                                                             | 4.3.1 |
| 4.3.1 | Direction for broad beech fern.                                                                                                                                                                                                                      | Direction removed due to lack of recent observations and most documented occurrences are historical. If encountered planning teams can develop an AOC as needed as per the FMPM.                                                                                                                                                                                                                                                                                           | N/A   |
| 4.3.1 | Direction for remnant patches of natural grassland habitats                                                                                                                                                                                          | Direction removed. The natural grassland areas are not generally impacted by forest management activities. Habitat for eastern prairie fringed-orchid and small white lady's-slipper are addressed in the wetland plant and insect direction.                                                                                                                                                                                                                              | N/A   |
| 4.3.1 | Direction for Atlantic coastal plain plant communities or other shoreline plant communities containing SAR (e.g., small-flowered lipocarpha or toothcup).                                                                                            | Direction removed. These plant communities are addressed by specific lake plans and aquatic direction. If necessary, planning teams can develop an AOC as needed as per the FMPM.                                                                                                                                                                                                                                                                                          | N/A   |
| 4.3.1 | Direction for non-forested wetlands supporting SAR (e.g., branched bartonia, eastern prairie fringed-orchid, or small white lady's-slipper) focussed on mapped non-forested wetlands (or portions of wetlands), treed wetlands, and brush and alder. | Direction revised and labelled wetland plants and insect (branched bartonia, eastern prairie fringed-orchid, small white lady's-slipper, or bogbean buckmoth). Revised direction focusses on wetland vegetation communities and the adjacent 120 m area. Revised direction provides more explicit direction for conditions on operations. Direction for the bogbean buckmoth was added to this direction. This species was not listed when the current guide was approved. | 4.3.1 |
| 4.3.2 | Current direction for butternut is a silvicultural ground rule.                                                                                                                                                                                      | Revised direction is an AOC comprised of the tree and the area within 50 m, based on the critical rooting zone. Conditions on operations are based on the stem dbh of the tree.                                                                                                                                                                                                                                                                                            | 4.3.2 |
| N/A   | N/A                                                                                                                                                                                                                                                  | Added section on lichens and direction for pale-bellied frost lichen and white-rimmed shingle lichen. These species were not listed when the current guide was approved.                                                                                                                                                                                                                                                                                                   | 4.3.3 |

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| 4.3.3 | Current direction for West Virginia white is defined by suitable habitat as delineated by MNR.                                                                                                                                                                                                                                                                                                                                                                                                                | Revised direction provides more explicit direction for the delineation of suitable habitat, based on recent literature. Suitable habitat delineated by the Ministry within 30 m of permanent streams or within 10 m of intermittent streams.                                                                                                                                                                                                                                                                 | 4.3.4   |
| N/A   | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | A BMP for monarch, American bumble bee, Suckley's cuckoo bumble bee, and yellow-banded bumble bee was added. The bumble bee species were not listed when the current guide was approved.                                                                                                                                                                                                                                                                                                                     | 4.3.4   |
| 4.3.5 | Eastern ratsnake                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Gray ratsnake formerly known as eastern ratsnake.                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4.3.6.1 |
| 4.3.5 | Current direction for snakes and turtles includes restrictions on the use of roads for: <ul style="list-style-type: none"> <li>• Hibernacula used by eastern foxsnake, eastern ratsnake, or massasauga</li> <li>• Hibernacula used by eastern hog-nosed snake, eastern ribbonsnake, or milksnake</li> <li>• Gestation/oviposition sites used by eastern foxsnake, eastern ratsnake, eastern hog-nosed snake, massasauga or milksnake</li> <li>• Blanding's turtle habitat, spotted turtle habitat.</li> </ul> | Direction removed that restricts use of roads in snake and turtle direction. Forest access roads are public roads and restricting road use to only a portion of users of the road is not effective. Existing direction regarding awareness and driver training remains.                                                                                                                                                                                                                                      | 4.3.6.1 |
| 4.3.5 | Direction for hibernacula used by eastern hog-nosed snake, eastern ribbonsnake, or milksnake.                                                                                                                                                                                                                                                                                                                                                                                                                 | Milksnake removed, this species was removed from the SARO list.                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4.3.6.1 |
| 4.3.5 | Direction for hibernacula used by eastern foxsnake, eastern ratsnake, or massasauga.                                                                                                                                                                                                                                                                                                                                                                                                                          | Direction for hibernation sites used by eastern foxsnake was removed. This species does not hibernate in forested areas. The direction for gray ratsnake (formerly eastern ratsnake) is now a separate AOC. The size of the AOC for gray ratsnake has increased to 150 m to protect microhabitat conditions and staging areas prior to entering the hibernation site and after emergence. The direction for massasauga is now a separate AOC. The reserve area of the AOC decreased based on expert opinion. | 4.3.6.1 |
| 4.3.5 | Direction for gestation/oviposition sites used by eastern foxsnake, eastern ratsnake, eastern hog-nosed snake, massasauga, or milksnake.                                                                                                                                                                                                                                                                                                                                                                      | Milksnake removed, this species was removed from the SARO list.                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4.3.6.1 |
| 4.3.5 | Direction for Blanding's turtle habitat, spotted turtle habitat.                                                                                                                                                                                                                                                                                                                                                                                                                                              | Direction for Blanding's turtle was revised and made a separate AOC. The delineation of habitat was clarified, simplified and made more explicit to address consistency. An additional timing period                                                                                                                                                                                                                                                                                                         | 4.3.6.2 |

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|         |                                                                                                                           | (staging) was added to provide some flexibility for operations based on a period when the turtles are less active.                                                                                                                                                                                                                         |         |
| 4.3.5   | Direction for Blanding's turtle habitat, spotted turtle habitat.                                                          | Direction for spotted turtle was revised and made a separate AOC. The delineation of suitable aquatic habitat (SAH) was clarified and the area of SAH was reduced to 130 m (captures 95% of terrestrial observations of this species).                                                                                                     | 4.3.6.2 |
| N/A     | N/A                                                                                                                       | Direction for wood turtle added.                                                                                                                                                                                                                                                                                                           | 4.3.6.2 |
| 4.3.5   | Direction for nesting sites of northern map turtle, spiny softshell, or eastern musk turtle.                              | Direction label changed to natural nesting sites for spotted turtle, wood turtle, snapping turtle, eastern musk turtle, or northern map turtle. Spiny softshell removed as this species is not generally found in the Managed Forest. Snapping turtle added to direction. This species was not listed when the current guide was approved. | 4.3.6.2 |
| N/A     | N/A                                                                                                                       | Direction for anthropogenic turtle nesting sites added (e.g., nest sites along roads and in forestry aggregate pits).                                                                                                                                                                                                                      | 4.3.6.2 |
| 4.3.5   | Direction for hibernacula of northern map turtle, spiny softshell, or eastern musk turtle.                                | Spiny softshell removed as this species is not generally found in the Managed Forest.                                                                                                                                                                                                                                                      | 4.3.6.2 |
| N/A     | N/A                                                                                                                       | Section for lizards added. Direction for five-lined skink nesting sites added. This species demonstrates site fidelity and guards the nest site.                                                                                                                                                                                           | 4.3.6.3 |
| 4.2.2.3 | Direction for active large colonies of bank swallow. Direction applies to colonies occupied by $\geq 100$ pairs.          | Bank swallow was not listed when the current guide was approved. Direction was moved to Section 4.3. The direction now applies to every nest.                                                                                                                                                                                              | 4.3.7   |
| N/A     | N/A                                                                                                                       | Direction for barn swallow added. Barn swallow was not listed when the current guide was approved.                                                                                                                                                                                                                                         | 4.3.7   |
| 4.3.6   | Current direction for breeding habitat of cerulean warbler focusses on a minimum sized patch of breeding habitat (10 ha). | Direction for cerulean warbler was revised. The size of the AOC has increased mid-sized patch of breeding habitat (20 ha). Direction on roads was clarified re. access on existing roadbeds to address the harvest return cycle is $<25$ years.                                                                                            | 4.3.7   |

|         |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |
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| 4.2.2.6 | Current direction for nests/communal roosts in cavities occupied by American Kestrel, barred owl, boreal owl, eastern screech-owl, great horned owl, northern hawk owl, northern saw-whet owl, or chimney swift. The AOC size for chimney swift is a 50 m radius.                                                                                         | Revised direction for chimney swift was removed and made a separate AOC. Chimney swift was not listed when the current guide was approved. The AOC size was reduced to 30 m. Increased flexibility re. access is allowed if operational roads are built on existing roadbeds.                                                                                                                                                                                                                                                                     | 4.3.7   |
| N/A     | N/A                                                                                                                                                                                                                                                                                                                                                       | Direction for eastern whip-poor-will added. This species was not listed when the current guide was approved.                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4.3.7   |
| 4.3.6   | Direction for wetlands occupied by breeding black terns, golden-winged warblers, least bitterns, or yellow rails.                                                                                                                                                                                                                                         | Direction for golden-winged warbler was made a separate AOC.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4.3.7   |
| 4.3.6   | Direction for wetlands occupied by breeding black terns, golden-winged warblers, least bitterns, or yellow rails. The current AOC size for least bittern is a 5 ha patch of suitable habitat.                                                                                                                                                             | Revised direction for least bittern was made a separate AOC. The AOC size was increased to 50 ha of suitable habitat based on recent literature.                                                                                                                                                                                                                                                                                                                                                                                                  | 4.3.7   |
| 4.3.6   | Direction for wetlands occupied by breeding black terns, golden-winged warblers, least bitterns, or yellow rails.                                                                                                                                                                                                                                         | Direction for active black tern colonies has been moved to 'colonial nesting birds'.                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4.2.2.3 |
| 4.3.6   | Current direction for breeding habitat of Kirtland's warbler has an AOC size of 30 ha of suitable habitat.                                                                                                                                                                                                                                                | The AOC size of the revised direction for Kirtland's warbler has increased to 80 ha of suitable habitat. Increased clarity for suitable habitat has been provided.                                                                                                                                                                                                                                                                                                                                                                                | 4.3.7   |
| 4.2.6   | Current direction for bat hibernacula for big brown bat, eastern pipistrelle, hoary bat, little brown bat, northern long-eared bat, red bat, silver-haired bat, and small-footed bat. Direction applies to hibernacula used by ≥50 little brown bats, ≥30 big brown bats, ≥20 eastern pipistrelles, ≥20 northern long-eared bats, or ≥1 small-footed bat. | Direction for bat hibernation sites moved to Section 4.3. No bat species were listed when the current guide was approved. Big brown myotis (formerly big brown bat) is the only species in Ontario that is not listed. Name changes; eastern small-footed myotis (formerly small-footed bat), little brown myotis (formerly little brown bat), northern myotis (formerly northern long-eared bat), eastern red bat (formerly red bat), and the tri-colored bat (formerly eastern pipistrelle). The revised direction applies to every single bat. | 4.3.8   |

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|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 4.3.7.1 | Current direction for wolverine dens centres a 4 km AOC on every den site.                                                                                                   | Revised direction for wolverine den site(s) and foraging area is more explicit on the rationale for the 4 km area. The AOC is revised to apply to the area centred on the minimum convex polygon (minimum distance between multiple den sites belonging to the same female). <u>Increased clarity is provided re. the scope of the den site and foraging area management plan.</u> A denning period was added to provide consistency to address local circumstances where harvesting might be considered.                            | 4.3.8 |
| 4.3.5   | Direction for wolf dens (northern grey wolf and eastern wolf)                                                                                                                | Direction for eastern wolf and grey wolf den sites moved to Section 4.3.                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 4.3.8 |
| 5.1.1.2 | Includes direction specifically for roads within AOCs (Table 5.1b)                                                                                                           | Removing Section 5.1.1.2 and moving associated direction to: appropriate subsections in Section 4.1, Section 5.1.1 that applies to all roads (both inside and outside AOCs), or 5.1.2 (water crossings).                                                                                                                                                                                                                                                                                                                             | 5.1.1 |
| N/A     | N/A                                                                                                                                                                          | Adding mandatory direction for road maintenance (i.e., grading practices) to minimize potential environmental impacts of roads and improve safety for users.                                                                                                                                                                                                                                                                                                                                                                         | 5.1.1 |
| N/A     | N/A                                                                                                                                                                          | Adding best management practices to maintain road performance in response to climate change (e.g., extreme precipitation events).                                                                                                                                                                                                                                                                                                                                                                                                    | 5.1.1 |
| 5.1.2   | Provides direction (including many technical requirements) for design and location, installation and maintenance, and decommissioning and rehabilitation of water crossings. | Removing a significant portion of the direction for water crossings in the guide and now deferring to the <i>MNR/Fisheries and Oceans Canada protocol for the review and approval of forestry water crossings</i> (the Protocol) (e.g., approved water crossing standards in Section 8) so as not to provide duplicative direction in multiple policy documents. Reorganizing direction to be consistent with the sections found in Section 8 of the Protocol (general, design and location, construction and maintenance, removal). | 5.1.2 |
| 5.2.1   | Includes a standard for all silviculture systems that restricts rutting to <50% in any 0.1 ha circle.                                                                        | Reducing the allowable rutting coverage to <40% in any 0.1 ha circle based on re-measurement of a site disturbance study that showed current coverage threshold (<50%) may impact long-term (23 years) regeneration success.                                                                                                                                                                                                                                                                                                         | 5.2.1 |

|       |                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 5.2.1 | Includes a standard for selection and shelterwood silviculture systems and commercial thinning that <2% of any 20 ha area is permitted in ruts.                   | Replacing the areal coverage-based threshold for rutting (i.e., 2% of 20 ha) with a distance-based threshold: No more than 900 m of rutted extraction trails for any continuous 20 ha area is permitted. A distance-based threshold will be easier to assess from a compliance perspective and may be easier for operations staff to track when the threshold is being approached and operations may need to shut down or relocate.                                                                                                                                                                                          | 5.2.1 |
| N/A   | N/A                                                                                                                                                               | Providing new direction that states coverage of operational roads/landings and unutilized slash/chipper debris will not impact ability of a harvested area to meet renewal standard (i.e., site occupancy, species composition) of silvicultural ground rule (selection silviculture system excluded). Direction takes a results-based approach towards minimizing conversion to non-forest area.                                                                                                                                                                                                                            | 5.2.4 |
| 5.3   | Suggests training for operations staff on invasive species identification and practices to minimize their spread and provides resources that should be consulted. | Adding reference to the Clean Equipment Protocol for Industry that has been implemented during construction, agriculture, and forestry operations in parts of Ontario since 2013.                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5.3   |
| 7.2   | Identifies 10 key uncertainties (i.e., effectiveness monitoring questions) as high priority for effectiveness monitoring.                                         | Rephrasing questions as testable EM hypotheses and grouping by theme (wildlife and terrestrial/aquatic ecosystems) for better organization. Removing current Q3 (number/variety of wildlife trees to retain to support cavity-using wildlife) and Q9 (effectiveness of seasonal restrictions/setback distances associated with bird nest AOCs) as top-10 priorities. Refocusing two uncertainties; current Q2 (now H <sub>0</sub> 5) (catchment-scale spatial arrangement of residual forest) and current Q10 (now H <sub>0</sub> 8) (site disturbance impacts on residual tree/regeneration growth) based on new knowledge. | 7.2   |
| N/A   | N/A                                                                                                                                                               | Updating Background and Rationale for Direction document to describe/summarize EM that has been conducted since release of guide and how it has contributed to the revision of the guide.                                                                                                                                                                                                                                                                                                                                                                                                                                    | 7.2   |

## ACRONYMS

|      |                                            |
|------|--------------------------------------------|
| AOC  | Area of concern                            |
| CFSA | <i>Crown Forest Sustainability Act</i>     |
| Dbh  | Diameter at breast height                  |
| EIS  | Environmental impact study                 |
| EM   | Effectiveness monitoring                   |
| ESA  | <i>Endangered Species Act</i>              |
| FMP  | Forest Management Plan                     |
| FMPM | Forest Management Planning Manual          |
| GIS  | Geographic information system              |
| MEA  | Moose emphasis area                        |
| MNRF | Ministry of Natural Resources and Forestry |
| PSW  | Provincially significant wetland           |
| SAH  | Suitable aquatic habitat                   |
| SAR  | Species at risk                            |
| SARO | Species at risk in Ontario                 |
| SFL  | Sustainable forest licence                 |