# Managing Wildlife/Dangerous Trees

- A safety guide for qualified persons -

June 2008

#### TRAINER'S GUIDE





An initiative of the Wildlife Tree Committee of British Columbia in cooperation with:







**WORKING TO MAKE A DIFFERENCE** 

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#### **FOREWORD**

This training course provides information and technical procedures for understanding tree hazards and establishing appropriate safe work practices in situations where there is potential exposure of workers involved in silviculture treatments to dangerous trees. It also provides information on habitat quality that can be used to retain high-value wildlife trees where opportunities exist to assess both tree hazards and wildlife tree habitat value.

Silviculture activities create minimal site disturbance and typically follow activities having higher ratings for level of disturbance (e.g., logging or site preparation). Consequently, this course primarily focuses on worker safety and tree defects which can be visually inspected and rated as having "high defect failure potential."

Persons who wish to learn more about wildlife/danger tree assessments and to obtain certification as a wildlife/danger tree assessor for forestry activities should take the regular "Wildlife/Danger Tree Assessor's Course for Forest Harvesting and Silviculture."

Nancy Densmore Ministry of Forests and Range Mike Neilsen WorkSafeBC Richard Thompson Ministry of Environment







#### WHAT IS THE WILDLIFE TREE COMMITTEE OF BRITISH COLUMBIA?

The Wildlife Tree Committee (WTC) is a multi-agency committee composed of representatives from the provincial Ministry of Forests and Range and Ministry of Environment, WorkSafeBC, industry and labour, and public interest groups from across the province. Formed in 1985, the WTC is the advisory body acting on behalf of the three signatory agencies and representing all wildlife tree matters in British Columbia.

#### The Wildlife Tree Committee mandate is:

To promote the conservation of wildlife trees and associated stand-level biodiversity in a safe and operationally efficient manner, in forest, park and urban environments.

Two major objectives of the WTC are to:

- ensure the maintenance and enhancement of wildlife trees in order to sustain the species dependent on them (about 80 species, or 15% of the province's birds, mammals, and amphibians); and
- foster cooperation and understanding between the various interest groups.

The WTC believes that managed forests, high standards of worker safety, and maintenance of valuable habitat for wildlife tree-dependent species are mutually compatible if cooperative action is taken to integrate these goals.



Wildlife Tree Committee website: www.for.gov.bc.ca/hfp/values/wildlife/WLT/index.htm

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#### **COURSE BACKGROUND**

This course provides guidance for the identification of potentially dangerous trees prior to forest activities that create low to negligible ground vibration or disturbance (e.g., silviculture treatments, fire fighting with hand tools).

WorkSafeBC recognizes a Qualified Person (QP) as a person experienced in the specified work activity and who, by reason of education, training, experience or a combination thereof, is able to recognize and evaluate hazards associated with trees, with due regard for the anticipated work activity and possible disturbance of the tree(s). The course purpose is to develop the skills of the QP so that they are better able to competently develop safety plans and management strategies to protect valuable wildlife trees.

Those participants wishing to become a certified wildlife/dangerous tree (WDT) assessor should have a minimum of three years of practical field experience in forestry or a related field and take the two-day Wildlife/Dangerous Tree Assessors Harvesting and Silviculture module. A QP is not a certified WDT assessor unless they have taken and passed the WDT Assessor's certification course.

The course will be offered on an ongoing basis throughout British Columbia to:

- WorkSafeBC field inspectors; and
- Foresters, biologists, silviculturalists, tree planting supervisors, forestry technicians, and others involved in performing or supervising silviculture treatments in forestry operations.

Qualified persons are recognized by WorkSafeBC, Ministry of Forests and Range, and the Ministry of Environment. The course is not mandatory, but upon completion of this one-day course the QP will be competent in identifying important attributes of wildlife trees, including:

- their potential as wildlife habitat;
- their failure potential; and
- appropriate safety decisions regarding trees.

#### **COURSE GOALS AND OBJECTIVES**

#### Goals

The goal of the **Managing Wildlife/Dangerous Trees in Silviculture Course** is to present information, practical field experiences and methods to identify and manage:

- valuable wildlife trees with desirable habitat features; and
- hazardous tree defects and how to maintain a safe worker environment..

#### **Objectives**

Participants in the Managing Wildlife/Dangerous Trees in Silviculture Course will be trained to:

- recognize existing and potential wildlife trees, identify wildlife tree use, and understand the importance of wildlife trees and how to integrate them into silviculture activity plans; and
- distinguish between safe and dangerous trees, thereby enabling them to determine tree
  hazards and related safe work procedures appropriate for dealing with wildlife
  and dangerous trees in silviculture settings, as well as along roadsides accessing
  silviculture work sites.

Notes:	

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#### **AGENDA**

#### MANAGING WILDLIFE/DANGEROUS TREES IN SILVICULTURE

(Schedule may vary depending on audience and location of field sites, and instructor needs)

8:00 a.m. Welcome participants

Introduce instructor and participants

8:15 a.m. Introduction to wildlife trees

• what is a wildlife tree?

• wildlife tree classification

• importance of wildlife trees

8:45 a.m. Wildlife/dangerous tree assessment

• what is a dangerous tree?

• relevant Workers Compensation Act regulations

level of disturbance and exposure

• site assessment overview/ stratification

• dangerous tree inspection

safety procedures

10:00 a.m. Mobilize for field site

11:00 a.m. Site assessment

and wildlife/dangerous tree field assessment

 Participants will stratify a work site, record site hazards and assess wildlife/dangerous trees for hazards and wildlife habitat value. Participants will carry out practical field identification and determine tree danger ratings and safety procedures for various trees. Site safety plans will then be developed by the group as a closing exercise.

2:00 p.m. Adjourn

#### **DELIVERY PREPAREDNESS**

Prior to starting the course session, review the:

- PowerPoint presentation;
- booklet: Managing Wildlife/Dangerous Trees A safety guide for qualified persons; and
- brochure: Managing Wildlife/Dangerous Trees A safety guide for qualified persons.

#### **Materials Required**

Be sure to have enough copies of the following (one per participant):

- booklet: Managing Wildlife/Dangerous Trees A safety guide for qualified persons;
- brochure: Managing Wildlife/Dangerous Trees A safety guide for qualified persons;
- Site Assessment Overview Summary;
- Dangerous Tree Field Data Collection LoD 1;
- Dangerous Tree Field Data Collection LoD 1 sample;
- Dangerous Tree Field Data Collection Card Guide;
- · Participant Evaluation of Training; and
- Recognition of Training blank.

Make one copy per training of:

- Managing Wildlife/Dangerous Trees for Qualified Persons Sign Up sheet; and
- Participant Evaluation Field Checklist

All necessary classroom materials and field supplies will be supplied by the instructor.

#### The participant is responsible for providing the following essential items for field exercises:

- personal gear, including rain gear (mandatory);
- hard hat (mandatory);
- boots with ankle support (mandatory; caulk boots recommended for coastal locations);
- binoculars (recommended);
- diameter tape (optional); and
- 6-ring field notebook (mandatory).

Remember, this is an experiential field-based workshop. Successful learner outcomes will depend on a high-quality field site. Select an appropriate field site that is within reasonable travel time from the classroom, and ensure the site has sufficient parking and safe access routes. The field site should provide access to numerous examples of suspect trees that will illustrate all types of significant hazard indicators (hang-ups, unstable stems, recent lean) and have a variety of tree species (conifer and deciduous). Flag 6-10 trees for training purposes and complete a tree assessment card for these trees. Complete a site assessment card for the site.

Notify the licencee or prime contractor and request permission to deliver the field training in their operating area. Extend an invitation for them to send a company representative. Request a copy of their safety protocol and radio call procedures for their operating area. Obtain a road map to your selected field site(s).

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#### INDOOR SESSION

#### **Delivery Time: 90 minutes**

The classroom style delivery provides an opportunity to greet and introduce all participants. The format can be casual or formal – depending upon the needs of the group and the venue. Arrive early enough to set-up the room to match the size of your group, locate emergency evacuation routes, fire extinguishers, 1<sup>st</sup> aid equipment and the location of the washrooms.

During the indoor session, the following tasks should be completed:

- Welcome your group and make introductions, outline the agenda for the course.
- Take attendance and provide a safety orientation (1<sup>st</sup> aid coverage, location of 1st aid, emergency evacuation and call procedure for emergency, radio call procedures); find out if there are any allergies or physical limitations.
- Provide directions to the washrooms and smoking areas.
- Distribute a travel itinerary with route and radio call procedure.
- Distribute the QP booklet and brochure, blank field card and site overview card.
- Review field equipment and personal protective equipment needs.

The PowerPoint presentation provides an overview and context for the role of the QP. The key concepts can be reviewed using a laptop, LCD projector and suitable screen (blank wall works too). Remember to emphasize that this course is NOT a certification course (a DT Assessor course is a 2-day session).

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#### **FIELD SESSION**

**Delivery Time: 120 minutes** 

#### **SAFETY PROCEDURES**

Outline the site safety procedures for the field site prior to departing and review these procedures upon arrival at the field site:

- Identify the 1st aid attendant, location of 1st aid equipment and fire fighting equipment;
- Review the safety procedures and radio call protocol;
- Review and post emergency response and evacuation procedures;
- Review the access map, alternative routes and the site map;
- Remind everyone about the personal protective equipment needs; and
- Review the procedures and location of "safe" smoking sites (if applicable).

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#### TRAINING DELIVERY

The field session is the most important aspect to this training. During this session the participants will be shown how to complete a site assessment overview, how to identify valuable wildlife trees, and how to distinguish between safe and dangerous trees. Each person will also demonstrate how to safely manage dangerous trees.

Give clear instruction of how you will communicate the start and end of each field exercise. Be careful to manage the time so that the training remains concise and effective. Therefore, review the training objectives and outcomes in advance. Link the classroom session to the field session – everything must be clearly linked and relevant. Give opportunity for questions and answers

- regardless of the type of question. Avoid the use of acronyms.

Give direction and instruction that is clear and concise. Follow a training model that progressively expands the knowledge of the participants and leads them into demonstrating competency. Therefore adopt a training delivery pattern of "**Hear it, See it, Do it**".

The ideal field site will have most (if not all) of the following attributes:

- Recently logged ideally there should be multiple blocks from which to choose;
- Residual stems left in the openings;
- A block edge or wildlife tree patch;
- A variety of tree species and examples of numerous tree classes;
- Examples of wildlife trees;
- Windthrow and recent lean with poor roots;
- A variety of forest health issues;
- Insecure lodged and or tipped trees;
- Unstable trees:
- Hang-ups either insecure or secure (both are preferable); and
- Other site hazards loose rocks, steep slopes, access and egress issues, communication challenges.

Pre-identify example trees and consider flagging an example **No Work Zone**, or have a suitable tree with relatively easy ground cover to demonstrate the establishment of a NWZ. It is easier to train if the sample trees are previously assessed and the documentation is in a field notebook for reference.

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#### **Lesson 1 – Site Assessment Overview (30 minutes)**

Discuss site safety items, including wind speed criteria (LOD1 is < 40km/hour). Be sure that all participants are wearing hard hats and other pertinent personal protective equipment before leaving the field marshalling area.

Break into groups of 3-4 persons to complete the 'Site Assessment Overview Summary'. Describe the purpose of the form and discuss the sections on the form. Encourage the participants to go for a 10 minute walk through of the area. Alternatively, stop at a vantage point. Have the groups complete the form based on their observations.

- Review the purpose of site stratification.
- Identify treatment units (e.g., planting, brushing, browse protector maintenance, etc.) or timber type and site differences (e.g., moisture shedding versus receiving sites.
- Report the results of the site assessment (ask for a spokes person from each group to share what they observed and discovered).
- Review and discuss trees with recent failure. Discuss the causes of tree failures and relevance of this information when looking at other suspect trees.
- Discuss how they would communicate the results of the Site Assessment Overview to other workers.

**Remember:** The Site Assessment Overview is a helpful guide to preparing a site safety and

orientation plan for project implementation. It also guides the tree assessment process for the site.

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#### Lesson 2 – Tree Inspection and Establishing a NWZ (90 minutes)

Distribute a roll of light weight flagging tape to each group of 3 - 4 persons. Review the location of each of your pre-selected trees. Remind the group to take care when moving amongst the trees and to not "SHAKE" or ATTEMPT to dislodge any trees.

At one of the pre-selected trees, demonstrate the tree inspection process. Have each person take notes on their copy of the field card. Review the complete tree inspection process (4 steps) and then explain how to record the observations. If needed, demonstrate the installation of a NWZ. Be sure to ask if anyone is unclear about how to inspect suspect trees. Give the groups sufficient time to review each tree, and tell everyone when you will end this exercise and where you will convene to review their inspections.

Have the teams visit each tree and perform an inspection and to document their observations. Request that each participant complete their own field form for EACH tree. Although working as a group, suggest that they individually inspect the trees – they will learn most by "doing". Where appropriate, and if time permits, have participants share what they documented for the trees. Alternatively, review the outcomes expected for each tree (using your own field card as a reference). Collect the completed field form at the end of the lesson for your review and issuance of training certificates.

Debrief the session and hand out course evaluations. Check the field cards while the students are completing the evaluations. If you see any deficiencies in a participant's field card, ask the participant(s) to stay behind (if possible) so you can clear up anything that was not clearly understood.

While the participants are completing the evaluation you can issue training certificates to those who were able to demonstrate competency. Record the names of the participants who received a recognition of training certificate.

Collect course evaluations. Dismiss the groups once you are certain all participants have returned from the field. Remind everyone to follow the road protocol on their departure from the field site.

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#### **APPENDICES**

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#### Appendix 1: Site Assessment Overview Summary (addition notes on side 2)

Location:		Date (mm/dd/yy):			
Tenure Holder:		Tenure:			
Stratum Identification:		Operation:			
Assessor's Name:					
Forestry activity and LOD:		Planned start-up and end dates:			
Stratum conditions (Describe leave t	rees - species, sizes, condition, ago	es and density distribution):			
WT management objectives (Describ	pe constraints to NWZ, WT retention	n):			
Stand Density and Site History	Site Hazards	Common Tree Pathogens/Cause of Failure (List factors and severity/frequency)			
Disturbance year	Bluffs/cliffs/sink holes				
Disturbance type	Gorges/streams/gullies				
Recent tree failure(s)	Rock talus/scree				
Past tree failure(s)	Steep/unstable terrain				
Fire intensity (L,M,H)	Recent edge/tree exposures				
Tree retention pattern - even	Snow/ice/fog				
clumps irregular	Windthrow risk				
Retention tree density (L, M, H)	Shallow/saturated soils				
Tree species mix	Stand decadence				
Tree age (dom/co-dom)	Other:				
Prevailing wind direction					
Wildlife tree use (L, M, H)					
Mitigation Strategies	Constraints	Communication			
Falling/machine clearing/blasting	Wind speed criteria	Evacuation routes			
NWZ criteria	Weather				
Tree modification	Seasonal issues	Refuge area			
		Road use control			

#### Appendix 2: Dangerous Tree Field Data Collection Card (addition notes and sketches on side 2)

Print	ed N	ame	:							Date:
										SITE ASSESSMENT
Act	ivity:									
Loca	tion:									
CP/B	lock:									
Site F	listory	: (e.g.	, year	harve	ested,	site p	repar	ation	method	and timing)
					f tree	es for	LOE	)-1 a	ctivitie	es are applicable only when silviculture activities are performed eeds exceed 40 km/hr the workers must move to a safe area.
			(	meters)	ır (cm)			nifican	t Tree below)	
Tree #	Free Species	Tree Class	MT value (L, M, H)	Estimated Height (meters)	Estimated Diameter (cm)	-ean (L, M, H)	nsecurely lodged	Unstable stem	Recent lean & poor roots	Dangerous Tree Management Strategy (i.e., Mark tree as Dangerous; Ribbon No Work Zone or Fall Tree)
1		_	>	ш	ш		=		F 6	
2										
3										
4										
5										
6										
7										
8										
9										
10										
lote	5:									
_										
igni	fican	Tree	Defe	cts (d	efinitio					r more of the following defects is at risk of imminent failure and poses a I which must be addressed by a "Dangerous Tree Management Strategy"
-	nsecu	rely lo	dged	"trees	": A	tipped	tree th	nat is li	kely to s	hake free of the support trees and fall to the ground.
nse	urely	lodge	d "har	ıg-ups		islodge ee mot		hung-u	ıp limbs	or tops (consider size and height above ground) at risk of shifting free during light winds or oth
	ŀ	lighly	unsta	ble tre				cross-	-sectiona	al area damaged, burned, scarred, decayed or fractured; or ii) Spongy snags with heart rot con
										th of the stem (e.g., class 5 - 6 conifers or class 4 deciduous) or soft snags (e.g., class 7 - 8 ); or iii) >50% of lateral support roots are damaged or with advanced decay.
	Rec	ent lea	an/pod	or root	s:R	ecent l	ean <u>to</u>	wards	the wo	rk area AND decayed root system (>50% of roots have advanced decay) or damaged and liftir soil conditions and anchoring).
Vind	Spec	d Est	imati	on:						loose paper is raised small branches move
										es sway, tops of large trees sway Inches fly in the air, whole tree in motion, resistance felt when walking against the win
					IA.		****	.u. 01		rate (<15% or 8°)
		Low								

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#### **Appendix 3: Dangerous Tree Field Data Collection Card Sample**

Prin	ted N	lame	: Pe	ter D	one	it				Date: Month – Day – Year
										SITE ASSESSMENT
Act	tivity:	Tre	e pla	nting	g – s <sub>j</sub>	pring	g plai	nt		
Loca	ation:	Nev	w Fo	rest !	Mills	;				
CP/B	lock:	CP:	24	Blo	ck: 1	543				
Site I	History	/: (e.g	., yea	r harve	ested,	site p	repar	ation i	method	and timing)
Win	iter l	ogge	d las	t yea	r; sca	atter	ed he	ealth	y trees	s and deciduous wildlife trees; no site prep
					f tree	es for	LOE	)-1 a	ctivitie	EE FIELD DATA COLLECTION – LOD 1 s are applicable only when silviculture activities are performed eds exceed 40 km/hr the workers must move to a safe area.
				meters)	er (cm)			nificant	Tree below)	
Tree #	Tree Species	Tree Class	WT value (L, M, H)	Estimated Height (meters)	Estimated Diameter (cm)	Lean (L, M, H)	Insecurely lodged	Unstable stem	Recent lean & poor roots	Dangerous Tree Management Strategy (i.e., Mark tree as Dangerous; Ribbon No Work Zone or Fall Tree)
1	Fd	2	L	20	35	+L	D			Blue paint #1; pink flagging NWZ for hanging dead limb
2	Pl	5	M	15	30	-L		D		10m inside WTP edge; numerous conks and active cavity nest; pink NWZ
3	At	2		20	40	-M			D	Tree's roots lifted; blue paint #3 plus blue flagging – fall tree
4	Fd	3	M	20	30	0		S		Tree has one conk at 2m up from the base – safe and yellow flagged – No Actio
5										-
6										
7										
8										
9										
10										
Note	s:									
Dan	igero	us T	rees a	are p	ainte	ed wi	th B	LUE	num	ber for reference. See map for locations of all D trees and the NWZ
NW	<sup>7</sup> Z ar	e fla	gged	in P	INK	-				
Susp	ect 1	rees	that	did	not r	neet	Dan	gero	us are	flagged with YELLOW for reference (number written on the flagging
	Insecu curely I	rely lo lodge lighly	odged d "hai unsta	"trees ng-ups ble tre	s": A s": Di tre ee: i) al cc	tipped islodge ee mot >50% ong the onifers ecent I	signit tree the d but I ion. of tree e majo or class ean to	ficant hat is lift hung-under cross- rity of fiss 5 de wards	hazaro kely to s p limbs sectiona the lengiciduous the wo	r more of the following defects is at risk of imminent failure and poses a which must be addressed by a "Dangerous Tree Management Strategy" hake free of the support trees and fall to the ground.  or tops (consider size and height above ground) at risk of shifting free during light winds or other all area damaged, burned, scarred, decayed or fractured; or ii) Spongy snags with heart rot content of the stem (e.g., class 5 - 6 conifers or class 4 deciduous) or soft snags (e.g., class 7 - 8); or iii) >50% of lateral support roots are damaged or with advanced decay.  rk area AND decayed root system (>50% of roots have advanced decay) or damaged and lifting the stem (>50% of roots have advanced decay) or damaged and lifting the system (>50% of roots have advanced decay) or damaged and lifting the stem of the stem (>50% of roots have advanced decay) or damaged and lifting the system (>50% of roots have advanced decay) or damaged and lifting the system (>50% of roots have advanced decay) or damaged and lifting the system of the s
Wind	l Spee	ed Est	timati	on:	0 - 2 20 -	20 km 40km	/hr wir /hr wir	nd: di	ust and	soil conditions and anchoring).  loose paper is raised small branches move es sway, tops of large trees sway nches fly in the air, whole tree in motion, resistance felt when walking against the win-
	.ean:	Low	/ -100	/ 5	I.A					rate (<15% or 8°) High (>30% or 16°)

#### Appendix 4a: Dangerous Tree Field Data Collection Card Guide – Side 1

#### Managing Wildlife/Dangerous Trees Training for Qualified Persons **Dangerous Tree Field Data Collection Card Guide**

The sample field data card illustrates some basic conventions that can be used to consistently document observations and results made during the inspection of wildlife or dangerous trees. In this example, trees were assessed for a planned tree planting activity.

The visual tree inspection details are recorded for each suspect tree. If needed, record the category of defect as either "S" (Safe) or "D" (Dangerous). Remember – if in doubt then record a "D" rating and manage the tree as a Dangerous Tree, or seek the advice of a certified Wildlife/Dangerous Tree Assessor. For tree lean, consider recording the category of lean with a "+" to indicate the lean is away from the worksite, and a "-" to indicate the lean is towards the worksite. If the tree has zero lean then record "-L" (the tree or defect could fall into the work area) or simply "0".

The Management Strategy of a tree with a "S" rating is simply recorded as "No Action". For any tree with unknown or dangerous ratings, then record the management action to be taken. Remember, if the tree is dangerous, the tree must be either removed, have the dangerous defect removed, or the workers protected by installing a No Work Zone. Use the "Comments" section to record other pertinent details about the tree or the management strategies.

#### **Common Tree Species** Name and Codes CODE TREE SPECIES SYMBOL Fd Douglas-fir Western larch Lw Lodgepole pine Ы Ponderosa pine Ру (Yellow pine) Western white pine Pw White spruce Sw Engelmann spruce Se Ss Sitka spruce Subalpine fir ВΙ Amabilis fir Ва Grand fir Bg Western hemlock Hw Western redcedar Cw Yelllow cedar Су Black cottonwood Ac Trembling aspen Αt Paper birch Ep Red alder Dr Mb Maple

Generally, the following characteristics indicate the relative habitat value of a wildlife tree.

WILDLIFE TREE VALUE	CHARACTERISTICS
HIGH a high value tree has at least two of the characteristics listed in the adjacent column and, where possible, is within the upper 10–15% of the diameter range distribution for the site	internal decay (heartrot or natural/excavated cavities present) a sound, firm stem shell crevices present (loose bark or cracks suitable for bats) large brooms present active or recent wildlife use (feeding, nesting, denning) tree structure suitable for wildlife use (suitable for large nest, hunting perch sites, bear den, etc.) largest trees for site (height and/or diameter) and veteran trees locally important wildlife tree species favourably located for use by wildlife
MEDIUM	large, stable trees that will likely develop two or more of the above attributes
LOW	trees not covered by high or medium categories

**Note:** Under section 34 of the Wildlife Act, no tree with an active nest or the nest of an eagle, peregrine falcon, gyrfalcon, osprey, heron or burrowing owl can be disturbed.

When considering the needs of wildlife it is important to recognize that all trees are not equal in value. Given the large number of wildlife tree-dependent species and wide range of wildlife uses of these trees, there can be no simple system for determining which trees provide the best habitat for wildlife. The most significant indicators of wildlife tree quality are height and diameter, decay stage, location, distribution and cause of death.

The following is a list of desirable attributes for a wildlife tree:

- greater than 15 m in height preferable
- greater than 30 cm dbh preferable (interior)
- greater than 70 cm dbh preferable (coastal)
- some intact bark with space behind loose bark
- tree classes 2- 6 most valuable
- windfirm, sound root system
- broken top
- some large branches
- nest cavities, feeding excavations
- some evidence of decay (visible fungal conks or open cavity)

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#### Appendix 4b: Dangerous Tree Field Data Collection Card Guide – Side 2

British Columbia's wildlife tree classification system: native broad-leaved deciduous

	Lľ	VE		DEAD						
Tree class	1	2	hard → 3	spongy → 4	soft 5	dead fallen 6				
					approx. 1/2 original height	De la Architectura de la Constitución de la Constit				

#### British Columbia's wildlife tree classification system: conifers

		<i>(</i> =	DEAD							
Tree	LI	VE	На	rd →	Spo	ngy →	Soft			
class	1	2	3	4	5	6	7	8	9	
						approx. 2/3 original height	approx. 1/2 original height	approx. 1/3 original height	dead fallen	
Description	Live/healthy; no decay; tree has valuable habitat characteristics such as large, clustered or gnarled branches, or horizontal, thickly moss- covered branches.*	Live/unhealthy; internal decay or growth deformities (including insect damage, broken tops); dying tree.*	Dead; needles or fine twigs are present.	Dead; no needles or fine twigs – only coarse limbs present; 50% of branches lost; loose bark; top usually broken.	Dead; most branches/ bark absent; some internal decay.	Dead; no branches or bark; sapwood/ heartwood sloughing from upper bole; decay more advanced.	Dead; extensive internal may be hard; late completely decom nearly hollow shel	posed; hollow or	Debris; downed trees or stumps.	
Uses and users	Nesting (e.g., Bald Eagle, Great Blue Heron colonies, Marbled Murrelet); feeding; roosting; perching.	Nesting/roosting¹ - strong PCEs² (woodpeckers); SCUs³; large- limb and platform nests (Ospreys); insect feeders.	Nesting/ roosting - strong PCEs; SCUs; bats.	Nesting/ roosting - PCEs; SCUs; insect feeders.	Nesting/ roosting - weak PCEs (nuthatches, chickadees); SCUs; bats; insect feeders.	Weaker PCEs; SCUs; insect feeders; salamanders; small mammals; hunting perches.	Insect feeders; sa small mammals; occasionally used excavators such a	nunting perches d by weak cavity	Insect feeders; salamanders; small mammals; drumming logs for grouse; flicker foraging; nutrient source.	

<sup>&</sup>lt;sup>1</sup> Large witches' brooms provide nesting/denning habitat for some species (e.g., fisher, squirrels).

<sup>&</sup>lt;sup>2</sup> PCE = primary cavity user

<sup>&</sup>lt;sup>3</sup> SCU = secondary cavity user

<sup>\*</sup> This classification system does not recognize root disease trees specifically. Such trees become unstable at or before death.

#### Appendix 5: Managing Wildlife/Dangerous Trees Workshop Sign-Up

# Managing Wildlife/Dangerous Trees Training for Qualified Persons SIGN UP Location:

Date:	Location:
Trainer(s):	
Name (first and last)	Company affiliation
(	Contact telephone/email

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#### Appendix 6: Managing Wildlife/Dangerous Trees Participant Evaluation Checklist

### Managing Wildlife/Dangerous Trees Training for Qualified Persons PARTICIPANT EVALUATION FIELD CHECKLIST Date: Location: Trainer(s): **Field Competency** Recognition: Yes if score > 30 T O T A L Site Hazard Assessment (6) Appropriate use of NWZ (6) Overall Rating Process (3) Tree Class & WT Value (3) Communication Plan (4) Tree Mensuration (4) Site Stratification (4) Documentation (5) **Participant Name** Tree Hazard Id (5) S C O R E Comments:

#### Appendix 7: Managing Wildlife/Dangerous Trees Participant Evaluation of Training

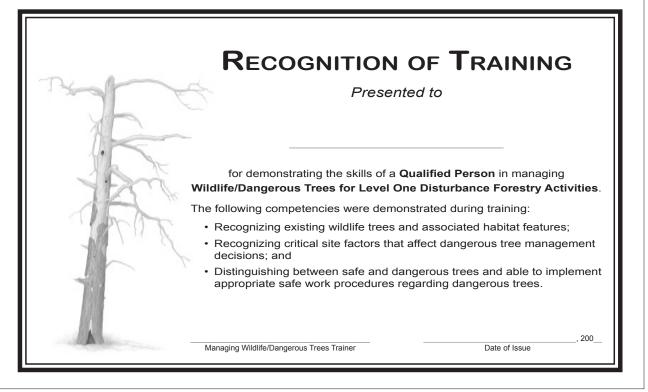
#### Managing Wildlife/Dangerous Trees Training for Qualified Persons PARTICIPANT EVALUATION of TRAINING Date: Location: Your name (optional): Did this training provide useful and practical information? (select one or more as appropriate) **RATING SCALE** ☐ Identifying valuable wildlife habitat features ☐ Identifying a dangerous tree for LOD-1 Unsatisfied Stratification and performing a site assessment overview ☐ Implementing appropriate safe work measures 1 3 Did the training format adequately meet your needs? Indoor overview of materials Outdoor field exercises How do you rate the trainer's effectiveness in preparing you as a Qualified Person? Identifying critical site factors Stratifying a work site Identifying and inspecting DTs Establishing NWZs Documenting assessments Communicating safety plans Recognizing valuable wildlife trees Were materials provided adequate and appropriate? Resource booklet Worker Safety awareness pamphlet Field helps (tree heights, species list) Yes ☐ No Is the training format appropriate? If no, what do you suggest? Yes ☐ No Is the length of training appropriate for your needs? If no, what would you suggest be appropriate? Please include written comments or suggestions (use the back of the page if needed).

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Thank you.

#### **Appendix 8: Managing Wildlife/Dangerous Trees Training Recognition**

# RECOGNITION OF TRAINING Presented to for demonstrating the skills of a Qualified Person in managing Wildlife/Dangerous Trees for Level One Disturbance Forestry Activities. The following competencies were demonstrated during training: Recognizing existing wildlife trees and associated habitat features; Recognizing critical site factors that affect dangerous tree management decisions; and Distinguishing between safe and dangerous trees and able to implement appropriate safe work procedures regarding dangerous trees.



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#### **MASTERS for DUPLICATION**

#### Masters for Duplication (single sided unless otherwise indicated)

- Site Assessment Overview Summary Side 1
- Site Assessment Overview Summary (continued) Side 2
- Dangerous Tree Field Data Collection Card Side 1
- Dangerous Tree Field Data Collection Card (continued) Side 2
- Dangerous Tree Field Data Collection Card Sample
- Dangerous Tree Field Data Collection Card Guide Side 1
- Dangerous Tree Field Data Collection Card Guide Side 2
- Managing Wildlife/Dangerous Trees Workshop Sign-Up
- Managing Wildlife/Dangerous Trees Participant Evaluation Checklist
- Managing Wildlife/Dangerous Trees Participant Evaluation of Training
- Managing Wildlife/Dangerous Trees Training Recognition (2 per page)

Page 26 June 2008

Drin	tod N	lama								Date:
Printed Name: Date:  SITE ASSESSMENT										
Ac	Activity:									
Loca	ation:									
CP/B	lock:									
Site I	History	y: (e.g	., yea	r harv	ested,	site p	repar	ation	method	and timing)
					f tree	es for	· LOE	)-1 a	ctivitie	EE FIELD DATA COLLECTION – LOD 1 s are applicable only when silviculture activities are performed seeds exceed 40 km/hr the workers must move to a safe area.
				neters)	(cm)			nifican	t Tree e below)	
			, M, H	ight (m	ameter	<del>-</del>	page	۶	ంగ	Dangerous Tree Management Strategy
Tree #	Tree Species	Tree Class	MT value (L, M, H)	Estimated Height (meters)	Estimated Diameter (cm)	Lean (L, M, H)	nsecurely lodged	Unstable stem	Recent lean & poor roots	(i.e., Mark tree as Dangerous; Ribbon No Work Zone or Fall Tree)
1	<u> </u>	<u> </u>	>	Щ	Ш		드	5	<u> </u>	
2										
3										
4										
5										
6										
7										
8										
9										
10										
Note	s:									
0:			- ·		c		• •			
				•			signii	ficant	hazard	r more of the following defects is at risk of imminent failure and poses a I which must be addressed by a "Dangerous Tree Management Strategy" have free of the support trees and fall to the ground
	Insecurely lodged "trees": A tipped tree that is likely to shake free of the support trees and fall to the ground.  Insecurely lodged "hang-ups": Dislodged but hung-up limbs or tops (consider size and height above ground) at risk of shifting free during light winds or other									
tree motion.  Highly unstable tree : i) >50% of tree cross-sectional area damaged, burned, scarred, decayed or fractured; or ii) Spongy snags with heart rot conks										
along the majority of the length of the stem (e.g., class 5 - 6 conifers or class 4 deciduous) or soft snags (e.g., class 7 - 8 conifers or class 5 deciduous); or iii) >50% of lateral support roots are damaged or with advanced decay.  Recent lean/poor roots: Recent lean towards the work area AND decayed root system (>50% of roots have advanced decay) or damaged and lifting										
anchoring soil layer (consider soil conditions and anchoring).  Wind Speed Estimation: 0 - 20 km/hr wind: dust and loose paper is raised small branches move										
	20 - 40km/hr wind: small trees sway, tops of large trees sway 40 -65 km/hr wind: small branches fly in the air, whole tree in motion, resistance felt when walking against the wind									
					- IA	O NIII	VVII	iu. 31		
L	<u>.ean:</u>	Low	(<10%	% or 5	°)				Moder	rate (<15% or 8°) High (>30% or 16°)

Printed Name: Peter Doneit Date: Month – Day – Year

#### SITE ASSESSMENT

Activity: Tree planting – spring plant

Location: New Forest Mills

CP/Block: CP: 24 Block: 1543

Site History: (e.g., year harvested, site preparation method and timing)

Winter logged last year; scattered healthy trees and deciduous wildlife trees; no site prep

#### **DANGEROUS TREE FIELD DATA COLLECTION - LOD 1**

Inspections of trees for LOD-1 activities are applicable only when silviculture activities are performed in light winds (<40 km/hr). If wind speeds exceed 40 km/hr the workers must move to a safe area.

				neters)	r (cm)			nificant cts (see	Tree below)	
Tree#	Tree Species	Tree Class	WT value (L, M, H)	Estimated Height (meters)	Estimated Diameter (cm)	Lean (L, M, H)	Insecurely lodged	Unstable stem	Recent lean & poor roots	Dangerous Tree Management Strategy (i.e., Mark tree as Dangerous; Ribbon No Work Zone or Fall Tree)
1	Fd	2	L	20	35	+L	D			Blue paint #1; pink flagging NWZ for hanging dead limb
2	Pl	5	M	15	30	-L		D		10m inside WTP edge; numerous conks and active cavity nest; pink NWZ
3	At	2		20	40	-M			D	Tree's roots lifted; blue paint #3 plus blue flagging – fall tree
4	Fd	3	M	20	30	0		S		Tree has one conk at 2m up from the base – safe and yellow flagged – No Action
5										
6										
7										
8										
9										
10										

#### Notes:

Dangerous Trees are painted with BLUE number for reference. See map for locations of all D trees and the NWZs NWZ are flagged in PINK

Suspect trees that did not meet Dangerous are flagged with YELLOW for reference (number written on the flagging)

Significant Tree Defects (definitions) - A tree with one or more of the following defects is at risk of imminent failure and poses a significant hazard which must be addressed by a "Dangerous Tree Management Strategy"

Insecurely lodged "trees": A tipped tree that is likely to shake free of the support trees and fall to the ground.

Insecurely lodged "hang-ups": Dislodged but hung-up limbs or tops (consider size and height above ground) at risk of shifting free during light winds or other

tree motion.

Highly unstable tree : i) >50% of tree cross-sectional area damaged, burned, scarred, decayed or fractured; or ii) Spongy snags with heart rot conks

along the majority of the length of the stem (e.g., class 5 - 6 conifers or class 4 deciduous) or soft snags (e.g., class 7 - 8

conifers or class 5 deciduous); or iii) >50% of lateral support roots are damaged or with advanced decay.

Recent lean/poor roots: Recent lean towards the work area AND decayed root system (>50% of roots have advanced decay) or damaged and lifting anchoring soil layer (consider soil conditions and anchoring).

**Wind Speed Estimation:** 0 - 20 km/hr wind: dust and loose paper is raised small branches move

20 - 40km/hr wind: small trees sway, tops of large trees sway

40 -65 km/hr wind: small branches fly in the air, whole tree in motion, resistance felt when walking against the wind

**Lean:** Low (<10% or 5°)

Moderate (<15% or 8°)

High (>30% or 16°)

#### Managing Wildlife/Dangerous Trees Training for Qualified Persons **Dangerous Tree Field Data Collection Card Guide**

The sample field data card illustrates some basic conventions that can be used to consistently document observations and results made during the inspection of wildlife or dangerous trees. In this example, trees were assessed for a planned tree planting activity.

The visual tree inspection details are recorded for each suspect tree. If needed, record the category of defect as either "S" (Safe) or "D" (Dangerous). Remember – if in doubt then record a "D" rating and manage the tree as a Dangerous Tree, or seek the advice of a certified Wildlife/Dangerous Tree Assessor. For tree lean, consider recording the category of lean with a "+" to indicate the lean is away from the worksite, and a "-" to indicate the lean is towards the worksite. If the tree has zero lean then record "-L" (the tree or defect could fall into the work area) or simply "0".

The Management Strategy of a tree with a "S" rating is simply recorded as "No Action". For any tree with unknown or dangerous ratings, then record the management action to be taken. Remember, if the tree is dangerous, the tree must be either removed, have the dangerous defect removed, or the workers protected by installing a No Work Zone. Use the "Comments" section to record other pertinent details about the tree or the management strategies.

Common Tree Species Name and Codes							
TREE SPECIES	CODE SYMBOL						
Douglas-fir	Fd						
Western larch	Lw						
Lodgepole pine	PI						
Ponderosa pine (Yellow pine)	Ру						
Western white pine	Pw						
White spruce	Sw						
Engelmann spruce	Se						
Sitka spruce	Ss						
Subalpine fir	BI						
Amabilis fir	Ва						
Grand fir	Bg						
Western hemlock	Hw						
Western redcedar	Cw						
Yelllow cedar	Су						
Black cottonwood	Ac						
Trembling aspen	At						
Paper birch	Ер						
Red alder	Dr						
Maple	Mb						

#### **Determining Wildlife Tree Value**

Generally, the following characteristics indicate the relative habitat value of a wildlife tree.

WILDLIFE TREE VALUE	CHARACTERISTICS
HIGH a high value tree has at least two of the characteristics listed in the adjacent column and, where possible, is within the upper 10–15% of the diameter range distribution for the site	<ul> <li>internal decay (heartrot or natural/excavated cavities present)</li> <li>a sound, firm stem shell</li> <li>crevices present (loose bark or cracks suitable for bats)</li> <li>large brooms present</li> <li>active or recent wildlife use (feeding, nesting, denning)</li> <li>tree structure suitable for wildlife use (suitable for large nest, hunting perch sites, bear den, etc.)</li> <li>largest trees for site (height and/or diameter) and veteran trees</li> <li>locally important wildlife tree species</li> <li>favourably located for use by wildlife</li> </ul>
MEDIUM	large, stable trees that will likely develop two or more of the above attributes
LOW	trees not covered by high or medium categories

**Note:** Under section 34 of the *Wildlife Act*, no tree with an active nest or the nest of an eagle, peregrine falcon, gyrfalcon, osprey, heron or burrowing owl can be disturbed.

When considering the needs of wildlife it is important to recognize that all trees are not equal in value. Given the large number of wildlife tree-dependent species and wide range of wildlife uses of these trees, there can be no simple system for determining which trees provide the best habitat for wildlife. The most significant indicators of wildlife tree quality are height and diameter, decay stage, location, distribution and cause of death.

The following is a list of desirable attributes for a wildlife tree:

- greater than 15 m in height preferable
- greater than 30 cm dbh preferable (interior)
- greater than 70 cm dbh preferable (coastal)
- some intact bark with space behind loose bark
- nest cavities, feeding excavations
- tree classes 2- 6 most valuable
- windfirm, sound root system
- broken top
- some large branches

• some evidence of decay (visible fungal conks or open cavity)

## Managing Wildlife/Dangerous Trees Training for Qualified Persons Dangerous Tree Field Data Collection Card Guide

#### British Columbia's wildlife tree classification system: native broad-leaved deciduous

	LI	VE		ı	DEAD	
Tree class	1	2	hard → 3	spongy → 4	soft 5	dead fallen 6
					approx. 1/2 original height	

#### British Columbia's wildlife tree classification system: conifers

		· · ·				DEAD			
Tree class	Li	VE	На	rd →	Spo	ngy →	Soft		
ciass	1	2	3	4	5	6	7	8	9
		THE WAY THE THE PARTY OF THE PA				approx. 2/3 original height	approx. 1/2 original height	approx. 1/3 original height	dead fallen
Description	Live/healthy; no decay; tree has valuable habitat characteristics such as large, clustered or gnarled branches, or horizontal, thickly moss- covered branches.*	Live/unhealthy; internal decay or growth deformities (including insect damage, broken tops); dying tree.*	Dead; needles or fine twigs are present.	Dead; no needles or fine twigs – only coarse limbs present; 50% of branches lost; loose bark; top usually broken.	Dead; most branches/ bark absent; some internal decay.	Dead; no branches or bark; sapwood/ heartwood sloughing from upper bole; decay more advanced.	Dead; extensive internal may be hard; late completely decon nearly hollow she	nposed; hollow or	Debris; downed trees or stumps.
Uses and users	Nesting (e.g., Bald Eagle, Great Blue Heron colonies, Marbled Murrelet); feeding; roosting; perching.	Nesting/roosting¹ - strong PCEs² (woodpeckers); SCUs³; large- limb and platform nests (Ospreys); insect feeders.	Nesting/ roosting - strong PCEs; SCUs; bats.	Nesting/ roosting - PCEs; SCUs; insect feeders.	Nesting/ roosting - weak PCEs (nuthatches, chickadees); SCUs; bats; insect feeders.	Weaker PCEs; SCUs; insect feeders; salamanders; small mammals; hunting perches.	Insect feeders; sa small mammals; occasionally used excavators such a	hunting perches d by weak cavity	Insect feeders; salamanders; small mammals; drumming logs for grouse; flicker foraging; nutrient source.

<sup>&</sup>lt;sup>1</sup> Large witches' brooms provide nesting/denning habitat for some species (e.g., fisher, squirrels).

<sup>&</sup>lt;sup>2</sup> PCE = primary cavity user

<sup>&</sup>lt;sup>3</sup> SCU = secondary cavity user

<sup>\*</sup> This classification system does not recognize root disease trees specifically. Such trees become unstable at or before death.

# Managing Wildlife/Dangerous Trees Training for Qualified Persons SIGN UP

Date:	Location:
Trainer(s):	
Name (first and last)	Company affiliation
Name (mst and last)	Contact telephone/email

# Managing Wildlife/Dangerous Trees Training for Qualified Persons PARTICIPANT EVALUATION FIELD CHECKLIST

Date:	Location:										
Trainer(s):											
	Field Competency										
Participant Name	Tree Mensuration (4)	Tree Class & WT Value (3)	Site Hazard Assessment (6)	Site Stratification (4)	Tree Hazard Id (5)	Overall Rating Process (3)	Appropriate use of NWZ (6)	Communication Plan (4)	Documentation (5)	T O T A L S C O R E	Recognition: Yes if score > 30
Comments:											

## Managing Wildlife/Dangerous Trees Training for Qualified Persons PARTICIPANT EVALUATION of TRAINING

Date:		Location:					
our ı	name (optional):						
1.	Did this training provide useful and practical inf (select one or more as appropriate)  Identifying valuable wildlife habitat features Identifying a dangerous tree for LOD-1			<b>ATIN</b>	IG S	CAL	
	☐ Stratification and performing a site assessm☐ Implementing appropriate safe work measured.		Very unsatisfied	Unsatisfied	Neutral	Satisfied	Very Satisfied
2.	Did the training format adequately meet your no Indoor overview of materials Outdoor field exercises	eeds?	1	2	3	4	5 
3.	How do you rate the trainer's effectiveness in p Person?  Identifying critical site factors  Stratifying a work site  Identifying and inspecting DTs  Establishing NWZs	reparing you as a Qualified					
	Documenting assessments  Communicating safety plans  Recognizing valuable wildlife trees						
4.	Were materials provided adequate and appropriate Resource booklet  Worker Safety awareness pamphlet  Field helps (tree heights, species list)	riate?					
5.	Is the training format appropriate?  If no, what do you suggest?			Yes			No
6.	Is the length of training appropriate for your need If no, what would you suggest be appropriate?	eds?		Yes			No

Please include written comments or suggestions (use the back of the page if needed).

Thank you.

#### RECOGNITION OF TRAINING

Presented to

for demonstrating the skills of a **Qualified Person** in managing **Wildlife/Dangerous Trees for Level One Disturbance Forestry Activities**.

The following competencies were demonstrated during training:

- · Recognizing existing wildlife trees and associated habitat features;
- Recognizing critical site factors that affect dangerous tree management decisions; and
- Distinguishing between safe and dangerous trees and able to implement appropriate safe work procedures regarding dangerous trees.

Managing Wildlife/Dangerous Trees Trainer

Date of Issue

200

#### RECOGNITION OF TRAINING

Presented to

for demonstrating the skills of a **Qualified Person** in managing **Wildlife/Dangerous Trees for Level One Disturbance Forestry Activities**.

The following competencies were demonstrated during training:

- · Recognizing existing wildlife trees and associated habitat features;
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Managing Wildlife/Dangerous Trees Trainer

Date of Issue

. 200