5 WILDLIFE HABITAT ASSESSMENT

Contents

Appendix

Tables

Figure

BRITISH COLUMBIA

WILDLIFE HABITAT ASSESSMENT

Proj. id. (1) | Date y (2) m d | N-hab. feature type (5) dst. | page of (6)

Plot no. (3) | Surveyor (4)

Species	Hab use / Ssn		Plot type				Plot-in-context													
5-letter code (7)	Sp. L.R. (8)	Ssn.	FD	SH (9)	TH	Com.	Habitat feature	Conf.	Distance (km)	F/C L.R.	Imp. (10)	Habitat feature	Conf.	Distance (km)	F/C L.R.	Imp.	FD	SH	TH	Suit. (11)	Com. (12)

Comments / Notes

FS 882 (5) HRE 98/5

BRITISH COLUMBIA

WILDLIFE HABITAT ASSESSMENT

Project id. | Plot no.

Evidence of Use

Species	Inside plot: Sex	Life Stage	Activity	Des.	No.	Com.	Outside plot and inside ecosystem unit: Sex	Life Stage	Activity	Des.	No.	Com.
(13)	(14)	(15)	(16)	(17)	(18)	(19)	(14)	(15)	(16)	(17)	(18)	(19)

Comments / Notes

Abbreviated Tree Attributes for Wildlife

B.A.F. (20)		Area (21)		Min DBH	(22)
No. of trees (23)		No. dead (24)		No. live	(25)
Avg. DBH (cm) (26)		Avg. length (m) (27)			
Avg. lich load class (28)		Comments (29)			

Simple Coarse Woody Debris

Sampled (30) m of 30 m transect

Piece #	1	2	3	4	5	6	7	8	9	10	11
Decay class (31)											
Diam. class (32)											
Piece #	1	2	3	4	5	6	7	8	9	10	11
Decay class											
Diam. class											
Comments (33)											

Management

Species (Sp. group)	Use	Ssn.	F/C LR(s)	Cap.	Mgmt. Tech.	M. Feat / Int	Comments / Notes
(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)

FS 882 (5) HRE 98/5

Field Procedure

Getting Started

1. Determine plot boundaries in consultation with other surveyors.
2. Become familiar with the character of the terrain, soil, and vegetation by traversing the plot and consulting with plant ecologist and soil scientist.

Record and Classify

1. Enter the date, plot number and name(s) of wildlife surveyor(s).
2. Record evidence of use in plot and in ecosystem unit represented by the plot.
3. List project species and additional species noted during visit.
4. Record habitat use and season for each species.
5. Confer with plant ecologist and soil scientist about site classification, values, and site management concerns.
6. Ensure that relevant wildlife habitat data is filled out on the site description and vegetation forms.
7. Complete coarse woody debris and tree attributes for wildlife forms, if required.
8. Assess the value of the plot-type for each species (not necessary for incidentally recorded species). Be sure that the plot-type assessment is completed before the plot-in-context assessment.
9. Assess the value of the plot-in-context for each species based on the spatial context of the plot.
10. Record comments at the bottom of the form, cross-referencing to species.
11. Photograph the plot to illustrate important wildlife habitat features or evidence of animal use.
12. Check that all the required information has been collected and noted on the form. Strike through any fields that were not assessed.

Completing the Form

The purpose of this form is to assess habitat for its value to wildlife and to record evidence of its usage by wildlife. For inventories of wildlife populations, use forms provided in *Standardized Inventory Methodologies for Components of British Columbia's Biodiversity* (Resources Inventory Committee: Elements Working Group 1996) manuals. To record observations of wildlife outside of the ecosystem unit represented by the plot, use the Wildlife Sighting Form available from the B.C. Conservation Data Centre. The Wildlife Sighting Form should be used for observations of all Red and Blue-listed species.

Numbered items below refer to circled numbers on the Wildlife Habitat Assessment Form shown at the beginning of this section. A recommended sequence for completing the form is described under "Field Procedure."

1. Project ID
Identify the project as shown on the Site Description form.

2. Date
Enter the two-digit codes for year, month, and day.

3. Plot Number
Record the plot number from the top of the Site Description Form.

4. Surveyor(s)
Enter the first initial and last name and of each person involved in completing this form.

5. Non-habitat Features
Enter up to two types of human activity or other non-habitat feature (N-hab. feat.) near the plot that may affect usage by wildlife. A non-habitat feature is a feature of the environment that influences the amount of use of the plot by wildlife. A non-habitat feature can be distinguished from a habitat feature because non-habitat features do not affect habitat attributes (i.e., something measurable to describe habitat) and therefore do not affect suitability.

Type:
Identify the type of prolonged human activity or other non-habitat feature near the plot using the codes in Table 5.1.

TABLE 5.1. Codes for types of non-habitat features [a]

Code	Type
AI	Airport (e.g., noise from airplanes and human presence)
FA	Farming
FE	Fence
GD	Garbage dump
LO	Logging activity
MI	Mining activity
OT	Other (specify under "Comments")
RF	Road traffic, four lanes
RO	Road traffic, one lane
RN	Railroad (e.g., noise from trains and human presence)
RT	Road traffic, two lanes
RR	Rural (e.g., pressure from human activity)
UR	Urban/suburban (city, town, village) (e.g., pressure from human activity)

[a] This is not a comprehensive list of non-habitat features. For example, disease and depredation are also examples of non-habitat features that would influence plot-type usage. Such non-habitat features which are difficult to identify can be noted under the comments section.

Distance:
Enter a code (1–5) indicating the approximate distance (dst.) from the plot to the nearest sites of prolonged human activity or other non-habitat features which may affect wildlife.

TABLE 5.2. Codes for distances to nearest non-habitat features

Code	Distance
1	0–100 m
2	100–250 m
3	250–1000 m
4	1–5 km
5	> 5 km

6. Page ___ of ___
If more than one Wildlife Habitat Assessment Form is required for this plot, enter the number of forms used as a total and number each page.

7. Species
Indicate the species for which the habitat is being assessed. Use the five-letter codes from Cannings and Harcombe (1990), plus additional codes given in Appendix 5.1.

8. Habitat Use

For each habitat use (Hab use) to be assessed, use one row on the form.

Specified Life Requisite:
Specify the life requisite (SpLR) for which the habitat will be used with a two-letter code from Table 5.3.

TABLE 5.3. Specified life requisite codes

Code	Specified life requisite	Description
AP[a]	Avoiding pests	Habitat used for avoiding pests; e.g., caribou use snow fields to avoid insects in summer
CO	Courting	Habitat used for courting; involves enticing a conspecific of the opposite sex into copulation, courtship feeding, and defense of mates
DE	Denning / Roosting	Habitat used for sleeping or hiding in a cavity, cave, or burrow; does not include hibernating nor reproducing-birthing
FS	Feeding - Salmon	Habitat used for feeding on fish during a salmonid run
HI	Hibernating	Habitat used for hibernating
LI[a]	Living	Habitat used for activities other than; denning, birthing, courting etc.
MD[a]	Migrating daily	Habitat used for regular, daily travelling, including travelling away from or towards a communal habitat; e.g., habitat used by a bat for daily flights to and from a roosting site
MS[a]	Migrating seasonally	Habitat used for regular, annual travelling; e.g., habitat used by elk for spring and fall migrations, or habitat used for travelling away from or towards a communal habitat such as a hibernaculum

RB	Reproducing - Birthing	Habitat used specifically for giving birth to live young; e.g., caribou use specialized habitat for birthing but beaver do not; habitat used by amphibians, birds, and reptiles for hatching of eggs is recorded as habitat used for reproduction by eggs (RE)
RE	Reproducing - Eggs	Habitat used for building a nest, laying eggs, incubation, hatching, and feeding non-mobile young; reserved for amphibians, birds, and reptiles; specialized habitat used by some mammals to give birth to young is recorded as reproducing-birthing (RB) habitat
SG[a]	Staging	Habitat used for staging during spring or fall migrations

[a] Activities for which a season needs to be indicated (see below). The season is implied for all other activities.

Season:
If required, indicate the season (Ssn.) for which the habitat is being assessed. Use codes listed in Table 5.4. Consult *B.C. Wildlife Rating Standards* (Resources Inventory Committee: Wildlife Interpretations Subcommittee 1998) for recommended season coding system for each species.

TABLE 5.4. Codes for season of use

Code	Season	Code	Season
A	All seasons	**WE**[a]	Early Winter
G	Growing	**WL**[a]	Late Winter
W	Winter	**PE**[a]	Early Spring
P	Spring	**PL**[a]	Late Spring
S	Summer		
F	Fall		

[a] Early Spring, Late Spring, Early Winter and Late Winter seasons should only be used for M-URAR, M-URAM and M-RATA. Also, Early Spring can be used to distinguish Early Spring feeding habitat from Spring feeding habitat for M-ODVI and M-ODHE.

9. Plot-Type Assessment

Assess the food, security habitat and thermal habitat provided by the plot type for the species, use and season being considered. For these assessments, disregard plot size and shape, and position relative to other habitats. Instead, imagine that the plot type covers a sufficiently large area to maximize its value for the species, use and season being considered. This data will be used to establish suitability ratings for the ecosystem unit represented by the plot. For assessments of relative quality and suitability use codes in Table 5.5.

For species where it is known that thermal habitat plays a significant role in overall suitability, but for which thermal qualities of the plot type cannot be assessed separately from the security qualities, do not attempt to enter a rating in the TH column—only use the SH column to enter a rating.

TABLE 5.5. Relative quality classes for assessing the plot type quality relative to the best in B.C.

Class	Suitability/ capability	Lower limit (%)	Upper limit (%)	Quality
1	High	> 75	≤100	Equivalent
2	Mod. high	> 50	≤ 75	Slightly less
3	Moderate	> 25	≤ 50	Moderately less
4	Low	> 5	≤ 25	Substantially less
5	Very low	> 0	≤ 5	Much less
6	Nil	0	0	Habitat or attribute is absent

Food:
For species that require food (FD) for the use and season being considered, rate the ability of the plot type to fulfill food requirements.

Security habitat:
For species that require security habitat (SH) for the use and season being considered, rate the ability of the plot type to fulfill security requirements.

Thermal habitat:
For species that require thermal habitat (TH) for the use and season being considered, rate the ability of the plot type to fulfill thermal requirements.

Comments:
To provide additional information about the plot-type assessment, or to clarify an entry made on this line, enter a numeric code (Com.). Enter the same code in the Comments / Notes section of the form, followed by the pertinent information.

10. Plot-in-Context Assessment

Given the location of the plot, assess the quality and accessibility of food, security and thermal habitat for the species, use, and season being considered. This assessment includes the adjacent habitat features that are accessible to the species, for the specified use and season. The data will be used to develop a suitability rating for the specific plot in the area. For assessments of quality and suitability use coding from Table 5.5.

Habitat features:

A habitat feature is a feature of the environment that influences the amount of use of the plot by providing food, security or thermal habitat and thereby affects suitability (e.g., a nearby agricultural field may provide food and influence plot usage). Enter up to two habitat features (Table 5.6) that may affect suitability of the plot.

TABLE 5.6. Habitat features codes for plot-in-context assessment[a]

Code	Habitat feature	Definition
AL *	Alkaline pond	Body of fresh water with a pH greater than 7 and a depth less than 2 m[1]
AS	Aspect	Area which has an aspect associated with it, in which the aspect is the attribute important to the species, use, and season being considered
BE *	Beach	Area of sorted sediments reworked in recent time by wave action; at the edge of fresh or salt water bodies[2]
BF *	Blockfields, Blockslopes, Blockstreams	Level or gently sloping areas covered with moderately sized or large, angular blocks of rock derived from the underlying bedrock or drift by weathering and/or frost heave[1]
BU	Building	
CA *	Canal	Artificial watercourse created for transport, drainage, and/or irrigation purposes
CB *	Cutbank	Part of a road corridor or river course situated upslope of the road or river; created by excavation and/or erosion of the hillside[2]
CF *	Cultivated field	Flat or gently rolling, non-forested, open area subject to human agricultural practices

Code	Habitat feature	Definition
CH	Clearcut, herbaceous	
CL *	Cliff	Steep, vertical or overhanging rock face[3]
CO *	Cultivated orchard	Agricultural area of fruit trees planted in rows
CS	Clearcut, shrubby	
CU	Clearcut, unvegetated	
CV *	Cultivated vineyard	Agricultural area of grapes planted in rows
ES *	Exposed soil	Area of exposed soil; not included in any of the other definitions[2]
ET	Electrical transmission line	
EY	Estuary	
FC	Forest, commercially thinned	
FE	Fence	
FM	Forest, mature	
FO	Forest, old	
FY	Forest, young	
GB *	Gravel bar	Elongated landform generated by waves and currents; a mix of cobbles, pebbles, stones, and / or sand
GC *	Golf course	Grass-covered fairways and open areas for the playing of golf
GL *	Glacier	Mass of perennial snow and ice[2]
GP *	Gravel pit	Area exposed for the removal of sand and gravel[2]
GR	Grassland	

Code	Habitat feature	Definition
LA *	Lake	Naturally occurring, static body of water > 2 m deep (> 50 ha)[2]
LB *	Lava bed	Area where molten rock has flowed from a volcano or fissure and cooled to form solidified rock[2]
MI *	Mine	Unvegetated area for the extraction of mineral ore and other materials[1]
MO *	Moraine	Unvegetated landform of unstratified glacial drift[4]
MU *	Mudflat sediment	Flat plain-like areas of fine-textured sediment[2]
NB	Nest boxes	
OT	Other	
OW *	Shallow open water	Wetland of permanent shallow open water (< 2 m deep); lacking extensive emergent plant cover
PA	Pasture	
PD *	Pond	A small body of water > 2 m deep (< 50 ha)
PI	Pipeline right-of-way	
PS *	Permanent snow	Snow or ice, not part of a glacier, but found during summer months[2]
RD	Ridge	Area which has a ridge associated with it; the ridge is the feature important to the species, use, and season being considered
RE *	Reservoir	Artificial basin created by the impoundment of water behind a human-made structure such as a dam, berm, dyke, or wall[2]
RI *	River	Watercourse formed when water flows between continuous, definable banks[2]
RN *	Railway surface	Roadbed with fixed rails for possibly single or multiple rail lines[2]

Code	Habitat feature	Definition
RO *	Rock outcrop	Gentle to steep, bedrock escarpment or outcropping, with little soil development and sparse vegetation
RP*	Road surface	Area cleared and compacted for vehicle transport[2]
RR *	Rural	Area of residences and other human developments scattered and intermingled with forest, range, farm land, and native vegetation or cultivated crops[1]
RU *	Rubble	Small angular rock fragments (between 2 and 256 mm) deposited by gravity or ice[2, 4]
SW *	Saltwater	Body of water that contains salt or is considered to be salty[2]
TA*	Talus	Large angular rock fragments at the foot of steep rock slopes as a result of successive rock falls[2, 4]
UR *	Urban / suburban	Area of residences and other human developments form an almost continuous cover[1]
VH	Avalanche track, herbaceous	
VS	Avalanche track, shrubby	

[a] This is not a comprehensive list of habitat features. Other habitat features can be recorded by using the OT code and adding a comment.

[b] To identify old, mature and young forest, refer to definitions provided in Item 23, Site Description section.

* Habitat features derived from TABLE 3.1 Symbology and definitions for non-vegetated, sparsely vegetated, and anthropogenic units in Standards for Terrestrial Ecosystem Mapping in B.C.

1 adapted from Dunster and Dunster (1996)

2 adapted from Resources Inventory Committee (1997)

3 adapted from Sinnemon (1994)

4 adapted from Howes and Kenk (1997)

Confidence:
Use the codes in Table 5.7 to identify a level of confidence (Conf.) in the assessment of habitat features, i.e., how confident you are that the habitat feature affects the species, use, and season being considered. Base this on your knowledge of the species' habitat requirements and on your knowledge of the quality and quantity of habitat present in the habitat feature.

TABLE 5.7. Confidence level codes for assessment of habitat features

Code	Level of confidence	Description
1	Confident	Excellent knowledge of habitat attributes available in the habitat feature **and** of species' habitat requirements
2	Moderately confident	Excellent knowledge of habitat attributes available in the habitat feature **and** moderate knowledge of species' habitat requirements; **or**, moderate knowledge of habitat attributes available in the habitat feature **and** excellent knowledge of species' habitat requirements
3	Not confident	Moderate knowledge of habitat attributes available in the habitat **and** of species' habitat requirements

Distance:
Indicate, in kilometers, the distance from plot center to the habitat feature.

Food/Cover life requisite:
Identify the food/cover life requisite (F/C L.R.) (Table 5.8) that the described habitat feature provides. If the habitat feature provides more than one life requisite, then use a combination of codes (e.g., FS indicates that both food and security are provided by the habitat feature).

TABLE 5.8. Food/cover life requisite codes

Code	Food / cover life requisite	Definition
F	Food	Provides habitat used for consuming food items, including searching for and consuming food simultaneously such as is done by grazers, browsers, flying insectivores, ducks, and other species with similar feeding habits; includes habitat used for searching for, pursuing and killing prey

Code	Food / cover life requisite	Definition
S	Security	Provides habitat used for protection or hiding from predators
T	Thermal	Provides habitat used for protection from heat, cold, or precipitation

Impact:
Assess the impact (Imp.) of the habitat feature using codes from Table 5.9. Given the presence of the habitat feature, the impact is a measurement of the increase or decrease in the quality and accessibility of the food/cover life requisite(s) relative to quality and accessibility if the plot type extended indefinitely.

TABLE 5.9. Impact of habitat feature on suitability rating

Code	Description
1	Large increase
2	Moderate increase
3	Low increase
4	No effect
5	Low decrease
6	Moderate decrease
7	Large decrease

Food:
Considering the context of the plot, for species that require food (FD) for the use and season being considered, rate the overall quality and accessibility of food. Use coding from Table 5.5.

Security habitat:
Considering the context of the plot, for species that require security habitat (SH) for the use and season being considered, rate the overall quality and accessibility of security habitat. Use coding from Table 5.5.

Thermal habitat:
Considering the context of the plot, for species that require thermal habitat (TH) for the use and season being considered, rate the overall quality and accessibility of thermal habitat. Use coding from Table 5.5.

11. Suitability

Assign a suitability rating (Suit.), using the codes in Table 5.5, for the plot-in-context, for the species, use, and season being considered. Base the suitability on the ratings entered in the food (FD), security habitat (SH), and thermal habitat (TH) columns. Theoretically, the suitability rating should be an average or weighted average of the three food/cover life requisite ratings.

12. Comments

To provide additional information about the habitat assessment, or to clarify an entry on this line on the form, enter a numeric code (Com). Enter the same code in the Comments/Notes section of the form, followed by the pertinent information.

Evidence of Use

Complete this section if there is any evidence of use by wildlife. Evidence of use can be in the plot boundaries or in the ecosystem unit represented by the plot.

13. Species

Indicate the species for which the evidence of use is being recorded. Use the five-letter codes from Cannings and Harcombe (1990), plus additional codes given in Appendix 5.1.

14. Sex

Note the sex of the animal. Code as **M** (male), **F** (female), or **U** (unknown).

15. Life Stage

Record the life stage of the animal using the codes in Table 5.10. Note that these classes differ from those described in the *Standardized Inventory Methodologies for Components of B.C.'s Biodiversity* (Resources Inventory Committee: Elements Working Group 1996).

TABLE 5.10. Codes for life stages for wildlife evidence of use

Code	Life stage	Description
E	Egg	Amphibian, bird, insect, and reptile eggs
N	Nestling or neonate	Nestling birds and newly hatched or newborn newborn amphibians, birds, insects, mammals, and reptiles; only used when it is apparent that the nest site is within the plot type
J	Juvenile	Amphibian larvae, fledged birds before their first winter, insect larvae, and mammals older than neonates, but still requiring parental care; reptiles do not have a juvenile stage
S	Subadult	Animal that is older than the juvenile stage, does not require parental care, and has not reached sexual maturity; includes amphibians and reptiles which have not reached adult size, but have adult form; insects have no subadult stage
A	Adult	Old enough to breed
U	Undetermined	Life stage is unknown

16. Activity

Code up to three different types or signs of activity relevant to the identified species (Table 5.11). If an animal is present in the plot, *or* in the ecosystem unit represented by the plot, record the type of activity it is engaged in on the appropriate section of the form. If there are signs that an animal was present, record the type of activity which caused the signs.

TABLE 5.11. Codes for activities and signs of activity

Code	Activity	Description
AL[a]	Alert	Activity with the purpose of detecting predators; e.g., guard or sentry duty or a heads-up rigid stance
AN[b]	Antler	A cast, solid, annually deciduous horn of a cervid
AP	Avoiding pests	Avoiding pests; e.g., seeing caribou standing on snow fields during summer when insects are abundant
BA	Basking	Behaviour for the purpose of gathering warmth; e.g., a marmot or snake lying on warm rocks, or marmot hair and soiling stains on flat rocks
BE	Bedding	Bedding, sleeping, or resting above ground, including bedding for the purpose of cud chewing, and roosting and resting of birds
BP[b]	Body parts	Incidental portions of an animal's body which are left behind, but do not indicate the animal is dead; e.g., feathers, hairs, and shed skins; shed antlers are recorded as "AN"
BU	Building	Building a nest, bed, burrow, den, lodge, or other dwelling
CA	Casting	Discharging bodily waste from the mouth; e.g., an owl or snake casting pellets
CO	Courtship	Behaviour for the purpose of enticing a conspecific of the opposite sex into copulation, including copulation, courtship feeding, and defense of mates
CR[b]	Carcass	A carcass, or portions of a carcass, that indicates the animal is dead

Code	Activity	Description
DE	Denning	Sleeping or hiding in a cavity, cave, or burrow; does not include hibernating; if the same den is used for hibernating and general denning, record as hibernating
DI[a]	Disturbed	Behaviour for the purpose of avoiding the observer; use only if the activity before disturbance is not known
DR[a]	Drinking	Drinking
EX	Excreting	Discharging waste through the anus
FD	Feeding	Consuming food items, including feeding by animals that search for food and eat simultaneously; e.g., grazers, browsers, flying insectivores, and filter feeders; does not include hunting
FL	Fleeing	Hurried movement to avoid conspecifics or other animals; does not include fleeing to avoid the observer
FS	Feeding, salmonid	Feeding on salmonids, during a salmonid run
GR	Grooming	Behaviour for the purpose of arranging and protecting the fur, feathers, skin, etc., including scratching and rubbing of antler velvet
HI	Hibernating	If the same den is used for hibernating and general denning, record as hibernating
HU	Hunting	Searching for, pursuing, and killing prey
IN	Incubation	Incubating, protecting, or laying eggs
LI	Living	Activity could not be specified due to ignorance or the activity was too diverse
MD	Migrating daily	Travelling that is a regular daily activity, including travelling to or away from a communal habitat; e.g., a bat on its daily flight to or from a roosting site

Code	Activity	Description
MS	Migrating seasonally	Travelling that is a regular annual activity; e.g., an elk or a Sandhill Crane on its migration route, or a snake travelling away from a communal habitat such as a hibernaculum
RB	Reproducing, birthing	Giving birth to live young; preparing a birthing reproduction site, such as a den
RE	Reproducing, eggs	Laying eggs (amphibians, reptiles and birds), building a nest, and feeding non-mobile young
RR	Rearing	Adults feeding neonates and juveniles
SH	Security habitat	Using habitat for protection or hiding from predators
ST	Security and/or thermal	Using habitat for its security and/or thermal values; used when differentiating between the two values is difficult or impossible
TE	Territoriality	Behavior for the purpose of marking or defending a territory; e.g., singing, drumming, winnowing, howling, antler rubbing, wallowing, or scraping the ground
TF[a]	Travelling, flying	Used when the purpose of flying is not known; if known, use a more specific description such as hunting
TH	Thermal habitat	Using habitat for protection from heat, cold, or precipitation
TP	Travelling on a path	Walking on a trail that is embedded in the ground due to animals walking the same route for many years
TR	Travelling	Travelling by a method other than flying, swimming, and walking; usually used for animals that do not normally fly, swim, or walk; includes seeing an isolated track; does not include running if the purpose for running is known

Code	Activity	Description
TS[a]	Travelling, swimming	Used when the specific purpose of swimming is not known; if known, use a more specific description such as fleeing
TW	Travelling, walking	Used when the purpose of walking is not known; if known, use a more specific description such as migrating; does not include travelling on a path (see "TP")
UR	Urinating	Urinating

[a] Code is only associated with seeing or hearing an animal
[b] Code is only associated with sign of an animal

17. Descriptor

Enter a coded descriptor (Des) that indicates whether the animal was observed or heard in the plot or ecosystem unit, or gives the probable age or season of the sign (Table 5.12).

TABLE 5.12. Codes for descriptors of wildlife evidence of use

Code	Meaning
S	The animal was seen
H	The animal was heard
F	Fresh sign (<1 week old)
Y	Sign is <1 year old but >1 week old
O	Old (>1 year old)
U	Undetermined (age of sign is unknown)
W	Sign is from the winter season
G	Sign is from the growing season

18. Number

Record the number (No.) of animals present or the number of sign elements. Codes for relative abundance can be used for sign elements instead of numbers (i.e., **H** [high], **M** [moderate], **L** [low], or **T** [trace]).

19. Comments

To provide additional information about the evidence of use, or to clarify an entry on this line on the form, enter a numeric code (Com). Enter the same code in the Comments/Notes section of the form, followed by the pertinent information.

Abbreviated Tree Attributes for Wildlife

The purpose of this section of the form is to provide for a quick assessment of selected tree attributes for wildlife. The data recorded here is abbreviated and more qualitative than that collected using the detailed Tree Attributes for Wildlife Form (Section 6). Refer to Section 6 for information on selecting the sampling method. Once selected, the same sampling method should be used consistently throughout the project.

Also, refer to Section 6 for information on selecting the prism BAF or plot size, and minimum DBH. Once the prism or plot size is determined for the plot, complete appropriate sections of the Wildlife Habitat Assessment Form.

Field Procedures

- Establish plot center
- Stand at the plot center and estimate the number of trees in the plot as follows:

  For a variable radius plot do a prism sweep while counting the number of trees in the plot.

  For a fixed area plot stand at the plot center and while holding arms out at right angles to each other (Figure 5.1) estimate the area and number of trees in one quarter of the plot. Then turn 90 degrees and while holding arms out, repeat the estimate for the second quarter. Do this for all four quarters. Total the values to obtain the number of trees.
- Complete the Abbreviated Tree Attributes for Wildlife portion of the form based upon the trees selected in the step above.

20. Basal Area Factor

If a variable radius plot is used, enter the standard metric Basal Area Factor (BAF) in m^2/ha.

21. Area

If a fixed area plot is used, enter the area of the plot, in m^2.

22. Minimum DBH

Enter the minimum diameter at breast height (Min DBH) being used (in cm).

23. Number of Trees

Record the number of trees (No. of trees) in the variable radius or fixed area plot.

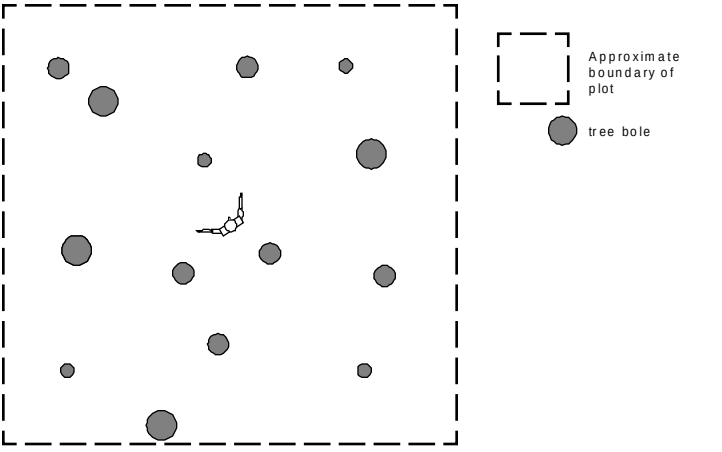


FIGURE 5.1. Top view of biologist standing at center of plot and estimating the area covering a quarter of the plot and the number of trees in a quarter plot.

24. Number of Dead Trees

Record the number of dead trees (No. dead) in the variable radius or fixed area plot.

25. Number of Live Trees

Record the number of live trees (No. live) in the variable radius or fixed area plot.

26. Average DBH

Visually estimate, and record to the nearest cm, the average diameter at breast height (Avg. DBH) of the trees in the variable radius or fixed area plot.

27. Average Length

Visually estimate, and record to the nearest m, the average length (Avg. length) of the trees in the variable radius or fixed area plot. The estimate must be within 15% of the true average length. A quick and accurate method of estimating tree length is as follows:

- Mark a point 2 m in height from the base of the tree
- Move away from the tree so that the top of the tree is at an angle of 45°, or less.

- Tilt your head so that by rolling your eyes, and not moving your head, you can see the bottom and top of the tree.
- Hold a piece of twig or grass vertically between your thumb and index finger, and about 20 cm from your face. Adjust the length of the twig so that it spans the 2 m distance marked at the bottom of the tree.
- Move the twig upward vertically, and while rolling your eyes, count the number of twig-lengths that fit between the bottom of the tree and the top. When moving the twig upward it is important to keep the twig vertical and in the same plane, and your head still.
- Multiply the number of twig-lengths by two to obtain the length of the tree, in metres.

28. Average Lichen Loading Class

Visually estimate and record the average lichen loading class (Avg. lich load class) of the wildlife trees in the plot. Assign a rating (**0–5**) based on comparison with photos in *Estimating the Abundance of Arboreal Forage Lichens* (Armleder et al. 1992).

29. Comments

Record observations on tree attributes deemed to be of importance to wildlife.

Simple Coarse Woody Debris Assessment

The purpose of this section of the form is to provide for a quick assessment of total coarse woody debris volume and volume by decay classes following the methods developed by Taylor (1997). The detailed Coarse Woody Debris Form (Section 7) is used both to collect more quantitative data than that collected here and to collect more attributes.

To complete this section of the form, set up a 30 m line transect as follows:

1. Determine plot centre
2. Establish one 30 m (horizontal distance) line transect following a random azimuth from the plot centre. It is important to measure the slope along the line and determine the slope distance required to produce a horizontal transect of 30 m. If significant slope changes occur along the line, more than one slope distance correction is required.
3. The slope distance factors in Table 4.1 can be used to calculate the required slope distance for a given slope. For example, if the slope is 35%, the slope distance factor is 0.944. The required slope distance is determined by dividing the horizontal distance by the slope distance factor, i.e., 30 m / 0.944 = 31.78 m.

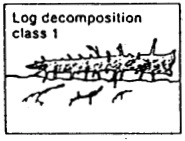
30. Sampled __ of 30 m Transect

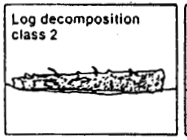
Indicate the length of the line that was sampled. The form has room to record 22 pieces of CWD. If more than 22 pieces are encountered on a 30 m transect, discontinue the transect and record the number of metres that were sampled to reach 22 pieces. If the entire line was sampled, indicate that all 30 m were sampled.

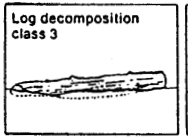
31. Decay Class

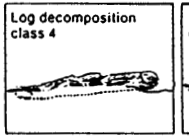
Assign a decay class (1 to 5) based on the majority condition of each piece encountered along the transect. See Table 5.13 for descriptions of classes.

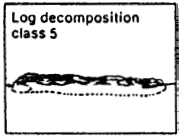
TABLE 5.13. Decay classes for coarse woody debris











	Class 1	Class 2	Class 3	Class 4	Class 5
Portion on Ground	Elevated on support points	Elevated but sagging slightly	Sagging near ground, or broken	All of log on ground, sinking	All of log on ground, partly sunken
Twigs < 3 cm (if originally present)	Present	Absent	Absent	Absent	Absent
Bark	Intact	Intact or partly missing	Trace	Absent	Absent
Shape	Round	Round	Round	Round to oval	Oval
Texture	Intact, hard	Intact, hard to partly decaying	Hard, large pieces, partly decaying	Small, blocky pieces	Many small pieces, soft portions
Invading Roots	None	None	In sapwood	In heartwood	In heartwood

32. Diameter Class

Using the diameter class limits from Table 5.14, record the diameter class (Diam. class) at the point of intersection for each piece encountered along the transect.

TABLE 5.14. Diameter classes for coarse woody debris

Class	Range (cm)	Code	Range (cm)
10	>7.5 – 12.5	**75**	72.6 – 77.5
15	12.6 – 17.5	**80**	77.6 – 82.5
20	17.6 – 22.5	**85**	82.6 – 87.5
25	22.6 – 27.5	**90**	87.6 – 92.5
30	27.6 – 32.5	**95**	92.6 – 97.5
35	32.6 – 37.5	**100**	97.6 – 102.5
40	37.6 – 42.5	**105**	102.6 – 107.5
45	42.6 – 47.5	**110**	107.6 – 112.5
50	47.6 – 52.5	**115**	112.6 – 117.5
55	52.6 – 57.5	**120**	117.6 – 122.5
60	57.6 – 62.5	**125**	122.6 – 127.5
65	62.6 – 67.5	**130**	127.6 – 132.5
70	67.6 – 72.5	**135**	132.6 – 137.5

33. Comments

Record observations of interest or importance to making wildlife interpretations.

Management

This section is to be completed for species or species groups, according to the project objectives, for which specific management prescriptions may be implemented.

If the suitability of a habitat for a particular species (as evaluated in Item 11) is lower than its capability, it may be possible to apply habitat management techniques to achieve the capability of the habitat. Table 5.15 lists management practices of a low technological order, e.g., prescribed burning, livestock control, prescribed logging, that may be possible to prescribe in order to modify certain habitat conditions.

The approach is as follows: considering adjacent habitat features and the current value of the plot for a specific species, use, and season, how could the ecosystem unit represented by the plot be managed to optimize the suitability of the area?

34. Species

From the list of species evaluated on the plot, indicate the species for which the habitat could be managed. Use the five-letter codes as in Item 7.

35. Use

With a two-letter code from Table 5.3, indicate the specified life requisite for which the habitat will be managed. Use additional rows on the form to assess the habitat for more than one habitat use.

36. Season

If required, indicate the season (Ssn) for which the habitat will be managed. Use codes listed in Table 5.4.

37. Food/Cover Life Requisite

Identify the food/cover life requisite (F/C LR), using the codes in Table 5.8, that will be most affected by the management technique described below. If the management technique affects more than one life requisite, then use a combination of codes (e.g., FS indicates that both food and security are affected).

38. Capability

Considering the presence of habitat features, rate the capability (Cap) of the plot to meet the specified use in the specified season for the selected species or species group. Use the codes in Table 5.5. Capability is the ability of the habitat under optimal conditions to provide life requisites for the species.

It is assumed that the management techniques identified below will result in the habitat attaining these optimal conditions.

39. Management Techniques

Identify the management technique(s) (Mgmt. Tech.) from the list in Table 5.15 that would result in the assigned capability.

TABLE 5.15. Codes for management techniques to achieve capability

Code	Management technique
PF	Prescribed fire
MT	Mechanical treatment (slashing/brushing)
PL	Seeding & planting
TS	Thinning & spacing
SC	Selective cutting
CC	Clearcutting
PR	Protection (to maintain current conditions)
GR	Prescribed grazing
NG	No grazing
WL	Water level manipulation
NC	Nest construction
OT	Other

40. Management Feasibility and Intensity

Indicate the feasibility of management or the management intensity (M. Fea/Int) required to fulfill the objectives. Use the codes in Table 5.16.

TABLE 5.16. Management feasibility/intensity codes for identified management techniques

Code	Feasibility/intensity
NR	Not required; habitat is in optimum condition
IM	Impractical; desired changes would take too long
NA	Not appropriate; management would affect the ecosystem
CM	Constant management required (every 2-5 years)
FM	Frequent management required (every 5-10 years)
MM	Moderate management required (every 10-20 years)
IF	Infrequent management required (every 20-50 years)

41. Comments/Notes

Record comments that may assist in developing management prescriptions.

APPENDIX 5.1

Wildlife subspecies, species and species group codes not included in Cannings and Harcombe (1990).

Subspecies codes are derived from the species code; the last letter of the species code is replaced with the first letter of the Latin subspecies name. Species Groups begin the four-letter group code with the letter "U" followed by three letters derived from the common name of the species group. (e.g., unspecified grouse = BUGRU.) Species names preceded by an asterix are in Cannings and Harcombe (1990), and are included here for convenience.

AMPHIBIANS AND REPTILES

Salamanders	**Order Caudata**	
Unspecified Salamander	(unspecified)	A-USAL
Frogs and Toads	**Order Anura**	
Unspecified Frog	(unspecified)	A-UFRO
Turtles	**Order Testudines**	
Unspecified Turtle	(unspecified)	R-UTUR
Lizards	**Order Squamata**	
Unspecified Lizard	(unspecified)	R-ULIZ
Snakes	**Order Serpentes**	
Unspecified Snake	(unspecified)	R-USNA

MAMMALS

Insectivores	**Order Insectivora**	
Unspecified Mole	(unspecified)	M-UMOL
Unspecified Shrew	(unspecified)	M-USHR
Bats	**Order Chiroptera**	
Unspecified Bat	(unspecified)	M-UBAT
Rodents	**Order Rodentia**	
Unspecified Chipmunk	(unspecified)	M-UCHP
Unspecified Jumping Mouse	(unspecified)	M-UJUM
Unspecified Mouse	(unspecified)	M-UMOU
Unspecified Vole	(unspecified)	M-UVOL

Carnivores	**Order Carnivora**	
Black Bear	*Ursus americanus*	M-URAM
Cougar*	*Felis concolor*	M-FECO
Domestic Cat	*Felis sylvestris*	M-FESY
Domestic Dog	*Canis familiarius*	M-CAFA
Fisher*	*Martes pennanti*	M-MAPE
Gray Wolf*	*Canis lupus*	M-CALU
Grizzly Bear*	*Ursus arctos*	M-URAR
Marten*	*Martes americana*	M-MAAM
Unspecified Bear	(unspecified)	M-UBEA
Unspecified Sea Lion	(unspecified)	M-USEL
Unspecified Weasel	(unspecified)	M-UWEA

Ungulates	**Order Artiodactyla**	
Alaska Moose	*Alces alces gigas*	M-ALAG
Bighorn Sheep*	*Ovis canadensis*	M-OVCA
Black-tailed Deer	*Odocoileus hemionus columbianus*	M-ODHC
California Bighorn Sheep	*Ovis canadensis californiana*	M-OVCC
Dall Sheep	*Ovis dalli dalli*	M-OVDD
Elk*	*Cervus elaphus*	M-CEEL
Interior Mule Deer	*Odocoileus hemionus hemionus*	M-ODHH
Moose*	*Alces alces*	M-ALAL
Mule Deer*	*Odocoileus hemionus*	M-ODHE
Northwestern Moose	*Alces alces andersoni*	M-ALAA
Rocky Mountain Bighorn Sheep	*Ovis canadensis canadensis*	M-OVCN
Rocky Mountain Elk	*Cervus elaphus nelsoni*	M-CEEN
Roosevelt Elk	*Cervus elaphus roosevelti*	M-CEER
Sitka Deer	*Odocoileus hemionus sitkensis*	M-ODHS
Stone Sheep	*Ovis dalli stonei*	M-OVDS
Thinhorn Sheep*	*Ovis dalli*	M-OVDA
White-tailed Deer*	*Odocoileus virginiana*	M-ODVI
Yellowstone Moose	*Alces alces shirasi*	M-ALAS
Domestic Cow	*Bos taurus*	M-BOTA
Domestic Goat	*Capra hircus*	M-CAHI
Domestic Horse	*Equus caballus*	M-EQCA
Domestic Pig	*Sus scrofa*	M-SUSC
Unspecified Deer	(unspecified)	M-UDEE

Whales and Porpoises	**Order Cetacea**	
Unspecified Dolphin	(unspecified)	M-UDOL
Unspecified Whale	(unspecified)	M-UWHA

BIRDS

Loons	**Order Gaviiformes**	
Unspecified Loon	(unspecified)	B-ULOO
Grebes	**Order Podicipediformes**	
Unspecified Grebe	(unspecified)	B-UGRE
Albatrosses, Shearwaters and Petrels	**Order Procellariiformes**	
Unspecified Albatross	(unspecified)	B-UALB
Unspecified Shearwater	(unspecified)	B-USHE
Unspecified Storm-Petrel	(unspecified)	B-USTP
Pelicans and Cormorants	**Order Pelecaniformes**	
Unspecified Cormorant	(unspecified)	B-UCOR
Waterfowl	**Order Anseriformes**	
Domestic / feral duck (Peking)	*Anas platyrhynchos*	B-DODU
Domestic / feral goose (Greylag)	*Anser answer*	B-DOGS
Muskovy Duck	*Cairina maschata*	B-MUDU
Unspecified Dabbling Duck	(unspecified)	B-UDAD
Unspecified Diving Duck	(unspecified)	B-UDID
Unspecified Goldeneye	(unspecified)	B-UGOL
Unspecified Merganser	(unspecified)	B-UMER
Unspecified Scaup	(unspecified)	B-USCA
Unspecified Scoter	(unspecified)	B-USCO
Unspecified Swan	(unspecified)	B-USWN
Unspecified Teal	(unspecified)	B-UTEA
Vultures, Hawks, and Falcons	**Order Falconiformes**	
Unspecified Eagle	(unspecified)	B-UEAG
Unspecified Falcon	(unspecified)	B-UFAL
Unspecified Hawk	(unspecified)	B-UHAW
Gallinaceous Birds	**Order Galliformes**	
Unspecified Grouse	(unspecified)	B-UGRU
Unspecified Ptarmigan	(unspecified)	B-UPTA
Shorebirds, Gulls, Auks, and Allies	**Order Charadriiformes**	
Unspecified Auklet	(unspecified)	B-UAUK
Unspecified Gull	(unspecified)	B-UGUL
Unspecified Murre	(unspecified)	B-UMUR
Unspecified Murrelet	(unspecified)	B-UMUL
Unspecified Puffin	(unspecified)	B-UPUF
Unspecified Shorebird	(unspecified)	B-USHO
Pigeons and Doves	**Order Columbiformes**	
Unspecified Dove	(unspecified)	B-UDOV

Owls	**Order Strigiformes**	
Unspecified Owl	(unspecified)	B-UOWL
Swifts and Hummingbirds	**Order Caprimulgiformes**	
Unspecified Hummingbird	(unspecified)	B-UHUM
Unspecified Swift	(unspecified)	B-USWI
Woodpeckers	**Order Piciformes**	
Unspecified Woodpecker	(unspecified)	B-UWOO
Passerine Birds	**Order Passeriformes**	
Unspecified Blackbird	(unspecified)	B-UBLA
Unspecified Bluebird	(unspecified)	B-UBLU
Unspecified Chickadee	(unspecified)	B-UCHI
Unspecified Crossbill	(unspecified)	B-UCRO
Unspecified Finch	(unspecified)	B-UFIN
Unspecified Flycatcher	(unspecified)	B-UFLY
Unspecified Grosbeak	(unspecified)	B-UGRO
Unspecified Kinglet	(unspecified)	B-UKIN
Unspecified Longspur	(unspecified)	B-ULON
Unspecified Nuthatch	(unspecified)	B-UNUT
Unspecified Redpoll	(unspecified)	B-URED
Unspecified Shrike	(unspecified)	B-USHI
Unspecified Sparrow	(unspecified)	B-USPA
Unspecified Swallow	(unspecified)	B-USWA
Unspecified Thrush	(unspecified)	B-UTHR
Unspecified Vireo	(unspecified)	B-UVIR
Unspecified Warbler	(unspecified)	B-UWAR
Unspecified Waxwing	(unspecified)	B-UWAX
Unspecified Wren	(unspecified)	B-UWRE