



Date: / / Opening ID: _____ District: _____ KSU no.: _____

Karst Sample Unit (KSU)/ Opening Information

License #: _____ CP#: _____ Block: _____

Evaluator name(s): _____ Pasture ID: _____

Year of harvest _____ BEC zone: _____ Site series: _____ UTM zone _____

Is a karst inventory available for this karst area? ☐ Yes ☐ No ☐ Don't know

Karst inventory date: / /

Have there been multiple timber extractions or salvage in block? ☐ Yes ☐ No ☐ Don't know

Is there patch retention in KSU? ☐ Yes ☐ No

If Yes: ☐ Interior ☐ Edge ☐ Both

Is there dispersed retention in KSU? ☐ Yes ☐ No

Area occupied by roads in KSU: _____ ha

Does this karst area appear on LRDW karst potential maps? ☐ Yes ☐ No

Karst Vulnerability Class of KSU:¹ ☐ Low ☐ Moderate ☐ High ☐ Very High ☐ Don't know

Approximate size of any contiguous karst unit beyond KSU: _____ ha ☐ Don't know

Approximate size of KSU: Inside block: _____ ha Outside block: _____ ha

Location of KSU relative to block: ☐ Internal ☐ Adjacent ☐ Along access road(s)
leading to block
☐ Downslope ☐ Upslope ☐ Alongside block

Mean elevation _____ m Average slope _____ % Aspect _____

Map showing traverse route or GPS track attached? ☐ Yes ☐ No

Approximate length of traverse: _____ m Estimated karst area covered: _____ ha

¹ Record only if available from a KISVAP Karst Field Assessment or as determined by a qualified person.

Karst Feature Category		No. of known features in KSU [A]	No. of previously unidentified features [B]	No. of features sampled [C]	Sample size (%) = C/(A+B) * 100
Caves (Cave infiltration areas)					
Surface karst features	Cave entrances				
	Sinking streams or sinking watercourses				
	Sinkholes				
	Epikarst exposures				
	Karst springs				
Other surface karst features					
Totals					

INSTRUCTIONS FOR COMPLETING FIELD FORMS

STEP 1	Complete Karst Sample Unit (KSU) / Opening Information on FORM - Sample Unit on page 1
STEP 2	Complete Field Data for every Karst Feature sampled and record Causal Factors linked to any "No" answers (FORM CA, FORM CE, FORM SS/SW, FORM SH, FORM EE, FORM KS, and FORM OT - on pages 2 to 21). Provide sketches of the features sampled on FORM - Sketches. Use as many forms as needed.
STEP 3	Complete Field Data for Inter-feature Karst Terrain and record Causal Factors linked to any "No" answers on FORM - IFKT on page 22
STEP 4	Complete Summary of Results for KSU on FORM - Summary - pages 23-24



Date: / / Opening ID: _____ District: _____ KSU no.: _____

Field Data - Caves (Cave Infiltration Areas)

CA-1: BASIC INFORMATION TO COLLECT FOR EACH SAMPLE (ONLY COMPLETE IF INFILTRATION MAP AVAILABLE)			Samples				
			CA#1	CA#2	CA#3	CA#4	CA#5
			Enter values, or Yes (Y), No (N), Not Applicable (NA), or Don't Know (D) responses in cells				
Karst Feature ID							
Location of karst feature relative to block: ¹							
Is it a Type 1 or 2 cave infiltration area? ² (enter Type no. in cells)							
Size of sample area in ha:							
If Type 2 cave infiltration area	Partial harvesting	Estimated level as %:					
		Distribution:					
	New windthrow	Estimated level as %:					
		Distribution:					

¹ Refer to REFERENCE CARD 1.

² A Type 1 cave infiltration area is the land above cave passages or chambers <3x the greatest dimension of the cave passage/chamber or <10 m below the surface. A Type 2 cave infiltration area is the land above cave passages or chambers >3x the greatest dimension of the cave passage/chamber or >10 m below the surface that are known to contain exceptional features. Note: this information can only be reliably obtained if a cave survey or inventory has been completed.

Sketch sample cave infiltration area in plan view using FORM - Sketches

CA-2: INDICATOR DATA TO COLLECT FOR EACH SAMPLE			Method	Target	Samples				
					CA#1	CA#2	CA#3	CA#4	CA#5
					Enter value ____, then check Yes (Y), No (N), Not Applicable (NA), or Don't Know (D) responses in the box ☐				
INTRODUCED MATERIALS									
1	Concentrations of logging slash ¹	P/A	A	☐	☐	☐	☐	☐	☐
BURNING									
2	Evidence of burning	P/A	A	☐	☐	☐	☐	☐	☐
OTHER									
3	Roads or other access structures	P/A	A	☐	☐	☐	☐	☐	☐

¹ Refer to REFERENCE CARD 1; pieces must be 7.5 cm in diameter or greater

VE = Visual Estimate
P/A = Presence/Absence

Date: / / Opening ID: District: KSU no.: **Field Data - Caves (Cave Infiltration Areas) (Cont'd)****NOTE: ADD THE FOLLOWING IF SAMPLE CAVE INFILTRATION AREA IS TYPE 1:****RETENTION**

	Number of standing trees							
	Number of cut trees							
4	% Retention of dominant and co-dominant trees (>12.5 cm DBH)	VE	100	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

WINDTHROW

5	Post-harvest windthrow (>12.5 cm DBH)	P/A	A	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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NOTE: ADD THE FOLLOWING IF SAMPLE CAVE INFILTRATION AREA IS TYPE 2:**RETENTION**

6	Retention of windfirm non-merchantable trees	P/A	A	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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RESULTS FOR CAVES	Samples					Total for KSU
	CA#1	CA#2	CA#3	CA#4	CA#5	
Total number of "Yes's"						
Total number of "No's"						
Total number of "NA's"						

Check boxes and indicate related indicator statements by number:

Causal factors for disturbance	Logging	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Road construction	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Introduced materials	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Burning	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Animal damage (i.e., grazing, browsing or pugging)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Recreation impacts	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Other human-caused factors or influences	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Natural disturbance events	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Outside factors or influences	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Majority of harvest-related disturbance caused by: ☐ Previous harvest ☐ Most recent harvest



Date: Opening ID: _____ District: _____ KSU no.: _____

Field Data - Cave Entrances							
CE-1: BASIC INFORMATION TO COLLECT FOR EACH SAMPLE			Samples				
			CE#1	CE#2	CE#3	CE#4	CE#5
			Enter values, or Yes (Y), No (N), Not Applicable (NA) or Don't Know (D) responses in cells				
Karst Feature ID:							
Location of karst feature relative to block:							
UTM	Easting:						
	Northing:						
Elevation in m:							
Cross-sectional area of entrance mouth or threshold in m ² :							
Is entrance enclosed by a sinkhole?							
Sinkhole	Mean length in m:						
	Mean width in m:						
	Mean depth in m:						
Is entrance part of a feature complex (not including an enclosing sinkhole)?							
Is entrance part of a feature cluster?							
Distance to closest other karst feature (any category) in m:							
Does a retention area surround entrance from edge of entrance outward?							
If retention area (RA) present	Width of RA to North in m:						
	Width of RA to East in m:						
	Width of RA to South in m:						
	Width of RA to West in m:						
	% Level of partial harvesting in RA up to 80 m	To North:					
		To East:					
		To South:					
		To West:					
		Distribution:					
	% Level of new windthrow in RA up to 80 m	To North:					
		To East:					
		To South:					
		To West:					
		Distribution:					
Windthrow treatment for RA:							
Did you take a representative photo of entrance? Enter photo file names.							



Date: / / Opening ID: District: KSU no.:

Field Data - Cave Entrances (Cont'd)

Sketch entrances and retention areas in plan view using FORM - Sketches

CE-2: INDICATOR DATA TO COLLECT FOR EACH SAMPLE			Samples						
			Method	Target	CE#1	CE#2	CE#3	CE#4	CE#5
					Enter value ____, then check Yes (Y), No (N), Not Applicable (NA), or Don't Know (D) responses in the box ☐				
RETENTION									
1	% Retention of trees with roots embedded in entrance	VE	100		☐	☐	☐	☐	☐
WINDTHROW									
2	New windthrown trees with roots embedded in entrance	P/A	A		☐	☐	☐	☐	☐
SOIL/GROUND DISTURBANCES									
3	% Disturbed ground on any slopes leading directly to entrance	VE	0		☐	☐	☐	☐	☐
INTRODUCED MATERIALS									
4	% Blockage of entrance with logging slash	VE	0		☐	☐	☐	☐	☐
5	% Blockage of entrance with road construction material	VE	0		☐	☐	☐	☐	☐

NOTE: ADD THE FOLLOWING IF ENTRANCE IS ENCLOSED BY A SINKHOLE (EVALUATE WITHIN SINKHOLE):

RETENTION									
	Number of standing trees								
	Number of cut trees								
6	% Level of retention of dominant and co-dominant trees	p.28	100		☐	☐	☐	☐	☐
WINDTHROW									
	Number of standing trees								
	Number of old windthrown trees								
	Number of new windthrown trees								
	Level of old windthrow								
	% New windthrow								
7	% Level of new windthrow	p.28	0		☐	☐	☐	☐	☐
8	Windthrown tree material coming in from outside	P/A	A		☐	☐	☐	☐	☐
SHADE									
9	Evidence of change to pre-harvest shade level	P/A	A		☐	☐	☐	☐	☐
NATIVE LOWER PLANT COMMUNITY									
10	Evidence of change to native lower plant community (e.g., desiccated mosses)	P/A	A		☐	☐	☐	☐	☐
11	Invasive plants	P/A	A		☐	☐	☐	☐	☐



Date: / / Opening ID: District: KSU no.:

Field Data - Cave Entrances (Cont'd)

INTRODUCED MATERIALS

12	Concentrations of logging slash ¹	P/A	A	☐	☐	☐	☐	☐
13	Road construction material	P/A	A	☐	☐	☐	☐	☐

NOTE: ADD THE FOLLOWING IF ENCLOSING SINKHOLE HAS A DISTINCT MICROCLIMATE:

RETENTION

14	% Retention of dominant and co-dominant trees (>12.5 cm DBH) up to 80 m outward from rim of sinkhole	VE	100%	☐	☐	☐	☐	☐
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WINDTHROW

15	% New windthrow up to 80 m outward from rim of sinkhole	VE	0	☐	☐	☐	☐	☐
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¹ Refer to REFERENCE CARD 1

RESULTS FOR CAVE ENTRANCES

Samples

Total
for
KSU

	CA#1	CA#2	CA#3	CA#4	CA#5	
Total number of "Yes's"						
Total number of "No's"						
Total number of "NA's"						

Check boxes and indicate related indicator statements by number:

Causal factors for disturbance	Logging	☐	☐	☐	☐	☐
	Road construction	☐	☐	☐	☐	☐
	Introduced materials	☐	☐	☐	☐	☐
	Burning	☐	☐	☐	☐	☐
	Animal damage (i.e., grazing, browsing or pugging)	☐	☐	☐	☐	☐
	Recreation impacts	☐	☐	☐	☐	☐
	Other human-caused factors or influences	☐	☐	☐	☐	☐
	Natural disturbance events	☐	☐	☐	☐	☐
	Outside factors or influences	☐	☐	☐	☐	☐

Majority of harvest-related disturbance caused by: ☐ Previous harvest ☐ Most recent harvest



Date: / / Opening ID: District: KSU no.:

Field Data - Sinking Streams and Sinking Watercourses¹

SS/SW-1: BASIC INFORMATION TO COLLECT FOR EACH SAMPLE			Samples				
			SS#1 or SW#1	SS#2 or SW#2	SS#3 or SW#3	SS#4 or SW#4	SS#5 or SW#5
			Enter values, or Yes (Y), No (N), Not Applicable (NA) or Don't Know (D) responses in cells				
Karst Feature ID:							
Location of karst feature relative to block:							
UTM	Easting at sinkpoint:						
	Northing at sinkpoint:						
Elevation at sinkpoint in m:							
Length of sample segment in m:							
Mean width of channel in sample segment if a sinking stream, in m:							
Is there a riparian reserve along sample segment?							
If riparian reserve (RR) present	Width of RR from left side of m:						
	Width of RR from right side of m:						
	% Level of partial harvesting in RR up to 20 m	From left side:					
		From right side:					
		Distribution:					
	% Level of new windthrow in RR up to 20 m	From left side:					
		From right side:					
		Distribution:					
Windthrow treatment for RR:							
Is sinkpoint atmospherically open?							
Is sinkpoint a cave entrance?							
Is sinkpoint enclosed by a sinkhole?							
If sinkhole present	Mean length in m:						
	Mean width in m:						
	Mean depth in m:						
Did you take a representative photo along sample segment and at sinkpoint? Enter photo file names.							



Date: / / Opening ID: _____ District: _____ KSU no.: _____

Field Data - Sinking Streams and Sinking Watercourses (Cont'd)

¹ A sinking watercourse is a watercourse that sinks into the subsurface at a distinct sink point, and possesses one or more of the following characteristics: poorly or non-defined channels (including flow over an organic bed); exhibits no evidence of scouring or alluvial deposition; or flows on the surface for less than 100 meters. As a minimum threshold, a sinking watercourse follows a confined, linear drainage course with a distinguishable cross sectional low point, accompanied by the presence of hydrophytic vegetation (plants that thrive in saturated soils).

Sketch sampled segments and retention areas in plan view using FORM - Sketches

SS/SW-2: INDICATOR DATA TO COLLECT FOR EACH SAMPLE			Samples						
			Method	Target	SS#1 or SW#1	SS#2 or SW#2	SS#3 or SW#3	SS#4 or SW#4	SS#5 or SW#5
			Enter value ____, then check Yes (Y), No (N), Not Applicable (NA), or Don't Know (D) responses in the box ☐						
RETENTION									
1	Retention of trees with roots embedded in sinking stream bank or sinking watercourse edge	P/A	P		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2	% Retention of windfirm non-merchantable trees within 5 m of sinking stream bank or sinking watercourse edge	VE	>50		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
WINDTHROW									
3	New windthrown trees with roots embedded in sinking stream bank or sinking watercourse edge	P/A	A		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4	Windthrown tree material coming onto sinking stream or sinking watercourse from outside	P/A	A		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
SOIL/GROUND DISTURBANCES									
5	Recently disturbed sinking stream bank or channel	VE	0		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6	Bare soil within 10 m and hydrologically connected to sinking stream or sinking watercourse	VE	0		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
INTRODUCED MATERIALS									
7	Logging slash on sinking stream channel or sinking watercourse	VE	0		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
8	Road construction material on sinking stream channel or sinking watercourse	VE	0		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>



Date: / / Opening ID: _____ District: _____ KSU no.: _____

Field Data - Sinking Streams and SWs (Cont'd)

RESULTS FOR SINKING STREAMS AND SWs	Samples					Total for KSU
	SS#1 or SW#1	SS#2 or SW#2	SS#3 or SW#3	SS#4 or SW#4	SS#5 or SW#5	
Total number of "Yes's"						
Total number of "No's"						
Total number of "NA's"						

Check boxes and indicate related indicator statements by number:

Causal factors for disturbance	Logging	☐	☐	☐	☐	☐
	Road construction	☐	☐	☐	☐	☐
	Introduced materials	☐	☐	☐	☐	☐
	Burning	☐	☐	☐	☐	☐
	Animal damage (i.e., grazing, browsing or pugging)	☐	☐	☐	☐	☐
	Recreation impacts	☐	☐	☐	☐	☐
	Other human-caused factors or influences	☐	☐	☐	☐	☐
	Natural disturbance events	☐	☐	☐	☐	☐
	Outside factors or influences	☐	☐	☐	☐	☐

Majority of harvest-related disturbance caused by: ☐ Previous harvest ☐ Most recent harvest



Date: / / Opening ID: District: KSU no.:

Field Data - Sinkholes							
SH-1: BASIC INFORMATION TO COLLECT FOR EACH SAMPLE			Samples				
			SH#1	SH#2	SH#3	SH#4	SH#5
			Enter values, or Yes (Y), No (N), Not Applicable (NA) or Don't Know (D) responses in cells				
Karst Feature ID:							
Location of karst feature relative to block:							
UTM	Easting:						
	Northing:						
Elevation in m:							
Maximum length of sinkhole in m:							
Maximum width of sinkhole in m:							
Maximum depth of sinkhole in m:							
Orientation of longest axis of sinkhole:							
Is sinkhole part of a feature complex?							
Is sinkhole part of a feature cluster?							
Distance to closest other karst feature (any category) in m:							
Does a retention area surround sinkhole from rim of sinkhole outward?							
If retention area (RA) present	Width of RA to North in m:						
	Width of RA to East in m:						
	Width of RA to South in m:						
	Width of RA to West in m:						
	% Level of partial harvesting in RA up to 80 m	To North:					
		To East:					
		To South:					
		To West:					
		Distribution:					
	% Level of new windthrow in RA up to 80 m	To North:					
		To East:					
		To South:					
		To West:					
		Distribution:					
	Windthrow treatment for RA:						
Did you take a representative photo of sinkhole? Enter photo file names.							



Date: / / Opening ID: District: KSU no.:

Field Data - Sinkholes (Cont'd)

Sketch sinkholes and retention areas in plan view using FORM - Sketches

SH-2: INDICATOR DATA TO COLLECT FOR EACH SAMPLE	Method	Target	Samples				
			SH#1	SH#2	SH#3	SH#4	SH#5
Enter value ____, then check Yes (Y), No (N), Not Applicable (NA), or Don't Know (D) responses in the box ☐							

RETENTION

	Number of standing trees							
	Number of cut trees							
1	% Level of retention of dominant and co-dominant trees (>12.5 cm DBH)	p.28	100	☐	☐	☐	☐	☐

WINDTHROW

	Number of standing trees							
	Number of old windthrown trees							
	Number of new windthrown trees							
	Level of old windthrow							
	% New windthrow							
2	% Level of new windthrow	p.28	0	☐	☐	☐	☐	☐
3	Windthrown tree material coming in from outside	P/A	A	☐	☐	☐	☐	☐

SOIL/GROUND DISTURBANCES

4	% Disturbed ground on sideslopes	VE	0	☐	☐	☐	☐	☐
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INTRODUCED MATERIALS

5	Concentrations of logging slash	P/A	A	☐	☐	☐	☐	☐
6	Road construction material	VE	0	☐	☐	☐	☐	☐

BURNING

7	Evidence of burning	P/A	A	☐	☐	☐	☐	☐
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NOTE: Add the following for sinkholes with a distinct microclimate:

RETENTION

8	% Retention of dominant and co-dominant trees (>12.5 cm DBH) up to 80 m outward from rim of sinkhole	VE	100	☐	☐	☐	☐	☐
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WINDTHROW

9	% New windthrow up to 80 m outward from rim of sinkhole	VE	0	☐	☐	☐	☐	☐
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Date: / / Opening ID: District: KSU no.:

Field Data - Sinkholes (Cont'd)

SHADE

10	Evidence of change to pre-harvest shade level within sinkhole	P/A	A	☐	☐	☐	☐	☐
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NATIVE LOWER PLANT COMMUNITY

11	Evidence of change to native lower plant community within sinkhole (e.g., dessicated mosses)	P/A	A	☐	☐	☐	☐	☐
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12	Invasive plants	P/A	A	☐	☐	☐	☐	☐
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OTHER

13	Presence of roads or other access structures, or quarries up to 80 m outward from rim of sinkhole	P/A	A	☐	☐	☐	☐	☐
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RESULTS FOR SINKHOLES	Samples					Total for KSU
	SH#1	SH#2	SH#3	SH#4	SH#5	
Total number of "Yes's"	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total number of "No's"	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total number of "NA's"	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Check boxes and indicate related indicator statements by number:

Causal factors for disturbance	Logging	☐	☐	☐	☐	☐
	Road construction	☐	☐	☐	☐	☐
	Introduced materials	☐	☐	☐	☐	☐
	Burning	☐	☐	☐	☐	☐
	Animal damage (i.e., grazing, browsing or pugging)	☐	☐	☐	☐	☐
	Recreation impacts	☐	☐	☐	☐	☐
	Other human-caused factors or influences	☐	☐	☐	☐	☐
	Natural disturbance events	☐	☐	☐	☐	☐
	Outside factors or influences	☐	☐	☐	☐	☐

Majority of harvest-related disturbance caused by: ☐ Previous harvest ☐ Most recent harvest



Date: / / Opening ID: District: KSU no.:

Field Data - Epikarst Exposures						
EE-1: BASIC INFORMATION TO COLLECT FOR EACH SAMPLE		Samples				
		EE#1	EE#2	EE#3	EE#4	EE#5
		Enter values, or Yes (Y), No (N), Not Applicable (NA) or Don't Know (D) responses in cells				
Karst Feature ID:						
Location of karst feature relative to block:						
UTM	Easting:					
	Northing:					
Elevation in m:						
Area of epikarst exposure in m ² :						
Are there small-scale solution openings?						
Is exposure part of a feature complex?						
Is exposure part of a feature cluster?						
Distance to closest other karst feature (any category) in m:						
Does a retention area surround the exposure from edge of epikarst exposure outward?						
If retention area (RA) present	Width of RA to North in m:					
	Width of RA to East in m:					
	Width of RA to South in m:					
	Width of RA to West in m:					
	% Level of partial harvesting in RA up to 80 m	To North:				
		To East:				
		To South:				
		To West:				
		Distribution:				
	% Level of new windthrow in RA up to 80 m	To North:				
		To East:				
		To South:				
		To West:				
		Distribution:				
Windthrow treatment for RA:						
Did you take a representative photo of exposure? Enter photo file names.						

Date: / / Opening ID: District: KSU no.: **Field Data - Epikarst Exposures (Cont'd)**

Sketch exposures and retention areas in plan view using FORM - Sketches

EE-2: INDICATOR DATA TO COLLECT FOR EACH SAMPLE	Method	Target	Samples							
			EE#1	EE#2	EE#3	EE#4	EE#5			
Enter value ____, then check Yes (Y), No (N), Not Applicable (NA), or Don't Know (D) responses in the box ☐										
RETENTION										
1 % Level of retention of dominant and co-dominant trees (>12.5 cm DBH)	p.28	100	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐		
WINDTHROW										
2 % Level of new windthrow	p.28	0	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐		
3 Windthrown tree material coming in from outside	P/A	A	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐		
SOIL/GROUND DISTURBANCES										
4 % Level of disturbance	p.28	0	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐		
INTRODUCED MATERIALS										
5 Concentrations of logging slash¹	P/A	A	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐		
6 Logging slash in small-scale solution openings	P/A	A	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐		
7 Road construction material	P/A	A	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐		
BURNING										
8 Evidence of burning	P/A	A	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐	____ ☐		

¹ Refer to REFERENCE CARD 1



Date: / / Opening ID: District: KSU no.:

Field Data - Epikarst Exposures (Cont'd)

RESULTS FOR EPIKARST EXPOSURES	Samples					Total for KSU
	EE#1	EE#2	EE#3	EE#4	EE#5	
Total number of "Yes's"						
Total number of "No's"						
Total number of "NA's"						

Check boxes and indicate related indicator statements by number:

Causal factors for disturbance	Logging	☐	☐	☐	☐	☐
	Road construction	☐	☐	☐	☐	☐
	Introduced materials	☐	☐	☐	☐	☐
	Burning	☐	☐	☐	☐	☐
	Animal damage (i.e., grazing, browsing or pugging)	☐	☐	☐	☐	☐
	Recreation impacts	☐	☐	☐	☐	☐
	Other human-caused factors or influences	☐	☐	☐	☐	☐
	Natural disturbance events	☐	☐	☐	☐	☐
	Outside factors or influences	☐	☐	☐	☐	☐

Majority of harvest-related disturbance caused by: ☐ Previous harvest ☐ Most recent harvest



Date: MMDDYYYY Opening ID: _____ District: _____ KSU no.: _____

Field Data - Karst Springs							
KS-1: BASIC INFORMATION TO COLLECT FOR EACH SAMPLE			Samples				
			KS#1	KS#2	KS#3	KS#4	KS#5
			Enter values, or Yes (Y), No (N), Not Applicable (NA) or Don't Know (D) responses in cells				
Karst Feature ID:							
Location of karst feature relative to block:							
UTM	Easting:						
	Northing:						
Elevation in m:							
Size of outflow opening in m ²							
Estimated flow of rising stream at bankfull levels in L/s (see protocol):							
Is karst spring part of a feature complex?							
Is karst spring part of a feature cluster?							
Distance to closest other karst feature (any category) in m:							
Does a retention area surround outflow opening from edge of opening outward?							
If retention area (RA) present	Width of RA to North in m:						
	Width of RA to East in m:						
	Width of RA to South in m:						
	Width of RA to West in m:						
	% Level of partial harvesting in RA up to 80 m	To North:					
		To East:					
		To South:					
		To West:					
		Distribution:					
	% Level of new windthrow in RA up to 80 m	To North:					
		To East:					
		To South:					
		To West:					
		Distribution:					
Windthrow treatment for RA:							
Did you take a representative photo of karst spring? Enter photo file names.							



Date: / / Opening ID: District: KSU no.:

Field Data - Karst Springs (Cont'd)

Sketch karst springs and retention areas in plan view using FORM -Sketches

KS-2: INDICATOR DATA TO COLLECT FOR EACH SAMPLE		Method	Target	Samples						
				KS#1	KS#2	KS#3	KS#4	KS#5		
				Enter value ____, then check Yes (Y), No (N), Not Applicable (NA), or Don't Know (D) responses in the box ☐						
RETENTION										
1	Retention of trees with roots embedded in outflow opening	P/A	P	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
2	% Retention of dominant and co-dominant trees (>12.5 cm DBH) within 20 m of outflow opening	VE	100	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
WINDTHROW										
3	New windthrown trees with roots embedded in outflow opening	P/A	A	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
4	Windthrown tree material at outflow opening coming in from outside	P/A	A	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
5	% New windthrow within 20 m of outflow opening	VE	0	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
SOIL/GROUND DISTURBANCES										
6	% Disturbed ground on any slopes leading directly to outflow opening	VE	0	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
INTRODUCED MATERIALS										
7	% Blockage of outflow opening with logging slash	VE	0	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
8	% Blockage of outflow opening with road construction material	VE	0	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
BURNING										
9	Evidence of burning within 20 m of outflow opening	P/A	A	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		



Date: / / Opening ID: _____ District: _____ KSU no.: _____

Field Data - Karst Springs (Cont'd)

RESULTS FOR KARST SPRINGS	Samples					Total for KSU
	KS#1	KS#2	KS#3	KS#4	KS#5	
Total number of "Yes's"						
Total number of "No's"						
Total number of "NA's"						

Check boxes and indicate related indicator statements by number:

Causal factors for disturbance	Logging	☐	☐	☐	☐	☐
	Road construction	☐	☐	☐	☐	☐
	Introduced materials	☐	☐	☐	☐	☐
	Burning	☐	☐	☐	☐	☐
	Animal damage (i.e., grazing, browsing or pugging)	☐	☐	☐	☐	☐
	Recreation impacts	☐	☐	☐	☐	☐
	Other human-caused factors or influences	☐	☐	☐	☐	☐
	Natural disturbance events	☐	☐	☐	☐	☐
	Outside factors or influences	☐	☐	☐	☐	☐

Majority of harvest-related disturbance caused by: ☐ Previous harvest ☐ Most recent harvest



Date: / / Opening ID: District: KSU no.:

Field Data - Other Surface Karst Features							
OT-1: BASIC INFORMATION TO COLLECT FOR EACH SAMPLE			Samples				
			OT#1	OT#2	OT#3	OT#4	OT#5
			Enter values, or Yes (Y), No (N), Not Applicable (NA) or Don't Know (D) responses in cells				
Karst Feature ID:							
Location of karst feature relative to block:							
Specific type of karst feature:							
Location of feature relative to block:							
UTM	Easting:						
	Northing:						
Elevation in m:							
Length in m:							
Width in m:							
Depth or height in m:							
Is feature part of a feature complex?							
Is feature part of a cluster?							
Distance to closest other karst feature (any category) in m:							
Does a retention area surround feature from edge of feature outward?							
If retention area (RA) present	Width of RA to North in m:						
	Width of RA to East in m:						
	Width of RA to South in m:						
	Width of RA to West in m:						
	% Level of partial harvesting in RA up to 80 m	Est. % level:					
		To North:					
		To East:					
		To South:					
		Distribution:					
	% Level of new windthrow in RA up to 80 m	To North:					
		To East:					
		To South:					
		To West:					
		Distribution:					
Windthrow treatment for RA:							
Did you take a representative photo of feature? Enter photo file names.							



Date: / / Opening ID: District: KSU no.:

Field Data - Other Surface Karst Features (Cont'd)

Sketch features and retention areas in plan view using FORM - Sketches

OT-2: INDICATOR DATA TO COLLECT FOR EACH SAMPLE			Samples						
			Method	Target	OT#1	OT#2	OT#3	OT#4	OT#5
			Enter value ____, then check Yes (Y), No (N), Not Applicable (NA), or Don't Know (D) responses in the box ☐						
RETENTION									
	Number of standing trees								
	Number of cut trees								
1	% Level of retention of dominant and co-dominant trees (>12.5 cm DBH)	p.28	100		☐	☐	☐	☐	☐
WINDTHROW									
	Number of standing trees								
	Number of old windthrown trees								
	Number of new windthrown trees								
	Level of old windthrow								
	% New windthrow								
2	% Level of new windthrow	p.28	0		☐	☐	☐	☐	☐
3	Windthrown tree material coming in from outside	P/A	A		☐	☐	☐	☐	☐
SOIL/GROUND DISTURBANCES									
4	% Ground disturbance	VE	0		☐	☐	☐	☐	☐
INTRODUCED MATERIALS									
5	Concentrations of log-ging slash ¹	P/A	A		☐	☐	☐	☐	☐
6	Logging slash in small-scale solution openings	P/A	A		☐	☐	☐	☐	☐
7	Road construction material	P/A	A		☐	☐	☐	☐	☐
BURNING									
8	Evidence of burning	P/A	A		☐	☐	☐	☐	☐
OTHER									
9	Mechanically damaged bedrock elements	P/A	A		☐	☐	☐	☐	☐

¹ Refer to REFERENCE CARD 1



Date: / / Opening ID: District: KSU no.:

Field Data - Other Surface Karst Features (Cont'd)

RESULTS FOR OTHER KARST FEATURES		Samples					Total for KSU
		OT#1	OT#2	OT#3	OT#4	OT#5	
Total number of "Yes's"							
Total number of "No's"							
Total number of "NA's"							
Check boxes and indicate related indicator statements by number:							
Causal factors for disturbance	Logging	☐	☐	☐	☐	☐	
	Road construction	☐	☐	☐	☐	☐	
	Introduced materials	☐	☐	☐	☐	☐	
	Burning	☐	☐	☐	☐	☐	
	Animal damage (i.e., grazing, browsing or pugging)	☐	☐	☐	☐	☐	
	Recreation impacts	☐	☐	☐	☐	☐	
	Other human-caused factors or influences	☐	☐	☐	☐	☐	
	Natural disturbance events	☐	☐	☐	☐	☐	
	Outside factors or influences	☐	☐	☐	☐	☐	
Majority of harvest-related disturbance caused by: ☐ Previous harvest ☐ Most recent harvest							



Date: MM/DD/YYYY Opening ID: _____ District: _____ KSU no.: _____

Field Data - Inter-feature Karst Terrain for KSU

BASIC INFORMATION TO COLLECT AWAY FROM KARST FEATURES WITHIN KSU

Proportion of the KSU occupied by inter-feature karst terrain (IFKT) areas with a smooth karst roughness rating and mean soil thickness > 1 m

_____ %

INDICATOR DATA TO COLLECT AWAY FROM KARST FEATURES WITHIN KSU

Method Target

Enter value ____, then check Yes (Y), No (N), Not Applicable (NA), or Don't Know (D) responses in the box ☐

SOIL/GROUND DISTURBANCES

1 % Soil disturbance in the IFKT areas with a smooth karst roughness rating and mean soil thickness > 1 m

V/E

0

____ ☐

2 Ground disturbance in the IFKT areas with greater than smooth roughness ratings and/or mean soil thickness < 1 m

P/A

A

____ ☐

3 Physical disturbance to minor or small-scale surface karst features¹

P/A

A

____ ☐

INTRODUCED MATERIALS

4 Concentrations of logging slash in or on minor or small-scale surface karst features

P/A

A

____ ☐

5 Road construction material in or on minor or small-scale surface karst features

P/A

A

____ ☐

BURNING

6 Burning resulting in exposure of epikarst features (e.g., rundkarren or vertical solution openings)

P/A

A

____ ☐

OTHER

7 Evidence of surface runoff directed to infiltration areas with insufficient vegetation and soil cover and/or sediment traps to prevent sediment-laden runoff from contaminating karst waters and entering the subsurface

P/A

A

____ ☐



Date: / / Opening ID: _____ District: _____ KSU no.: _____

Field Data - Inter-feature Karst Terrain for KSU (Cont'd)

RESULTS FOR INTER- FEATURE KARST TERRAIN	Samples					Total for KSU
	IFTK#1	IFTK#2	IFTK#3	IFTK#4	IFTK#5	
Total number of "Yes's"						
Total number of "No's"						
Total number of "NA's"						

Check boxes and indicate related indicator statements by number:

Causal factors for disturbance	Logging	☐	☐	☐	☐	☐
	Road construction	☐	☐	☐	☐	☐
	Introduced materials	Logging slash	☐	☐	☐	☐
		Road construction material	☐	☐	☐	☐
	Burning	☐	☐	☐	☐	☐
	Animal damage (i.e., grazing, browsing or pugging)	☐	☐	☐	☐	☐
	Recreation impacts	☐	☐	☐	☐	☐
	Other human-caused factors or influences	☐	☐	☐	☐	☐
	Natural disturbance events	☐	☐	☐	☐	☐
	Outside factors or influences	☐	☐	☐	☐	☐

Majority of harvest-related disturbance caused by: ☐ Previous harvest pass ☐ Most recent harvest pass



Date: / / Opening ID: District: KSU no.:

Summary of Results for Karst Sample Unit (KSU)

Part A: Indicator Responses

Karst Feature Category		Total no. of "Yes's"	Total no. of "No's"	Total no. of "NA's"
Caves (Cave infiltration areas)				
Surface karst features	Cave entrances			
	Sinking streams or sinking watercourses			
	Sinkholes			
	Epikarst exposures			
	Karst springs			
	Other surface karst features			
Totals for Karst Features		= ____ (A)	= ____ (B)	

% Level of Disturbance for Karst Features = $(B/(A+B)) \times 100 =$ ____ [C]

Check one using C: ☐ Lesser risk for Karst Features (0 to 20%)
☐ Intermediate risk for Karst Features (>20 to 50%)
☐ Greater risk for Karst Features (>50%)

Inter-feature Karst Terrain		Total no. of "Yes's"	Total no. of "No's"	Total no. of "NA's"
Totals for Inter-feature Karst Terrain		= ____ (D)	= ____ (E)	

% Level of Disturbance for Inter-feature Karst Terrain = $(E/(E+D)) \times 100 =$ ____ [F]

Check one using F: ☐ Lesser risk for Inter-feature Karst Terrain (0 to 20%)
☐ Intermediate risk for Inter-feature Karst Terrain (>20 to 50%)
☐ Greater risk for Inter-feature Karst Terrain (>50%)

Part B: Final Comments

1. Do you consider the KSU sample to be representative of the karst linked to the cutblock?
 Check one and provide comments: ☐ Yes ☐ No

2. What is your personal judgment or conclusion on the overall effectiveness of forest practices for protecting karst resources in the KSU? Check one and provide comments:
☐ Low ☐ Moderate ☐ High ☐ Very High ☐ Don't know



Date: / / Opening ID: _____ District: _____ KSU no.: _____

Part B: Final Comments (Cont'd)

3. Describe any forest practices used which were sensitive to management of karst resources (e.g., aerial standing stem harvesting with a high basal area retention):

4. Describe any karst restoration or rehabilitation activities:

5. Were Invasive Plants as defined in the Invasive Plants Regulations observed?:

☐ Yes ☐ No

(If answer Yes, please complete the Invasive Plants Field Card FS1316)



Date: / / Opening ID: _____ District: _____

Sketches of Features and Retention Areas

Sketch the features and associated retention areas in plan view below. Show photo point and direction. Don't forget to show a North arrow and provide a scale bar. *Also, identify and reference the feature by Karst Feature ID, and component features by Karst Feature IDs if a feature complex.*

KSU no.: _____

KSU no.: _____



Date: / / Opening ID: _____ District: _____

Sketches of Features and Retention Areas

Sketch the features and associated retention areas in plan view below. Show photo point and direction. Don't forget to show a North arrow and provide a scale bar. *Also, identify and reference the feature by Karst Feature ID, and component features by Karst Feature IDs if a feature complex.*

KSU no.: _____

KSU no.: _____



Date: Opening ID: _____ District: _____ KSU no.: _____

Comparison Chart and Codes

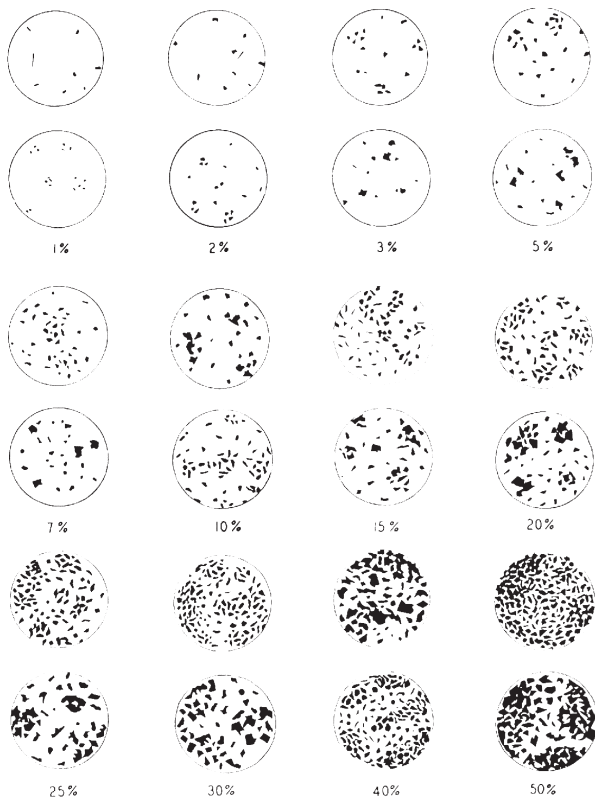


Figure 1. Comparison chart for visual estimation of introduced materials

CODES FOR BASIC INFORMATION SECTIONS

Location of a sample cave infiltration area relative to block:

☐ I = Internal ☐ E = Edge ☐ O = Outside ☐ R = Along roads

Distribution of partial harvesting or new windthrow in a retention area:

☐ N = None ☐ I = Internal ☐ E = Edge

Windthrow treatment for a retention area:

☐ N = None ☐ F = Feathering ☐ T = Topping ☐ O = Other



Date: MMMM/DDDD/YYYY Opening ID: _____ District: _____ KSU no.: _____

Formulas

RETENTION

Number of standing trees	= A
Number of cut trees	= B
Level of retention of mature trees	$(A/B+A)*100 =$

WINDTHROW

Number of standing trees	= A
Number of old windthrown trees	= B
Number of new windthrown trees	= C
Level of old windthrow	$= (B/A+B+C)*100$ = D
% New windthrow	$= (C/A+C)*100 = E$
Level of new windthrow	$= (E-D)*100$

Old windthrow is natural
pre-treatment windthrow

New windthrow is
post-harvest windthrow

SOIL DISTURBANCE

Area of site in m ²	= A
Area of soil disturbance in m ²	= B
Level of soil disturbance	$= B/A*100$