Urban Forestry Services
BARTLETT CONSULTING
Divisions of The F.A. Bartlett Tree Expert Company

Title: **North Beach Road Tree Assessment**
ISA Level 2 Basic Tree Risk Assessment
Eastsound, Washington

Prepared for: San Juan County Public Works
Attn: Jeff Sharp
PO Box 729
Friday Harbor, Washington

Prepared by: Urban Forestry Services | Bartlett Consulting
Miles Becker
ISA Certified Arborist® #PN-7808A
ISA Tree Risk Assessment Qualified

Reviewed By: Tyler Holladay, Consultant

Date: February 16, 2021

Contents:

Summary

Twelve trees along the pedestrian path servicing North Beach Road in Eastsound, Washington were assessed for their potential to fail and injure pedestrians. Four of the trees received moderate risk ratings for large stems potentially failing onto the path. The remaining nine trees received low risk ratings that can mostly be mitigated by selectively pruning weak or dead branches. Three trees in decline are recommended for removal or conversion to a wildlife snag. The benefits of having a tree canopy next to the path could be improved by planting more trees to slowly replace the larger trees as they begin to decline.

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Introduction

A popular pedestrian pathway on the west side of North Beach Road in Eastsound, Washington has trees growing along its length. Some of the trees are mature and appreciated by pedestrians for their character, shade, screen from the road, and as wildlife habitat. Simultaneously, the potential for large branches or entire trees to fail over the path has raised concerns about the potential risk of the trees to people and property.

We were asked by Jeff Sharp of San Juan County Public Works to assess the failure potential of the trees and tree parts on a section of the pathway between Enchanted Forest Road and Henry Road. Mr. Sharp communicated that the common right-of-way where trees should be assessed is between the path and North Beach Road. He also requested that one tree on the other side of the path be assessed. In addition to assessing risk for trees in the specified area, we provided recommendations for mitigating risk such as removing large dead branches.

Risk in the arboriculture industry is a function of the likelihood of the tree to fail, the likelihood of a failed tree to impact persons or property, and the potential consequences in the event of impact. For example, a very large Douglas fir (*Pseudotsuga menziesii*) with advanced root rot could be very likely to fall over, but it would receive a low risk rating if it was several hundred feet from any building or high use area. Similarly, a very large bigleaf maple (*Acer macrophyllum*) tree without any structural defects that is overhanging a senior center would also have a low risk rating.

A second consideration for the trees in the subject area are their viability. A viable tree is healthy and it will continue to grow and survive with little or no management. Some trees with low vigor or a disease will not recover and they will continue to decline until they die. Non-viable trees still have some aesthetic and ecological value, but at some point their value is less than a more recently planted tree.

The ISA Level 2 Assessment for these trees was completed on February 3, 2021. The time frame for this assessment is 3 years from the date of inspection. Details and photos of every tree covered in this report are provided in the attached Tree Assessment Matrix. Their approximate locations and corresponding mitigation recommendations are shown on the attached Tree Assessment Site Plan. The trees were marked with a numbered aluminum tag that corresponds to the numbers in this report.

Findings

Almost all the trees in the area assessed are Norway maple (*Acer platanoides*). The older trees are short relative to their trunk diameter. Some of the younger trees sprouted from stumps of a larger stem cut down in the past. Trees in the right-of-way provide the only substantial canopy cover for the section of pathway. A few younger maples were more recently planted on private property on the west side of the path.

Many of the trees observed for this report are in poor to fair condition. Common issues include cavities in the trunk, infection by the fungus *Kretzschmaria deusta*, dead branches in the crown, and weak branch or stem attachments. Some of the cavities are compartmentalized by the tree and structurally reinforced as the tree produces response

growth around the cavity. Other cavities are between one half and two thirds the diameter of the trunk or stem and they can increase the likelihood of failure.

Kretzschmaria is common on maple trees in the area. Once infected, the tree will eventually succumb to the disease, which is a soft rot that digests both lignin and cellulose. Infected trees can have a healthy crown and still have a high likelihood of failure, depending on their size, wind exposure, and structure. The internal extent of decay can be quantified better with specialized tools in an ISA Level 3 Advanced Tree Risk Assessment.

Issues for specific trees are listed in the following table:

Tree #	Cavity or decay	Dead branches over path	Unbalanced crown	Kretzschmaria	Dead or dying
1	♦	♦		♦	
2	♦				
3		♦			♦
4	♦	♦	♦	♦	
5					
6	♦	♦	♦		♦
7	♦	♦		♦	
8			♦	♦	
9	♦	♦	♦		♦
10		♦			
11					
12	♦		♦		

Failure of the main stem or a codominant stem is probable, the likelihood of falling onto the path is medium to high, and the consequences of failure are significant to severe for trees #1, #4, #7, and #9. They have at least a moderate risk rating. The other trees assessed for this report have a low risk rating although some have dead or weak branches over the path that are likely to fail. Approximate sizes of the dead branches range in diameter from 1 to 6 inches and as long as 12 feet. In general, the crowns are relatively low, and dead branch height ranges from approximately 12 to 35 feet above the path.

In most of the subject trees, the risk of injury from a falling branch can be mitigated by removing the problematic part of the tree and retaining the rest of tree. However, a few trees are in decline and not viable. The declining trees could be slowly replaced by planting new trees in the same area. There is sufficient soil volume and space for new trees to successfully establish.

Tree #5, a Douglas fir, is healthy and it structure is resistant to wind throw. It was included in this assessment with the trees with more obvious issues because a nearby resident was concerned about wind firmness of the taller Douglas fir trees after clearing for new development across the street. Tree #5, as well as the small group of other Douglas fir trees next to the pathway, have good vigor and no visible structural defects or symptoms of disease that could significantly increase their risk rating. Branch failure of healthy branches is possible in high wind events or heavy snow loading, which is normal for the species.

Recommendations

General treatments for all trees include cleaning out small dead branches throughout the crown and placing a 3-inch layer of wood chips over the root zone to promote vigor. All tree pruning of live and dead branches should be done by an ISA Certified Arborist® following the most current ANSI A300 Standards for Pruning.

For specific trees, the following actions are recommended:

- #1 – Within 6 months prune dead branches from the crown over the path and reduce the secondary stem growing towards the road by about 10 feet back to a suitable lateral branch for end weight reduction. Remove and replace the tree in 5 to 7 years.

- #2 – The cavity at the base is compartmentalized and the tree is a low risk at its current height. Maintain the height with crown reduction pruning at 5 year intervals.

- #3 – Convert to a wildlife snag by removing all branches within 12 months. Remove English ivy. Re-assess in 5 years. Plant a new tree to replace the canopy.

- #4 – Remove the tree within 2 years and replace it with a new tree. The tree has a moderate risk rating that will continue to be more of an issue as the decay advances.

- #5 – Retain the tree as it is at a low risk rating.

- #6 – Remove the two stems growing over the path within 6 months. Remove and replace the tree within 5 years.

- #7 – Within 6 months prune out dead branches over the path and remove one mainly horizontal stem approximately 6 inches in diameter over the path by pruning back to the trunk. Re-assess in 5 years.

- #8 – Monitor the tree for weak branch attachments or incipient decay at 5-year intervals.

- #9 – Within 6 months prune out the dead branches over the path and reduce the tree height to below the primary union of the two codominant stems. Remove the tree within 2 years.

- #10 – Prune out dead branches from the crown within 6 months and retain the tree.

- #11 – Remove the English ivy and monitor for weak branch attachments at 5-year intervals.

- #12 – Within 12 months remove one large low branch over the path back to the primary union that is on the south side of the trunk and on the stem with a cavity. Retain the stem to avoid a large wound on the trunk. Reduce the length of the branches on the west side of the tree near the play area by 5 to 6 feet for endweight reduction.

- Consider planting new trees interspersed with the existing trees for a phased canopy replacement. Consult with a local nursery or Conservation District about appropriate tree species selection, planting standards, and maintenance.

Let me know if you have questions regarding this Level 2 Basic Tree Risk Assessment. I can be reached at 360-503-9654 or mbecker@bartlett.com.

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Tree Risk Assessment Level Descriptions

The tree risk assessment process is based on factors present at the time of assessment. Because trees are living, growing things that change in size and condition over time, the tree assessment process must also recognize and anticipate where and when future assessments should be performed. The Tree Risk Assessment Qualification (TRAQ) training and methodology, developed and administered by the International Society of Arboriculture is the best available methodology for tree risk assessment at this time. There are three levels of assessment that may be considered and employed according to the expectations of the owner or manager, conditions of the site and of the trees involved:

Level 1 Limited Visual Assessment: Includes a broad overview of an individual tree or group of trees near specified targets, conducted to identify obvious defects or other conditions of concern. A limited visual assessment typically focuses on identifying trees with imminent and/or probable likelihood of failure. Level 1 assessments do not always meet the criteria for a "risk assessment" if they do not include documented analysis and evaluation of individual trees. This level is typically used for large populations of trees as a means to quickly identify trees with imminent and/or probable likelihood of failure, at a specified schedule and/or immediately after storms.

Level 1 assessments may be done as walk-by, drive-by or aerial patrols as requested by the tree owner or manager. They may not provide enough information to develop risk mitigation recommendations. They can help identify specific areas and/or trees for further inspection at Level 2 or 3. Trees found to require a Level 2 Basic Assessment are assessed, mapped and documented at the higher level at this time. Trees determined to need a Level 3 Advanced Tree Assessment are documented and recommended for additional testing and analysis. The owner is notified with options discussed.

Level 2 Basic Assessment: This is a detailed visual inspection of a tree and its surrounding site, and a synthesis of the information collected. It requires that a tree risk assessor walk completely around the tree, looking at the site, buttress roots, trunk, and branches. This basic assessment may include the use of simple tools to gain additional information about the tree or defects. Our Level 2 Basic Assessment Trees are all typically tagged, mapped and information gathered and retained for each tree. Risk mitigation recommendations may be derived from this level of inspection. Defects found in a Level 2 Basic Tree Assessment may require a Level 3 assessment for further testing and analysis. The owner is notified with options discussed.

Level 3 Advanced Assessment: Advanced assessments are performed to provide more highly detailed information about specific tree components, defects, targets or site conditions. An advanced assessment is performed in conjunction with or after a Level 2 Basic Assessment if the assessor determines the need for (requires) additional information. This level is particularly useful where there are concerns about trees that may otherwise be of high value, or to obtain better information on how serious or extensive a particular defect is. The Level 3 Advanced Tree assessment may include but not be limited to a root crown inspection with air spade, Resistograph or Tomograph use to determine sound wood or an aerial crown inspection.

The preliminary Level 1 Limited Visual Assessment if requested would help determine where field assessments at Level 2 and Level 3 will be needed.

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UFS|BC NOT TO SCALE

NORTH

Tree #	DBH (in)	Species
1	29.4	Norway maple
2	22.3	Norway maple
3	27.8	Norway maple
4	26.5	Norway maple
5	23.8	Douglas fir
6	10.0	Apple
7	13.6	Norway maple
8	7.6	Norway maple
9	14.2	Norway maple
10	26.1	Norway maple
11	19.0	Norway maple
12	26.3	Norway maple

MAP SYMBOL KEY:

Recommended Action

○ Retain and/or monitor

◒ Prune within 6 months

⊕ Remove or convert to snag between 6 months to 5 years

Base Plan Source: GoogleMaps, 8/15/2020

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Tree Assessment Site Plan

San Juan County Public Works—North Beach Rd

North Beach Rd between Enchanted Forest Rd and Henry Rd,
Eastsound, WA

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Tree Assessment Matrix

North Beach Road
Orcas Island

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Tree	Species	DBH (in)	Drip Rad.	CRZ (ft)	Vigor	Structure	Risk	Pres Value	Recommendations
1	Maple *Acer species*	29.4	14.3	29.4	Fair to Good	Fair	Moderate		Remove dead branches over path Reduce length of 2nd stem

Notes/ Defects

There is a cavity and exposed dead wood on the east side of the lower trunk. Kretzschmaria is present. The primary stem was topped at approximately 15 feet. The secondary stem has a solid union. There are larger dead branches over the path, including hangers. The crown should be cleaned of dead branches over 2 inches in diameter.




Date: 2/16/2021
Field Work Completed: 1/22/2021

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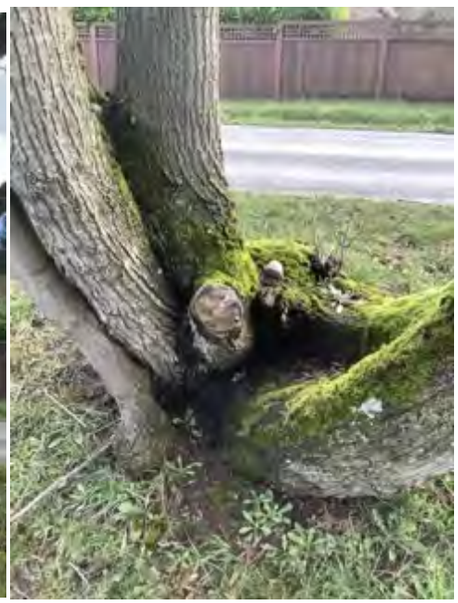
2	Maple *Acer species*	22.3	13.8	31.5	Fair to Good	Fair to Good	Low		Monitor for vigor and decay Maintain current height

Notes/ Defects

The codominant stems are mostly vertical and they have excellent taper. There may be some interior decay at the base of the tree at the site of old wounds from the removal of stems.



Date: 2/16/2021
Field Work Completed: 2/3/2021

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3	Maple *Acer species*	27.8	8.5	27.8	Poor	Poor	Low		Convert to wildlife snag Control English ivy

Notes/ Defects

The main trunk is approximately 12 feet tall and there are a few small sprouts growing out the side. There are two dead branches over the path. The tree is in decline and it could be removed and replaced. It is a good candidate for a wildlife snag that could be accomplished by removing all the live branches and leaving the main trunk. English ivy is colonizing the tree and it should be controlled.




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Field Work Completed: 2/3/2021

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4	Maple *Acer species*	26.5	14.5	26.5	Poor to Fair	Poor	Moderate		Remove tree within 2 years Remove dead branches over path

Notes/ Defects

There is advanced decay and Kretzschmaria in the trunk on the sidewalk side of the tree. Two dead branches are over the path and should be pruned out. One large branch on the south side of the tree could be reduced back to the nearest vertical stem for end weight reduction.




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Field Work Completed: 2/3/2021

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5	Douglas fir *Pseudotsuga menziesii*	23.8	13.5	23.8	Good	Good	Low		Retain tree

Notes/ Defects

This is a healthy tree with excellent taper and a 90 percent live crown to height ratio (LCR). The crown is slightly asymmetrical and weighted to the southwest. Branch failure during a high wind event is possible, but the damage would likely be minor. No action is required at this time.




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6	Apple *Malus domestica*	10.0	8.0	10.0	Dying/Dead	Dying/Dead	Low		Remove branches over path Remove within 2 years

Notes/ Defects

The crown is about 95 percent dead and there is a large cavity in the trunk. The tree is leaning and weighted away from the path on the private property side. There are no structures or high use areas under the tree if it were to fail in the direction of lean. Two stems over the path can be pruned out and the tree retained for wildlife.




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7	Maple *Acer species*	13.6	12.3	19.2	Fair	Fair	Moderate		Crown clean dead branches Remove large branch over path

Notes/ Defects

There is a cavity and Kretzschmaria at the base of the tree. Wound wood has formed a callous around the cavity. One sprouted stem looks healthy. There are a few dead branches over the path. One large stem of approximately 6-inch diameter that is over the path should be removed back to the main trunk. Dead branches in the crown should be cleaned out.




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8	Maple *Acer species*	7.6	7.3	7.6	Good	Fair to Good	Low		Monitor for decay and vigor

Notes/ Defects

The stem is young and sprouted where the original trunk was removed down to a stump. There is Kretzschmaria on the stump that will likely infect the new stem. The tree has a slight lean and an asymmetrical crown weighted to the north. Failure is possible but the consequences would be minor. The tree should be monitored for spread of the fungus and viability of the new stem.




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9	Maple *Acer species*	14.2	9.3	14.2	Poor to Fair	Poor	Moderate		Remove dead branches Reduce height; replace in future

Notes/ Defects

The tree has a lean and asymmetrical crown weighted to the west over the path. There is a vertical column of decay up the entire length of the trunk on the side opposite the lean. The top is broken and there are some small diameter dead branches over the path. The tree is not viable and it should be removed and replaced within the next five years. Height reduction down to below the main union of two codominant stems is recommended in the short-term.




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10	Maple *Acer species*	26.1	12.0	26.1	Fair to Good	Poor to Fair	Low		Retain tree

Notes/ Defects

The trunk has large burls and the top failed previously. All the branching unions look solid. There are a few small dead branches over the path that could be cleaned out of the crown. The tree is out of striking range of the nearby play area and it is a low risk. It can be retained at this time.




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11	Maple *Acer species*	19.0	8.8	19.0	Good	Poor to Fair	Low		Remove English ivy Monitor stems for vigor

Notes/ Defects

This tree is comprised of several young sprouts growing out of a 7-foot tall stump. The stem attachments look solid. English ivy is colonizing the tree and should be controlled. The tree can be retained as a low risk and monitored for changes in the vigor of the stems.




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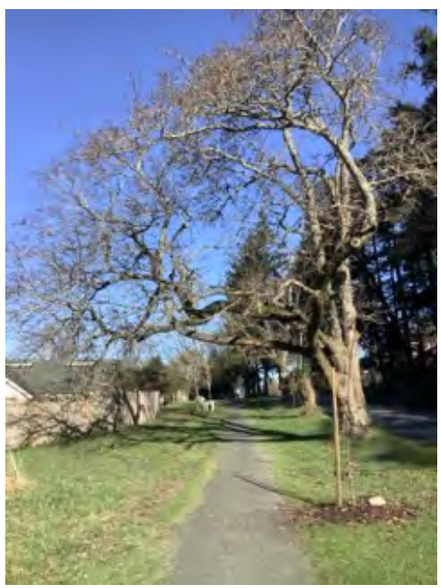
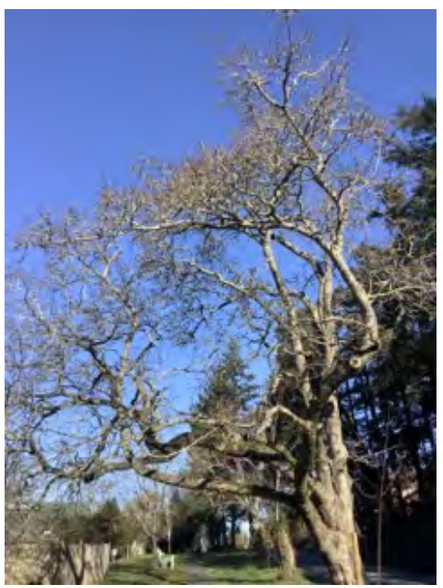
12	Maple *Acer species*	26.3	22.8	26.3	Good	Fair to Good	Low		End weight reduction Crown clean dead twigs

Notes/ Defects

A patch of bark is gone on the lower south side of the trunk, possibly a result of vehicle strikes. There is a cavity in the large stem growing to the south over the path, but there is abundant supporting response wood below the wound. There is some minor twig dieback in the crown. The tree is very healthy, overall. The nearby school outdoor play area is out of striking range. End weight reduction of 5 to 6 feet on the branches nearest the play area will reduce the likelihood of branch failure and assist tree preservation.

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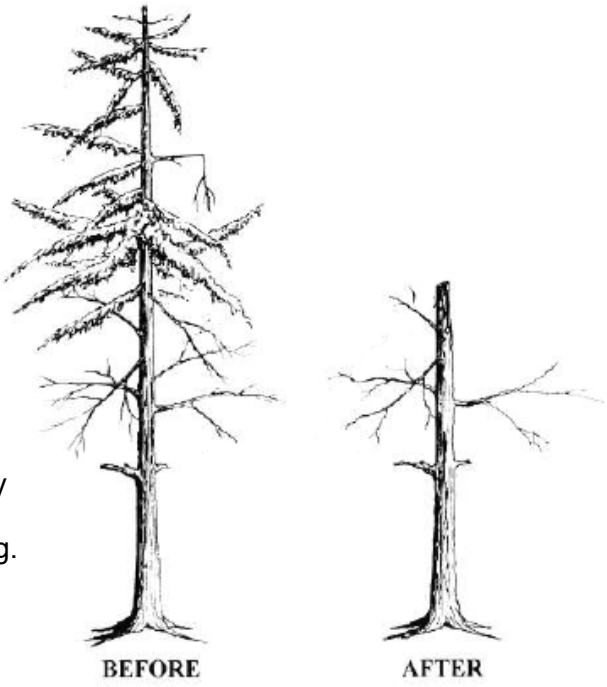
WILDLIFE SNAG DETAIL

Snag Selection and Design

After identifying an appropriate tree to create a snag, the most important decision is the height of the snag. Preserving the tree completely will maintain the maximum amount of wildlife habitat but requires moving the targets to reduce risk. Remove the top of the tree to a height that reduces risk to an acceptable level. This decision relies on knowledge of the tree species, defects in the tree and the location and concentration of targets near the tree. Often, the snag height will be equivalent to the distance to the nearest target.



Snag Creation

Arborists typically do not recommend topping, heading or jagged cuts because they can introduce decay. In a snag, decay is beneficial. Fracture pruning or coronet cuts can mimic a failed tree and can create a more natural aesthetic to the snag. Shorten branches but do not fully remove them. They can be used as perches and retain some of the complicated three structure of the tree. A snag should be pruned to balance the structure and retain aesthetic value.

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WILDLIFE SNAG DETAIL

Sheet 1 of 2

2020

Photo Credits:

T. Holladay

WILDLIFE SNAG DETAIL

Snag Management

Two components of wildlife snag management are monitoring and removal plans. A snag is a dying tree. When near targets, it should be assessed annually and managed when necessary for excessive regrowth, changes in structure or stability, and to reduce risk to targets. Risk assessments should be conducted by an ISA Tree Risk Assessment Qualified arborist. When removal is recommended, the snag may be unsafe to climb and another removal technique may be required. Planning for this in advance is important.

Many people see snags as poorly pruned trees. Create educational signage to teach visitors about the importance of dead trees to wildlife, the management of this snag and what they can do to improve wildlife habitat in their neighborhood

Advanced Techniques and More Information

Create artificial cavities for wildlife in your area. Similar to nesting boxes, cavities can be specifically designed for a particular species.

More information on habitat features and wildlife snags can be found at:
https://content.yardmap.org/learn/habitat-feature-snags/

https://backyardhabitats.org/wp-content/uploads/2017/07/Snags-Living-with-urban-wildlife.pdf

Use kerf cuts to mimic bark flange spaces for bats and other species nesting and roosting in these types of habitats.

Plunge cuts, or sliding cutouts can be used to develop nesting cavities. Nesting cavity depth, shape, and entrance diameter will correlate with specific wildlife.

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WILDLIFE SNAG DETAIL

Sheet 2 of 2

2020

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