Sheep Creek LOA 2021 Insect & Disease Survey Summary

By: Sam Scavo, Forester; Adam Moore, Supervisory Forester

Colorado State Forest Service

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Over multiple days in June and July of 2021 Colorado State Forest Service foresters Adam Moore and Sam Scavo completed an insect and disease walk-through for Sheep Creek LOA. Numerous insects or diseases were observed. Observations are broken down into minor agents that typically are not a problem and major agents that could present a problem.

Minor Agents Specific findings

Found on only 1-3 trees or have no negative affect on the health of the infested trees.

Spruce Broom Rust-

- Trees Affected – Engelmann Spruce and Colorado Blue Spruce
- Concerns - Aesthetics
- Treatment – None needed. Prune branches for aesthetics.
- Resources - https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5187557.pdf

Pine Scale-

- Trees Affected – Engelmann Spruce and Colorado Blue Spruce
- Concerns – Slow decline of tree if real severe. Low levels observed that would not affect tree health.
- Treatment – Currently not recommended. Soil drench individual trees of high value.
- Resources - https://extension.colostate.edu/topic-areas/insects/scale-insects-affecting-conifers-5-514/

Porcupine Damage-

- Trees Affected – Any species but usually Ponderosa pine.
- Concerns – Girdling by eating the bark often kills the leading to dead tops in trees or branches.
- Treatment – Sporadic so no treatment needed.
- Resources - https://forestry.usu.edu/news/utah-forest-facts/identifying-preventing-porcupine-damage-to-trees
  https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5353715.pdf

Cytospora Canker-

- Trees Affected – Aspen
- Concerns – Slowly kills trees.
- Treatment – No known treatment.
- Resources - https://extension.colostate.edu/topic-areas/yard-garden/cytospora-canker-2-937/

Marssonina Leaf Spots-

- Trees Affected – Aspen
- Concerns – Aesthetic
- Treatment – No treatment needed.
- Resources - https://extension.colostate.edu/topic-areas/yard-garden/aspen-and-poplar-leaf-spots-2-920/

Large Aspen Tortix-

- Trees Affected – Aspen
- Concerns – Aesthetics. Repeated years of heavy defoliation can kill a tree already stressed by drought or other diseases.
- Treatment – No treatment needed.
- Resources - https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5343826.pdf

Eriophyid Mites

- Trees Affected – Any deciduous. Aspen and cottonwood most common in the SLV.
- Concerns – Aesthetic
- Treatment – No treatment needed.
- Resources - https://www.missouribotanicalgarden.org/gardens-gardening/your-garden/help-for-the-home-gardener/advice-tips-resources/pests-and-problems/insects/mites/eriophyid-mites.aspx

Sapsucker-

- Trees Affected – Any tree.
- Concerns – Aesthetics. If really bad then can kill the tree above the damage.
- Treatment – No treatment needed.
- Resources - http://extension.msstate.edu/publications/recognizing-sapsucker-damage-yard-trees

Tent Caterpillar-

- Trees Affected – Any deciduous. Western Tent Caterpillar most commonly affects aspen, cottonwood and chokecherry. There are numerous other tent caterpillars that affect other plants such as currants.
- Concerns – Aesthetics. Healthy trees will leaf out again the same year. Stressed trees may die after repeated years of defoliation.
- Treatment – No treatment needed.
- Resources - https://extension.usu.edu/pests/ipm/ornamental-pest-guide/arthopods/moths/western-tent-caterpillar

Twig Beetle-

- Trees Affected – Conifers
- Concerns – Aesthetics. Can kill the end of branches.
- Treatment – No treatment needed.
- Resources - http://wci.colostate.edu/Assets/pdf/TwigBeetle.pdf

Miscellaneous Limber Pine-

- Trees Affected – Limber Pine
- Concerns – Thinning canopy. Brown needles. Undetermined cause of damage. Potentially soil compaction or root damage from utility work.
- Treatment – Supplemental water for tree. Provide bark around the tree to help retain moisture.
- Resources - https://www.treesaregood.org/portals/0/docs/treecare/propermulching.pdf

Major Agents Specific findings-

Douglas-fir Beetle- is the primary concern for Sheep Creek as populations continue to reside on neighboring Rio Grande NF land in Conejos Canyon.

- Trees Affected – Douglas-fir
- Concerns – Kills stressed trees.
- Treatment – Remove affected tree by May. Hang MCH pouches around affected tree to reduce chances of it infecting other trees.
- Recommendation - No actions necessary in 2021 since no affected trees were identified. Continue to monitor for any infested trees and treat if found.
- Resources - https://csfs.colostate.edu/media/sites/22/2016/01/Douglas-Fir-Beetle-QuickGuide2016.pdf

Mountain Pine Beetle - is the insect of the second most concern for Sheep Creek as populations continue to reside on neighboring Rio Grande NF land in Conejos Canyon, although no newly infected trees have been observed for at least 5 years.

- Trees Affected – Ponderosa pine, limber pine, lodgepole pine
- Concerns – Kills stressed trees.
- Treatment – Remove affected tree by June. Hang verbenone pouches around affected tree to reduce chances of it infecting other trees.
- Recommendation - No actions necessary in 2021 since no affected trees were identified. Continue to monitor for any infested trees and treat if found.
- Resources - https://extension.colostate.edu/topic-areas/insects/mountain-pine-beetle-5-528/

Spruce Beetle- Sheep Creek contains very few Engelmann spruce (preferred tree species due to thinner bark) with most of the spruce being Colorado Blue Spruce located along the river and elsewhere. Numerous dead spruce trees in Sheep Creek appear to have died from spruce beetle, but they have been dead for 4+ years. The acreage affected by Spruce beetle on the Rio Grande NF has been declining over the last 6+ years. Due to the decline in acres affected it is not anticpated that more spruce trees will be killed by it unless firewood brings beetle in to Sheep Creek.

- Trees Affected – Spruce
- Concerns – KIlls stressed trees
- Treatment – No treatment needed
- Recommendation - No actions necessary in 2021 since no affected trees were identified. Continue to monitor for any infested trees and treat if found.
- Resources - https://csfs.colostate.edu/media/sites/22/2014/02/Spruce-Beetle-QuickGuide-FM2014-1.pdf

Management Options for Mountain/Spruce/Douglas-fir beetle

- *Cut the infested trees and peel the bark off- either mechanically or by hand*
    - *Attachments are made for chainsaws that aid in removing bark faster*
    - *Removing the bark exposes the beetle larvae to dehydration and starvation*
- *Cut the trees and burn them in slash piles*
    - *Only burn with adequate, lasting snow and be sure to follow all local, state and federal burning regulations. This activity would need to happen this winter*
- *Cut the trees and bury with at least 8" of soil **or** chip/masticate the trees*
    - *Both methods you would want to treat down to about 4" diameter material*

- *Cut the trees and wrap them in plastic to suffocate the larvae*
    - *Can be labor intensive*
    - *Plastic could be disturbed by bears or other wildlife*
- *Cut the trees and haul material off site down to about 4" diameter*
    - *With steep access to some trees this option would be difficult*

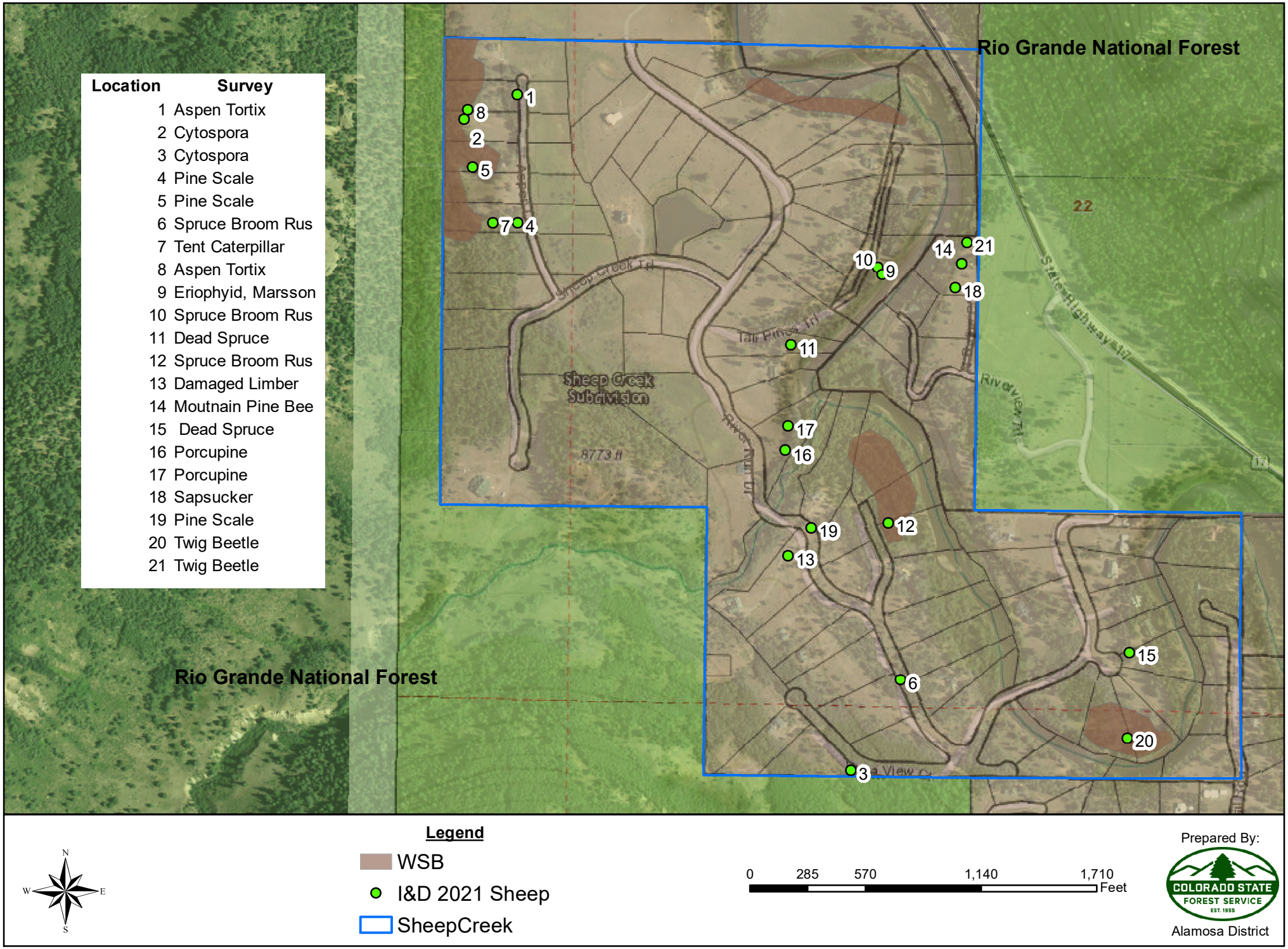
Western Spruce Budworm – is the most abundant and damaging insect affecting the leaves of trees. Sheep Creek has had damaging effects from WSB for at least 10 years. 2020 was especially bad, but that was not a surprise since 2019 was so moist which causes trees to produce more new bud growth (food source) for 2020.

- Trees Affected – Conifers
- Concerns – Aesthetics/death/wildfire. Minor amounts of damage eating new growth kills the tips of branches creating a brown ugly appearance. Repeated years of eating new growth can stress and kill the trees. Damaged or dead trees pose a wildfire hazard and should be a focus of removal.
- Treatment – Smaller trees can be treated with BT (Bacillus thuringiensis)
- Recommendation - Remove ladder fuels/small trees that are damaged by WSB. This does two things; 1 – removes food source, 2 - reduces wildfire danger.
- Resources - https://csfs.colostate.edu/media/sites/22/2014/02/Western_Spruce_Budworm_QG_10May2016.pdf

Further Prevention

- Keep creating diversity both in tree species and tree age classes
    - Mountain/Douglas-fir/Spruce beetle prefers older, dense forests
- Thin the larger block of timber where these infested trees are
    - Trees are more resilient when they have adequate sunlight and nutrients

Sheep Creek - Insect & Diseases 2021



Location	Survey
1	Aspen Tortix
2	Cytospora
3	Cytospora
4	Pine Scale
5	Pine Scale
6	Spruce Broom Rus
7	Tent Caterpillar
8	Aspen Tortix
9	Eriophyid, Marsson
10	Spruce Broom Rus
11	Dead Spruce
12	Spruce Broom Rus
13	Damaged Limber
14	Moutnain Pine Bee
15	Dead Spruce
16	Porcupine
17	Porcupine
18	Sapsucker
19	Pine Scale
20	Twig Beetle
21	Twig Beetle

Legend

- WSB
- I&D 2021 Sheep
- SheepCreek

0 285 570 1,140 1,710 Feet

Prepared By:

COLORADO STATE FOREST SERVICE EST. 1955

Alamosa District