Hawkridge Estates Homeowners Association Community Forest Survey
October 7, 2023

On October 7, 2023, I conducted a walking grid survey in the forested properties of the Hawkridge Estates to identify and locate any signs of mountain pine beetle (*dendroctonus ponderosa*) or other forest insect or disease (I&D) that may be harmful to ponderosa pine. I was richly rewarded by the company of Wayne Jones, who turned out to be a word smith by accident and a great forest health inspector by training. ☺ Thank you Wayne for entertaining me throughout the walkabout and humoring me my lecturing on all things forestry.

Each forested property was surveyed/walked in a tight grid pattern, boundary to boundary, with overlapping sight lines between grids. In this manner, a high percentage of trees were observed. Anything unusual was examined closely and noted if necessary.

Mountain pine beetle is the principle bark beetle of ponderosa pine trees in the west; indeed, the Latin name itself literally means “tree killer”. There are others, such as *ips spp.*, and of those, there are seven species that infest pine trees in Colorado. We surveyed for those as well.

All insects, indeed all forest pests, evolved in concert with the trees as coniferous forest species established themselves world-wide nearly 300 million years ago in the Late Carboniferous period. As the host/prey relationships evolved, a stable level of bark beetle populations occurred where there were *always* some background level of insects residing in the forest stands at any different time and location. These are called *endemic* populations, and are normal. Where stand conditions are such that large monocultures exist over large landscapes, and forest health conditions are affected by abiotic and biotic disturbances, bark beetle populations can ramp up into *epidemic* levels. Epidemic populations can overwhelm even healthy stands as beetle numbers explode into the trillions of adults, moving rapidly through the canopy. We saw this throughout a large portion of Colorado, Montana and Wyoming beginning in 1997 and into the mid-2,000s during extreme drought conditions. These are the same forests that burned in 2020 and ‘21.

Pure monocultures of ponderosa pine stands are of higher risk as population dynamics can increase rate of spread when uninterrupted by species diversity. Hawkridge is most definitely a monoculture with endemic levels of bark beetles. Keep in mind though that despite outward appearances, forest conditions are never static and change as influenced by weather, fire, insects, diseases and other natural disturbance events.

Therefore my focus was on the observing for signs and symptoms of a current MPB infestation. They are:

- Existence of “faders”; trees that were infested last year and exhibit straw-colored needles throughout the crown that began in June of this year. Don’t confuse this with the yellowing needles from fall needle cast which is occurring right now
- Blobs of pitch that resemble popcorn (or miniature volcanoes) on the trunks of trees 6” in diameter or larger. This size class is the lower limit that MPB can enter. These blobs are the entrance wounds caused by the female entering the tree and the tree’s defense mechanism, exuding pitch to keep the beetles from gaining access
- Signs of red, cinnamon-colored sawdust in the crevices of the bark and on the ground indicative of female beetles that have successfully entered the tree and laid eggs
- Signs of woodpeckers working on the bark and looking for a good meal
- Older faders where the needles have turned red or orange from 2022
- All these signs and symptoms are readily visible from many feet away
- We observed these signs on the one MPB tree we found and Wayne can demonstrate his new acumen

Conclusions of the 2023 survey:

1. The community forest of Hawkridge Estates is a young (~125 years old) monoculture of ponderosa pine in terrific condition
2. There is only one address with a successful attack of MPB: 18870 Wingtip Road. This tree was marked with an orange flag with the words “Killer Tree” in black on the ribbon. This tree should be removed from the site, ground into mulch, covered with clear plastic until spring of 2024 or all the bark should be stripped from the trunk, and whichever is most efficient and easiest. See MPB link below for treatments pertaining to bark beetle infested logs.
3. There is a dead hazard tree just above the driveway at 19365 Soaring Wing Court. This tree is also marked with the Killer Tree orange flagging. It should be removed before it begins to become unstable from decomposition.
4. There are several addresses that should treat the thick stands of “dog hair” juvenile regen. These are sites that contain many small diameter seedling/sapling stage ponderosa pine trees that are considered ladder fuels for a fire. Additionally, these trees are suppressed and unhealthy and will never outgrow the irregular growth patterns that they are in now.
5. I did not observe any other items of concern for the HOA. Even cross boundary addresses appear very healthy even if they are slightly overstocked (trees per acre).
6. Wayne and I had a conversation about pine straw and mulch. Naturally occurring mulch from fallen pine needles and mulch created from chipping biomass is healthy for a number of reasons:

a. Mulch helps to retain soil moisture in the A horizon at the top of the soil profile, beneficial to the tree for growth
b. Mulch helps mitigate heat and cold temperatures, protecting beneficial mycorrhiza in the soil profile
c. Mulch helps attenuate raindrop impact, slowing soil movement and erosion
d. Mulch is not as flammable as some believe, but should still be removed where it is closer than ten feet from the home or infrastructure. See this link for information on defensible space and protection zones: Protect Your Home & Property from Wildfire | Colorado State Forest Service | Colorado State University (colostate.edu)
e. And finally it becomes available to the nutrient cycle as it breaks down over time
f. Therefore it's not necessary to rake every year

The two year intervals between surveys seems appropriate for this forest as it is very healthy despite droughty conditions in previous years. However, I advise homeowners to consider the following:

- Consider species diversity and plant alternate species that are not host trees for MPB such as Douglas-fir, Colorado blue spruce, white fir and various sunny-site deciduous trees and shrubs. For information on the seedling tree program see: Seedling Tree Nursery | Colorado State Forest Service | Colorado State University (colostate.edu)
- Thin the understory to reduce ladder fuels and re-plant with shrubs to minimize continuous view-sheds which can also provide excellent wildlife habitat. For information on forest health and stand stocking/species diversity see: Forest Health & Management | Colorado State Forest Service | Colorado State University (colostate.edu)
- Learn about forest insects and pests. Review the Colorado State Forest Service's website at: https://csfs.colostate.edu/forest-management/common-forest-insects-diseases/ - this CSU agency exists solely for assisting private forest landowners
- For information on mountain pine beetle, it's life cycle, signs and symptoms and control treatments please see: Mountain Pine Beetle | Colorado State Forest Service | Colorado State University (colostate.edu)
- Practice wildfire emergencies, escape routes and plan where to go and reunite during a wildfire. Be prepared, be ready and don't think there will be time for gathering possessions.
- Your local Colorado State Forest Service office is:

Woodland Park	113 South Boundary Street Woodland Park, CO 80863	(719) 687-2951 (719) 687-2921 FAX (719) 687-9584 CSFS_WoodlandPark@mail.colostate.edu

And as always your HOA members can always call me about any questions they may have about forests, trees and soothing psithurisms. ☺

Respectfully submitted by:

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