



**PLEASE  
DO ~~NOT~~  
DISTURB**

Why FWP is using  
“low-intensity logging”  
to mimic natural  
disturbances on some  
forested wildlife  
management areas.

BY TOM DICKSON

## Trees grow.

I come to this profound realization while spending a day exploring one of Montana’s largest wildlife management areas (WMAs), 70,000-acre Mount Haggin, just south of Anaconda. More to the point, under certain conditions some trees grow more aggressively than others. As a result, they can reduce the value of forest habitat to certain wildlife species, especially elk, deer, moose, and many nesting songbirds.

Guiding me through the WMA and these forest ecology basics is Vanna Boccadori, Montana Fish, Wildlife & Parks wildlife biologist in Butte. She begins by pointing out the various ways trees benefit wildlife, such as providing food (leaves, buds, branches, bark, and flowers) and shelter (protection from predators, warmth in winter, shade in summer, and nesting and perching areas). All tree ages are important, Boccadori explains, ranging from young saplings browsed by moose calves to the toppled old-growth giants, which become home to ants that break down dead trees into soil. “Depending on the wildlife, certain tree and shrub species and ages are better than others,” she says.

Improving the composition of Mount Haggin’s tree species and ages to benefit wildlife—especially the elk, moose, and mule deer for which the land was purchased—is among Boccadori’s many jobs. One way of doing that is with carefully prescribed timber harvest.

Wait a minute: Chopping down trees to benefit wildlife? That seems counterintuitive to those of us who’ve read for decades how logging harms wild animals. “It’s true that timber harvest can be detrimental,” Boccadori says. “But when done right, some tree removal can be a good thing.”

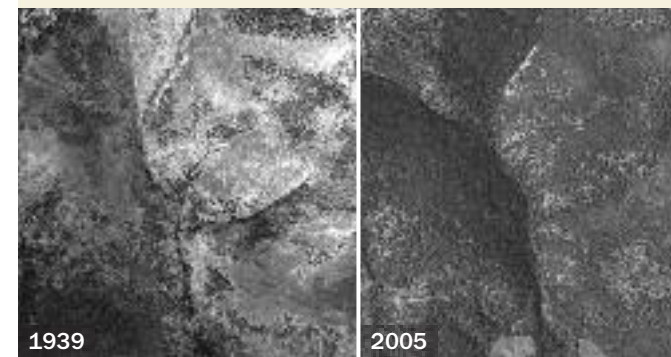
### SMOKEY’S LEGACY

The main reason is that logging can mimic the effects of low-intensity fires that for thou-

sands of years swept through today’s western Montana. Sparked by lightning, or occasionally set by Native Americans to promote grass growth, the fires rarely burned too hot because “fuels”—thick stands of understory vegetation or toppled dead trees—rarely had time to accumulate. In dry stands on west- and south-facing slopes, fires snaked through forests every few decades, leaving behind biologically rich mosaics of charred, partially scorched, and unburned trees. Larger, older conifers survived. Their bark was thick



**CHOKED WITH GROWTH** Above: At Blackfoot-Clearwater WMA, thick understory, historically kept open by low-intensity fire, blocks sunlight from grasses and forbs on the forest floor. Below: The Ovando Mountain Unit, 1939 and 2005, showing how open elk winter range (light areas) filled in with trees (dark areas) during a half century without wildfire.



enough to withstand the fire, and the crowns rose high enough to escape the flames below. These same fires killed younger understory conifers, allowing sunlight to reach grasses and forbs on the forest floor. By killing small trees creeping into and shading open parklands, the flames also set back the natural process known as forest “succession.”

Natural fire regimes that had shaped western forests since the last ice age abruptly ended in the early 1900s. That’s when the U.S. Forest Service and other agencies insti-

tuted a new policy of suppressing all forest fires. Ironically, an unintended result was that forests over the last century have actually grown more flammable. Understories of many protected stands grow dense and tight. As years pass, they fill with dead, downed trees. This can produce catastrophic fires—which have raged across parts of the West in recent decades—that burn entire forests down to sterile bare soil. Meanwhile the thick, dense tree growth in unburned areas degrades habitat for many wildlife species.

Sometimes, wildlife biologists and forest managers use “prescribed” burning to clear out understory below older trees. But burning in forests too thick with accumulated fuels can put neighboring lands at risk. Often a safer and more cost-effective option is mechanical forest management.

Call it “low-intensity logging.”

At Mount Haggin, Boccadori and I hop into her pickup to see three such projects, carried out in the summers of 2010 and ’11, and another soon to be underway.

### MORE AGES ARE BETTER

The first project site is a 128-acre stand of aspen circled by a 100-foot-wide clear-cut. Boccadori explains that Douglas fir and lodgepole pine surrounding the aspen had crowded in, shrinking the grove. The timber harvest set back the expanding conifer growth. The cut trees and disturbed soil also caused aspens to “sucker” (sprout up) from dense root systems. The open perimeter is filled with 3-foot-tall saplings,

their potato chip-sized leaves wiggling in the breeze. Boccadori tells me these young aspen are accessible to moose, deer, and ruffed grouse, while midsized trees supply nesting habitat for several bird species. Older aspen benefit other birds; dead standing trees are great for cavity nesters like woodpeckers; and the old, fallen trees provide hiding cover and den sites. “The more age diversity, the better,” Boccadori says.

Next we ascend a twisting two-track road to a relatively flat area along a high hill to see



JAY KOLBE/FWP

**LET THE SUN SHINE IN** A stand of Douglas fir on the Blackfoot-Clearwater WMA reveals the open spaces created when understory is cleared out. Historically, this was the result of low-intensity wildfires, but these days it requires selective cutting. Either way, sunlight can reach shrubs and sedges that deer and elk eat. And the remaining tree crowns can spread and block more snow from the ground, allowing wildlife freer movement in winter.

the second project. Here crews from Sun Mountain Lumber of Deer Lodge removed beetle-killed lodgepole pine on seven sites of various sizes totaling about 200 acres. They left behind thicker, older stands of Douglas fir, which Boccadori says is better security and thermal cover for elk and deer than the spindly lodgepole.

Clear-cutting in the early 1900s produced large stands of densely packed, even-aged second-growth lodgepole pine in much of the forest that eventually became the WMA. The

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uniform stands lack the diversity that would provide food and shelter to more game and nongame species. They also invite large-scale infestations of pine-bark beetles, which can easily fly from tree to tree.

Scattered about the project site are stumps of lodgepole felled by a tractorlike machine called a harvester, still parked nearby. “One goal of this project was to clear out dead and dying lodgepole that, over time, would topple and make it hard for big game to move throughout their winter range,” Boccadori says. Bunches of dried rough fescue dot the open areas, along with showy aster, Oregon

grape, and patches of alder, snowberry, and huckleberry—all nutritious deer and elk food.

#### AERIAL EVIDENCE

Last year FWP carried out similar habitat-driven timber harvest projects 50 miles to the north on the Blackfoot-Clearwater WMA. On 345 acres in the WMA’s 6,000-acre Ovando Mountain Unit, crews from Pyramid Mountain Lumber thinned the understory below centuries-old conifers. “From aerial photos taken in the 1920s and ’30s, we know that these south- and west-facing slopes were historically parklike ponderosa

pine, Douglas fir, and larch stands, mixed with extensive shrub fields,” says Jay Kolbe, FWP area wildlife biologist based in Seeley Lake. “I also went out and found older trees with burn scars from past periodic fires. The trees themselves were telling us their history.”

Elsewhere on the unit, says Kolbe, crews rejuvenated aspen stands by removing small conifers creeping in from the periphery.

FWP contracted with licensed foresters to supervise the Mount Haggin and Blackfoot-Clearwater projects to ensure wildlife habitat goals were met. Both projects required environmental assessments, open to public review and comment, that outlined the likely positive and negative effects of timber harvest.

Pyramid Mountain Lumber, whose 150 employees make it the largest employer in Seeley Lake, removed nearly 1.5 million board feet of saleable timber as a by-product of the Blackfoot-Clearwater forest restoration. “That one project provided nearly 5 percent of the material needed to keep our mill running during this last year,” says Gordy Sanders, Pyramid’s resource manager. The project provided 2,800 man-days of work for local loggers, truck drivers, and mill workers.

From the roughly 300 acres logged at Mount Haggin, Sun Mountain Lumber harvested and purchased 12,000 tons of saw logs. Another 384 tons of firewood, 82 tons of house logs, and 20 tons of post poles were commercially sold.

According to Boccadori, it would have cost FWP roughly \$30,000 to improve forest wildlife habitat at the WMA to the extent done under the project. “Basically we got

\$30,000 of wildlife habitat improvement done for free, not to mention the economic benefits to local communities,” she says. In addition to the boost to Sun Mountain Lumber’s bottom line, FWP contracted with a local firewood supplier, who cuts small logs from piles of slash (leftover woody debris) and hires developmentally disabled workers through the AWARE Program to bundle the kindling, which is sold to campers at convenience stores.

Generating a range of benefits was one reason the Montana legislature gave WMA forest management a big boost in 2009, says Ken McDonald, FWP Wildlife Bureau chief. Previously, revenue generated by timber harvest on WMAs couldn’t be used to benefit those lands. Thanks to legislative action, the money now goes into FWP’s new Forest Management Account. The department can reinvest those funds into WMAs where forest management is needed, especially work that wouldn’t generate income and pay for itself. An example is a proposed project on the Blackfoot-Clearwater WMA to cut small ponderosa pines encroaching on grasslands that provide critical elk winter range. In 2011, lawmakers also provided FWP funding and direction to inventory its forest habitats. “Both [the account and the inventory] are great tools that are helping us do essential wildlife management work,” says McDonald.

#### SO MANY BENEFITS

At Mount Haggin, Boccadori and I drive downhill to a vast, open parkland, where she

“I also went out and found older trees with burn scars from periodic fires. The trees themselves were telling us their history.”

shows me where Douglas fir saplings had spread into open areas, shading out low-growing bitterbrush. “Mule deer love this plant,” she says. The protein-packed leaves stay on the shrubs until late fall and early winter, when other food is scarce. At this third project site, FWP staff and volunteers with the Mule Deer Foundation removed young firs so sunlight could reach the shrubs and rough fescue, a deer and elk favorite.

From there we drive to the site of a proposed timber cut on the west side of the WMA, an area covered in dense stands of gray- and rust-colored lodgepole. The dead and dying pines are scheduled for harvest along 5 miles of access roads, 8 miles of cross-country ski trails, and portions of 800 additional acres. The goal is to remove dead trees from travel routes—less to prevent the unlikely (though not impossible) event of a tree falling on someone than to keep pines from toppling across the roads during high winds and trapping hunters or others after driving or skiing in.

## A SEQUENCE OF EVENTS



Decades of **fire suppression** allowed understory to build up, degrading wildlife habitat and creating huge fuel loads that lead to catastrophic fires.



Historically, **frequent low-intensity fires** swept through western Montana forests, clearing underbrush and allowing sunlight to invigorate grasses, forbs, and shrubs eaten by deer, elk, and other wildlife.



Following record warm winters in the 2000s, **pine bark beetles** thrived. The insects killed hundreds of thousands of acres of mostly lodgepole and ponderosa pine in western Montana, adding to fuel loads.

Dense understory, shrinking aspen stands, shaded bitterbrush, and dead lodgepole compel **FWP to begin timber management projects** on Mount Haggin and Blackfoot-Clearwater WMAs.



The timber harvest produced **multiple benefits for wildlife**: grasses and wildflowers eaten by deer and elk flourish in newly opened areas; saplings add age diversity to aspen stands; bitterbrush grows more abundantly in areas open to sunlight; crowns of larger trees expand to

block more snow from the ground, allowing wildlife freer movement in winter.

Also, the **risk of catastrophic wildfire has been reduced** as fuel loads diminished. This greatly lessened the odds of fires wiping out big game winter cover and spreading to adjacent private lands.

In addition to reinvigorating wildlife habitat, the projects sustained local logging and sawmill jobs, giving rural economies a shot in the arm. **Blackfoot-Clearwater Project**: 1.5 million board feet, 2,800 man-days; **Mount Haggin Project**: 12,000 tons of saw logs, 384 tons of firewood, 82 tons of house logs, and 20 tons of post poles.



At Mount Haggin, FWP contracted with a **local firewood supplier**, who cut wood from slash piles and hired developmentally disabled adults with the AWARE Program to bundle the kindling, sold to campers at convenience stores.

Also at Mount Haggin, slash from one proposed project will be put in eroded gullies to **reduce silt washing into tributaries of the Big Hole**, the only river holding a sizeable population of arctic grayling in the lower 48 states.



**Future timber management projects** are slated for Mount Haggin, Blackfoot-Clearwater, and West Kootenai WMAs. More will be proposed for other western Montana wildlife areas where forest conditions have stagnated.

Expenses for the project—including grading two teeth-rattling access roads—will likely be fully met by the sale of timber. The project might even generate surplus revenue that would pay for future Mount Haggin forest management projects. An added benefit, Boccadori says, is that slash will be placed into deep gullies to reduce erosion. With each rain and snowmelt, the hillsides currently bleed silt (which covers and suffocates fish eggs) into tributaries that eventually send water into the Big Hole River, 15 miles to the south.

Reducing the risk of catastrophic wildfire is another benefit of some prescribed timber harvest, says FWP wildlife biologist Tim Thier, who is managing a project proposed for the West Kootenai WMA near Eureka. He says decades of stagnated conditions have allowed small trees to choke the spaces between larger old growth. “If we don’t take action, we could see this entire area burn with a high-intensity fire that would endanger nearby homes,” Thier says. “The fire could also be severe enough that deer and elk would lose a major source of cover during deep snow.”



**REJUVENATED** Vanna Boccadori, FWP wildlife biologist in Butte, with new quaking aspen sprouting from a small clear-cut on Mount Haggin WMA. “Depending on the wildlife, certain tree and shrub species and ages are better than others,” she says.

Despite what it sees as obvious benefits, FWP recognizes public concerns about opening up WMAs to even limited timber harvest (see sidebar, below). That’s one reason the department ensured the projects on Mount Haggin and Blackfoot-Clearwater WMAs were based on science and achieved clear wildlife management objectives. In 2010, University of Montana (UM) researchers documented the need to thin

some forests on the Blackfoot-Clearwater WMA where succession had degraded elk and deer winter range. On Mount Haggin, FWP crews conducted surveys of plant communities and small mammal occurrence in the bitterbrush and aspen areas before and after encroaching conifers were felled. The department also invited UM researchers to study bird nesting success in Mount Haggin aspen stands before and after logging. “Preliminary results are that nest success is up,” Boccadori says. “The conifer removal eliminated habitat for red squirrels, and squirrels eat bird eggs and prey on hatchlings.”

#### JUST WHAT TYPE OF DISTURBANCE?

There’s no getting around the fact that trees keep growing, and growing. As a result, it appears that FWP must continue managing forests on WMAs. “It’s essential,” says McDonald. “We’re losing thousands of acres

of prime winter range just from conifer encroachment.” In addition to aging and overgrown stands at Mount Haggin and Blackfoot-Clearwater, forests on the new 24,000-acre Marshall Block and 41,000-acre Fish Creek WMAs need attention. “Now that we’ve acquired these landscape-scale areas, it’s our responsibility to actively manage them to benefit wildlife,” McDonald says. “Not everyone is comfortable with the term ‘actively manage.’ Some Montanans want to put ‘Do Not Disturb’ signs around all forests. For certain timbered areas, that may make sense. But for others, a total hands-off approach is unnatural. Forests are dynamic and require periodic disturbance. What type of disturbance is the big question. “We want to create sustainable wildlife habitat that looks and acts as if periodic wildfires were still allowed to play their historical role,” says Kolbe. That’s an approach to forest management on WMAs that no one should lose any sleep over. 🐾

► **Harm to other species:** “Any habitat management project will benefit some species at the expense of others,” says Jay Kolbe, FWP wildlife biologist in Seeley Lake. “Although we consider the full range of native species in our management decisions, FWP bought this WMA in 1957 specifically to benefit deer and elk. They remain our primary focus.”

► **New roads reducing security for elk and other big game:** Vanna Boccadori, FWP wildlife biologist in Butte, notes that existing closed roads were opened only during the projects. New temporary roads were restored to preexisting conditions after the work was done.

► **Loss of winter thermal and hiding cover:** “We didn’t manage forests on north- and east-facing slopes, where historically



CLOCKWISE FROM TOP LEFT: TOM DICKSON/MONTANA OUTDOORS; VIC SCHEIDEL/ISTOCKPHOTO.COM

**NEW GROWTH** Areas open to sunlight after timber harvest are especially beneficial to moose, young and old. The large ungulates browse “early successional” vegetation such as willow, aspen, serviceberry, alder, and other shrubs, and also graze forbs like sticky geranium and lupine.

fires were rare,” says Kolbe. “Those wetter areas still have the dense vegetation that deer and elk use in winter to escape predators and stay warm. We also retained patches of thick cover within thinned stands along draws to provide security cover.”

► **Soil compaction from heavy equipment:** Much of the work was done in winter, when snowpack protected soil from tractors, trucks, and harvesters, McDonald says.

► **Biomass and nutrient loss:** “We retained lots of slash and woody debris on the forest floor to provide nutrients to the soil,” says Kolbe. No logging was done near streams, so that fallen trees can continue to add nutrients to aquatic ecosystems, and also to prevent damage to riparian areas.

► **Loss of dead trees for cavity nesting and roosting:** Large trees left on the project

sites will eventually die and become snags. And both WMAs are still filled with thousands of acres of beetle-killed lodgepole pine, much of it big enough to provide cavity habitat and raptor roosting sites.

► **Spread of noxious weeds:** McDonald says FWP policy requires that potentially weed-spreading logging vehicles must be power-washed to remove seeds before entry to WMAs. Soils disturbed by heavy equipment—and therefore made more vulnerable to the spread of weeds—must be re-seeded with native plants. Logged areas must be treated with chemical, hand-pulling, or bio-control methods of weed control before the projects and up to five years after.

► **The “slippery slope”:** The biggest public concern is that future WMA timber harvest will expand into large-scale clear-cutting. Also

worrisome is that some lawmakers could begin thinking of WMAs primarily as income sources for local wood products industries. Recognizing the validity of these concerns, McDonald points out that every proposed project will continue to undergo rigorous review by FWP managers and the public. “Our department has a mandate to manage wildlife,” he says. “That’s the primary reason we will do these projects. We are not a commercial timber operation. We purchased these areas, primarily with hunter license dollars, as wildlife habitat, not to generate income from forests. Yes, our timber harvest can benefit local economies. But it would be irresponsible of us not to make sure that any logging that takes place on WMAs isn’t targeted at achieving specific wildlife management objectives.” ■

### There’s no denying that timber harvest can harm wildlife habitat.



Though timber harvest means fewer dead trees for cavity-nesting birds like the hairy woodpecker, the loss pales compared to the millions of beetle-killed pines still remaining across western Montana.

Commercial forestry practices often produce large, artificially homogenous stands. Tractors, trucks, and other heavy equipment compact soil and spread noxious weeds. Unless closed or restored to natural conditions after use, the roads necessary for timber management can harm species such as elk and grizzly bears that shun motorized vehicles.

“We realize we’re stepping into some potentially sensitive territory by doing forest management activities on wildlife management areas (WMAs),” says Ken McDonald, FWP Wildlife Bureau chief. “But we’re confident that as long as our biologists and good science are driving the management plans, the wildlife benefits from these relatively small, prescribed operations will far outweigh the detriments.”

Among the public concerns voiced in public meetings and environmental assessment comments: