

FOLLOWING FIRE

A RESILIENT FOREST / AN UNCERTAIN FUTURE



TYOLOGIES: Created by Fire, Revealed by Fire, Stimulated by Fire

by David Paul Bayles and Frederick J Swanson.

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A Resilient Forest / An Uncertain Future

The 2020 Holiday Farm Fire roared down the McKenzie River in the western Cascades of Oregon, burning 173,000 acres of forest lands and over 450 homes. In the midst of these tragic losses, the blackened, skeletal forest exhibits a stark beauty.

In an impulsive response, while the fire still smoldered, we undertook a project in the burned forest on lands previously managed for industrial forestry, but now under conservation stewardship of the McKenzie River Trust. Within the first three to four months of our project, we noticed the process of image-making fell into four distinct photographic approaches; Chronosequence, Typologies, Landscape and Fine Art.

From an ecological view, Following Fire is driven by curiosity about what is removed by fire, what remains after fire, how those remnants of the pre-fire forest change over time, and what will be the future of the forest in a changing environment. These photographs depict the abundance of organic matter, nutrients, and life remaining in the blackened forest. But, in a few short years after the fire, the forces of climate change, invasive species, and intensive forestry have revealed the uncertainties of the future of the land.

We find the fire to have a powerful emotional dimension as well. Friends and colleagues lost homes and had their lives profoundly disrupted. The lush, nurturing sense of the rainforest abruptly turned black, but at the same time we are aware that today's old growth had its origin in events such as this. We, too, struggle with stages of grief and work to dial our emotions to a fruitful place between grief and hope.

This inquiry combines David's visual storytelling practice, with Fred's interests in the physical and biological processes that have shaped forest history and will influence its future. We find common ground in life-long engagements with forests. We anticipate passing the Following Fire project on to future generations of photographers and scientists, in keeping with the long-term approach to ecological, arts, and humanities inquiry characteristic of the nearby H.J. Andrews Experimental Forest, where we both work.

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TYPOLOGIES

Typology is a study or analysis using a classification according to a specific type. Typological process has been used for centuries in the fields of law, linguistics, science and art.

People of the 20th Century was an epic project by the German photographer August Sander in the 1920's. This project consisted of 40,000 negatives and is considered the first use of typology in photography. Sander exhibited and published the portraits by types, such as profession and social class. His negatives were destroyed during WWII, but his work and legacy inspired many photographers to employ the typological approach to image making.

One of the benefits of this approach is the ability to easily compare and contrast items within a type, as well as between types. In our project, this typological approach helped us to identify unique characteristics of the post-fire landscape using visual characteristics, which often led to greater understanding of biological processes.

We have divided these typologies into three distinct categories: Created, Revealed and Stimulated by Fire.

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CATEGORY: Created by Fire

TPOLOGY: Stump Ghosts

Huge old-growth stumps are part of the human legacy in these forested landscapes. Some were so massive they did not completely burn. Decomposition and fire combined to fully remove the wood of other stumps, leaving caverns with deep channels forming a mold of their root systems. They seemed ghost-like the way their inverse forms described what once was. The widest of the stump ghosts measured 15 feet across, and the deepest root channel measured nine feet.









CATEGORY: Created by Fire

TPOLOGY: Swooping

Wildfires are often spread rapidly by winds. They may also generate their own windstorm within the fire. These skinny, hardwood trees grow tall as fast as possible to reach light through the canopy of conifers. Their spindly stems and weak wood left them vulnerable to tipping by the fire-driving winds. As they bent and swooped, they thoroughly dried from the heat, retaining their swooping form long after the fire was out.







CATEGORY: Created by Fire

TYPOLGY: Canopy

Conifer trees typically have straight, vertical stems and horizontal branches. During the fire, intense heat rose from the forest floor, drying the needles, leaves, and limbs high in the canopy, even where flames did not reach. The property of wood differs between the tops and bottoms of limbs to support their load of needles and moisture, so loss of needles and drying of the wood caused conifer branches to curl inward and upward in atypical fashion. The wood properties of hardwood trees are different from those of conifer trees, hence their forms did not respond to the heat in the same way.





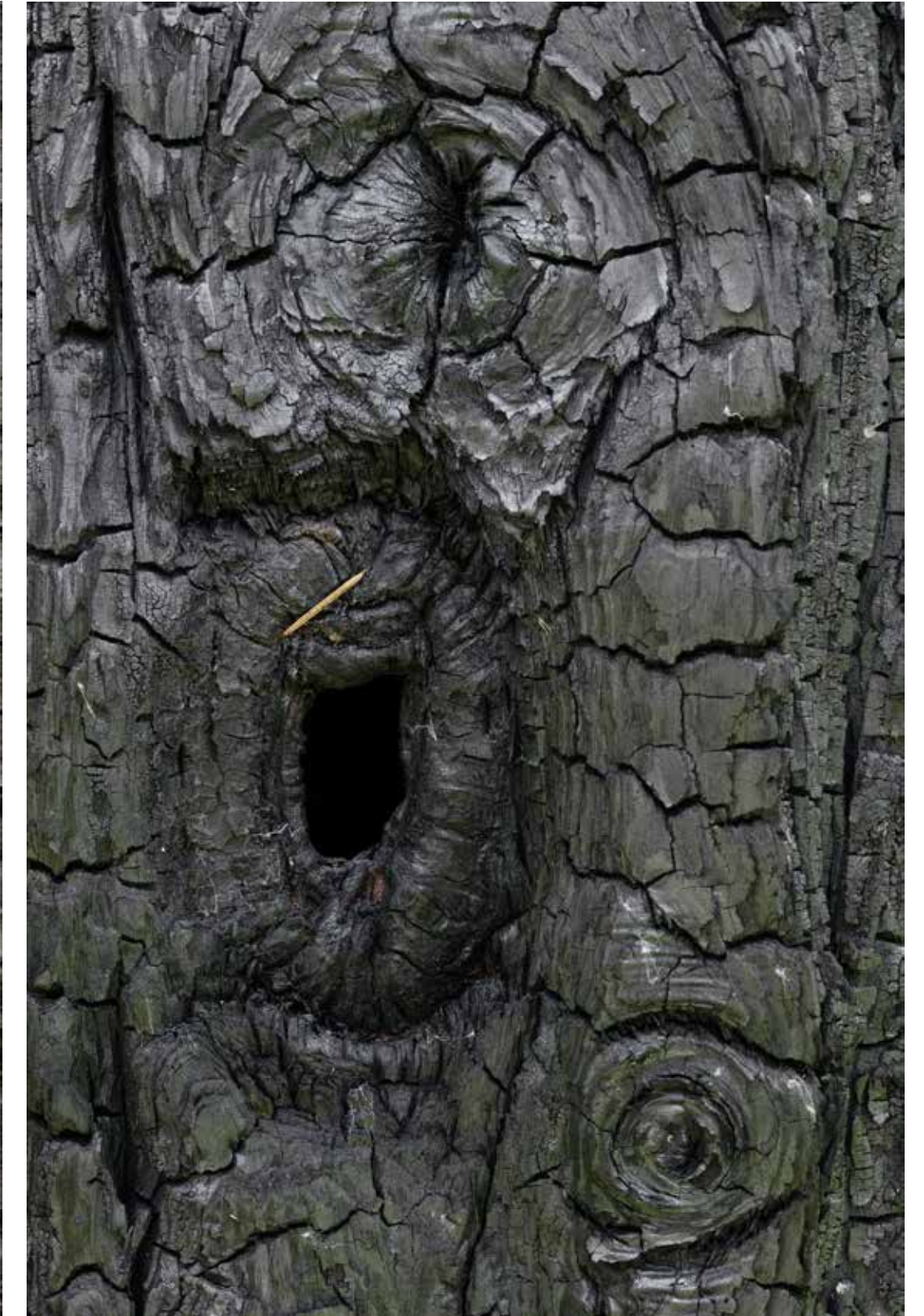
CATEGORY: Created by Fire

TPOLOGY: Bent

Fierce winds blowing down the valley, including during the fire, fractured trees, leaving them in bent forms pointing in the down-wind direction. In some cases the fire further sculpted the form.







CATEGORY: Created by Fire

TPOLOGY: Branch Holes

Shown here are 8 of the 17 branch holes that dot the flanks of this one cedar tree from ground to head height. The entire outer form of the tree is intact, while the inner dead wood core of the tree was hollowed out by decay over decades and then by the recent fire. Our theory is that branches close to the ground were lost long ago, facilitating decomposition of wood in the core of the tree. Scar tissue ringed the branch holes, which then provided access for fire to enter the hollow core of the tree, permitting it to function as a chimney. We imagine a time during the fire when flames were coming out of these holes.





CATEGORY: Created by Fire

TPOLOGY: Fuel Architecture

During the initial, raging phase of fire, the understory quickly burned away completely, leaving large pieces of wood standing and on the ground. Wherever two or more pieces of wood touched, more intense, sustained heat caused smoldering to continue for days and even weeks. Eventually enough wood burned away creating space for the fire to cool down and eventually wink out. The result is sculptural evidence of the layered intensity of fire.







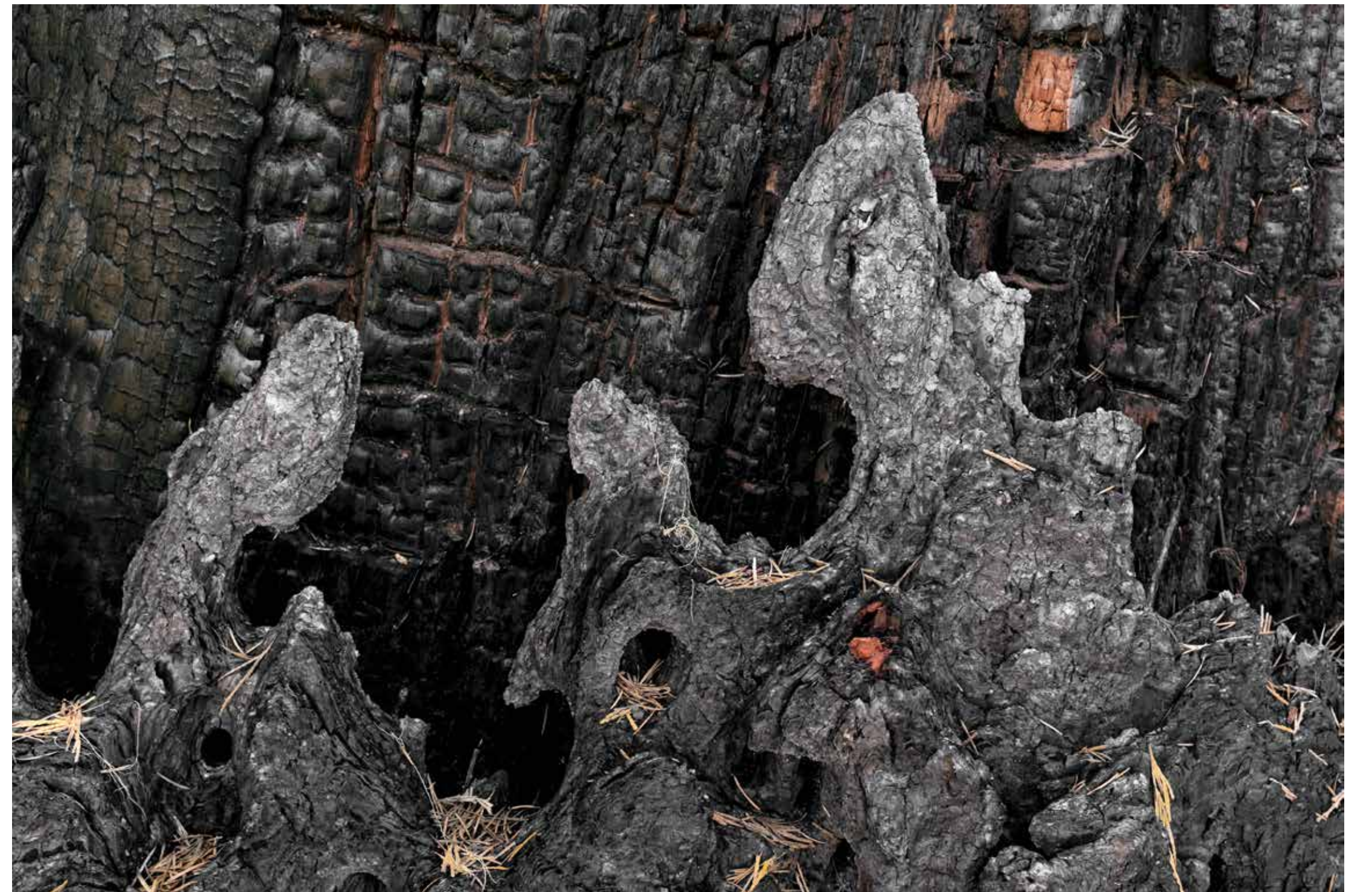
CATEGORY: Created by Fire

TPOLOGY: Charred Abstractions

Bark and wood burn very differently. Different species of trees burn differently. Even for the same species, the effects of burning and charring differ by tree age. All this resulted in a surprising variety and abstraction in the marks made by fire.









CATEGORY: Revealed by Fire

TPOLOGY: Living Stumps

The fire burned away underbrush, revealing these small trees that were most likely cut as part of a forest thinning operation long before the fire. The trees covered over their wounds with scar tissue and were sustained by nutrients shared through roots and fungal hyphae connected with nearby trees (the exudate dripping from some of the living stumps is evidence of this symbiosis). They continued living despite not being able to produce a single needle to support photosynthesis and create their own nutrients.





CATEGORY: Revealed by Fire

TPOLOGY: Logging Cables

Logging cables, flat-topped stumps, and highly decomposed logs with cut ends lying on the ground are legacies of past land use revealed when the fire removed underbrush. Some of these legacies date from more than a century ago. Land use practices today, be they for conservation or further forestry, will leave legacies far into the future.

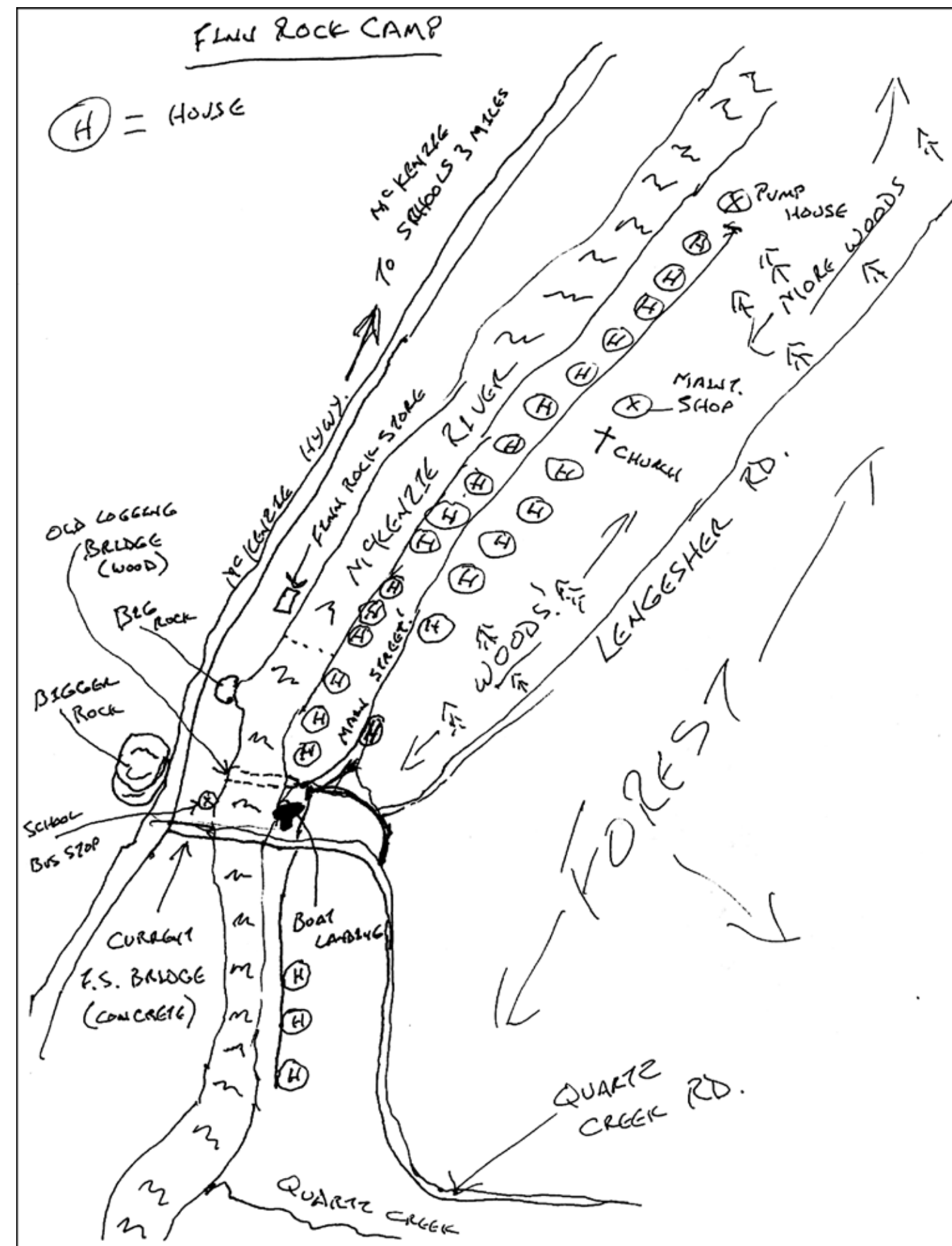




CATEGORY: Revealed by Fire

TYPOLGY: Finn Rock Camp

Legacies of human presence abound across the landscape. From the 1930's through the 1960's a small logging camp for the Rosboro Lumber Company occupied Finn Rock Reach along the McKenzie River. It was known as Finn Rock Logging Camp. The camp included 24 cedar cabins for workers and their families, a shop and church. The map was drawn and donated by Joe Rose who grew up in the camp before it was removed decades ago. The fire burned away dense underbrush, revealing a metallic history of the camp's inhabitants - charred car parts, waffle irons, tea kettles, a roller skate. The fire exposed the metal debris, enabling volunteers with the McKenzie River Trust to gather the metal and haul it to a recycling center.









CATEGORY: Stimulated by Fire

TYPOLGY: Exudate

In the first few months post-fire white exudates oozing down the blackened tree trunks were the first signs of biological process underway inside. The fire may have triggered cells within the still-living trees to produce sap and pump it out of the trunk through weak places in the bark.



CATEGORY: Stimulated by Fire

TPOLOGY: Aseasonal Leafing

Many of the younger vine maples and chinquapin trees burned down to 6"-18" stubs. In addition to their lovely sculptural qualities, they produced bright, shiny leaves in mid-winter, rather than a normal springtime leaf out. We ponder the environmental and biological factors that caused this atypical behavior.





CATEGORY: Stimulated by Fire

TPOLOGY: Basal Sprouts

Burned bigleaf maple trees commonly sprouted vigorously from their bases, even when the above ground part of the tree was dead. In some cases dozens of sprouts emerged, prompting speculation that they will thin out and take the form of mature trees with several major trunks from a single root system.

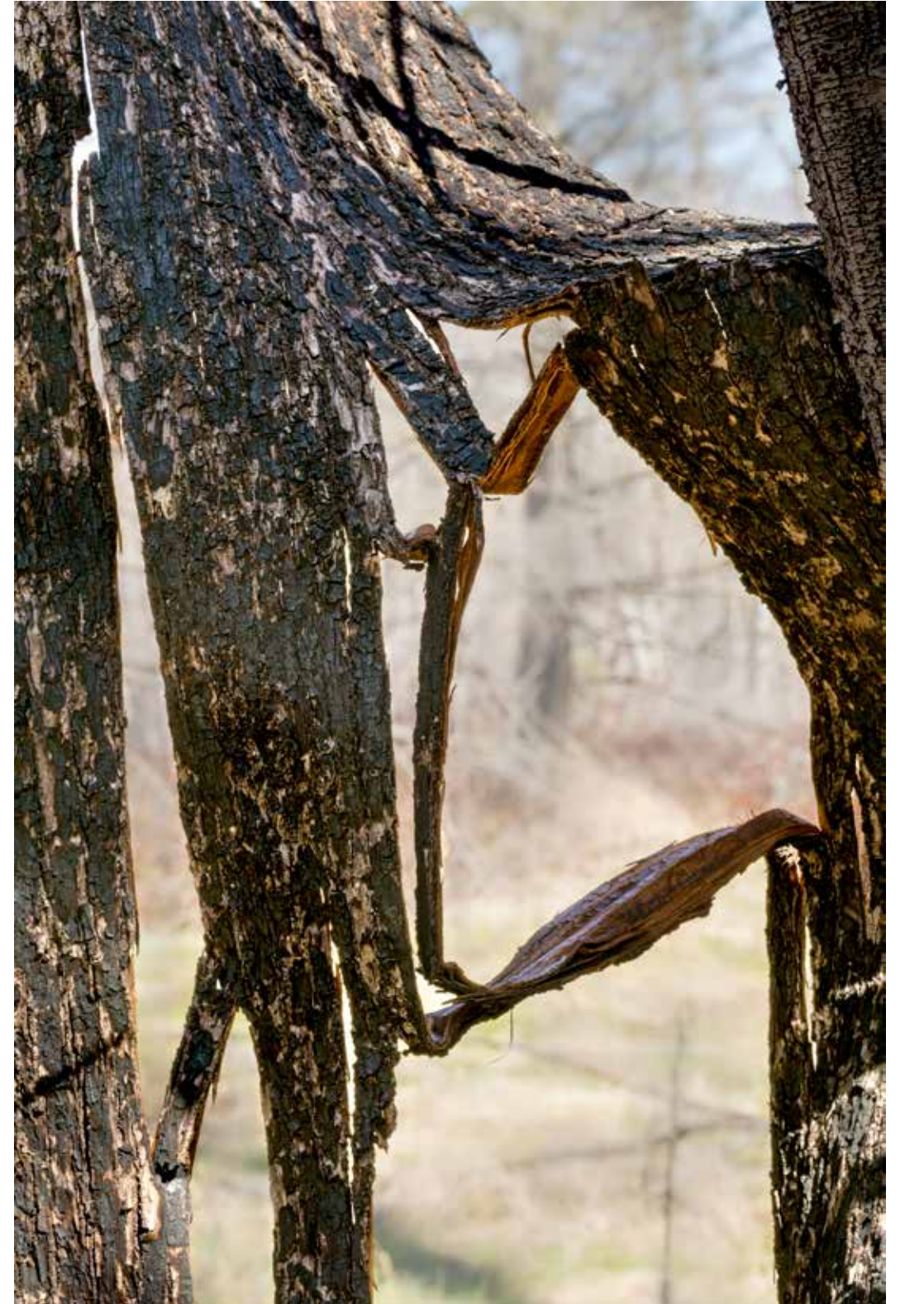


CATEGORY: Stimulated by Fire

TPOLOGY: Exfoliation

Standing dead trees crumble to the forest floor in many ways. In the second year following the fire, hardwood trees and some conifers began to vigorously shed their bark. The thin-barked big leaf maples commonly had long strands of bark detach at the base of trees where the fire burned hottest, leaving the dangling bark to rattle in the breeze.







CATEGORY: Stimulated by Fire

TPOLOGY: Sporocarps

In the first summer after the fire white sporocarps signaled that wood-decomposing fungi had entered the trees, matured, and put out these structures to disperse spores as part of their life cycle.





CATEGORY: Stimulated by Fire

TPOLOGY: Delayed Mortality

The fire burned with mixed severity, leaving trees with green canopies scattered among killed trees. The canopies of some of these initial survivors will turn orange and the tree will die in subsequent years, a process called delayed mortality. In some cases these trees produce an abundant "distress crop" of cones, which can seed the next generation of forest.









CATEGORY: Stimulated by Fire

TPOLOGY: Woodpecker Holes

Woodpecker holes tell us of other biological processes happening inside and now outside the tree. One type of woodpecker, the sapsucker, drills holes through the bark to draw sap into sapwells. These sapsuckers access nourishment from the sap and incidental associated bugs. In these pictures we see a larger story of a vast, biologically diverse forest in which new life is constantly emerging from dead and decomposing organic matter.

CONCLUSIONS

What started as a curiosity-led exploration of a blackened landscape has grown into an archive of visual types with meaning beyond the individual parts. From these we are learning more about the processes occurring in a post-fire landscape.

We have come to appreciate that fire is neither an end nor a beginning in the ever-expanding story of what it means to be a forest.

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