

In Ashes of Burned Forests, a Rare Chance to Study Nature's

An Ecosystem Regenerates

In forests such as those recently burned in the West, fire sets off a centuries-long cycle of rebirth.

NUTRIENTS RELEASED

Release of nutrients in unusually hot fires, nutrients such as phosphorus and nitrogen are vaporized. But most of the nutrients remain in ashes, unleashed for plant use.

HEAT OF FIRE RELEASES SEEDS

Unlocking Pine Cones
Lodgepole pine cones release their seeds only after exposure to fire. Some cones lie on the ground or in squirrel stashes for decades, awaiting the heat trigger.

Within weeks, grasses and legumes emerge, attracting grazing deer and elk.

SUNLIGHT PROMOTES PLANT GROWTH

Newly abundant sunlight is absorbed by the black ash, heating the soil and promoting seed germination.

Enriched Soil

After a moderately hot fire, the soil is temporarily richer. The ash provides a rush of nutrients to emerging plants, and makes the soil less acidic. Some harmful microorganisms are temporarily eliminated, although a hotter fire may harm others that boost plant growth.

Fire consumes debris

The forest consumes debris that has accumulated over decades, including decomposing pine needles, fallen branches and brush as well as aging, insect-ridden lodgepole pines.

The Forest Returns

The first spring, lodgepole seedlings appear. Decades later Douglas firs, Ponderosa pines and other trees, their seeds blown in, sprout in the shade.

Soil is enriched. Grasses sprout. Forest returns.

Climax Vegetation Achieved

After 200 years firs and spruces may take over.

