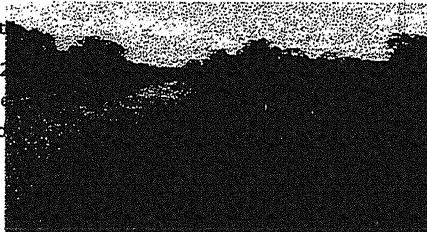


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What has happened over the past several years to a bald eagle nest east of Red Bluff, California illustrates what is occurring because of these exemptions from any oversight. The fear of fire is being exploited to the detriment of the natural world, rather than substantive actions being implemented to reduce the emissions which are causing climate disaster.

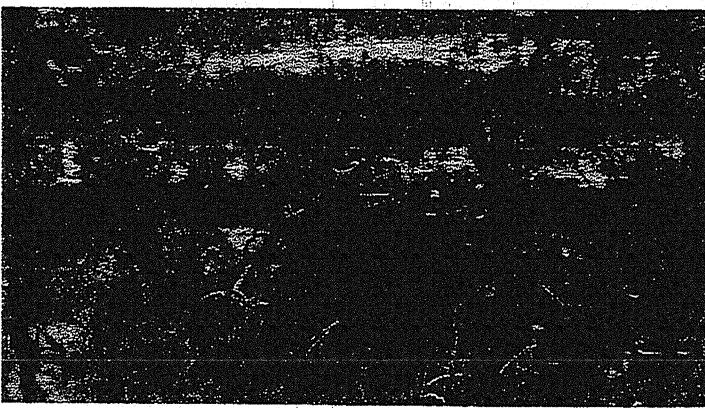
(<https://www.dailykos.com/story/2022/4/15/2092201-Cal-Fire-burns-next-to-Bald-Eagle-nest-eaglets-die>)



Highway 36, east of Red Bluff. The eagle nest is to the right (south side). This is the roadside Cal Fire has burned in 2020 and 2021 when the eagle nest was occupied. There is little reason to burn here, and many reasons not to.



The eagles' nest to the south of the highway, circled in red.



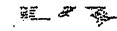
Parent eagle with young eaglet in front (little grey head) in nest tree, April 2022.

Local residents have been watching this nest since 2020. A photographer from Red Bluff was going out to the nest every day in 2021. At the end of May, the photographer saw a notice that there was going to be a control burn by the nest in a few days. She contacted a local eagle group, who

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called Cal Fire to tell them about the nest which was occupied by two young eaglets. The eagle group left a message and received a message back from Cal Fire saying their biologist said it was fine to be burning near the nest. The eagle group called back to get the biologist's name, but received no answer then or later. It wasn't "fine".

The burn was done on June 1st. This nest is approximately 100 feet down a ravine from the highway. The eaglets were probably only 6-7 weeks old, 4 or 5 weeks from being able to fly.

The photographer was standing next to the nest during the burn and taking photographs. The Cal Fire people were slightly to the east of the nest. The smoke and flames can be seen on the south side of the highway, on the same side as the nest.



Cal Fire burning next to eagle nest, 2021. How much extra CO2 is being emitted by extra equipment use and burning unnecessarily?

The photographer went to check the nest a few days later and saw one adult perched above the nest, but could see no eaglets.

The next morning, the photographer took a photo which shows a dead eaglet hanging from the nest. The photographer contacted me (Marilyn Woodhouse from Defiance Canyon Raptor Rescue). We went to search for the other eaglet, in the hope it was still alive.

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Dr. Kellmann

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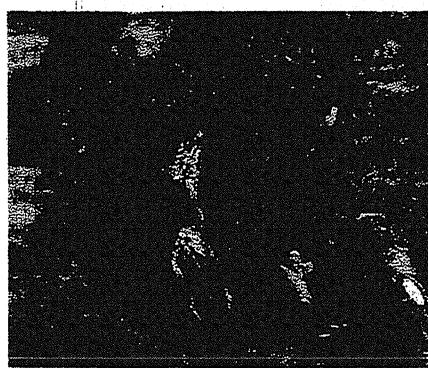
compromise the immune system, making the bird more susceptible to infections. This is especially true in young birds in the nest that are unable to escape the smoke. Smoke inhalation toxicity in birds is caused by irritant gases (aldehydes, hydrogen chloride, and sulfur dioxide), particulate matter, and nonirritant gases (carbon monoxide, carbon dioxide, and hydrogen cyanide) released by combustion."

There was a burn done next to the Dales Station nest in 2020 also. I was called upon to rescue an eaglet who got out of the nest before he could fly that year. It was several days before the burn was done that year, so he was away from the nest when the burn occurred. His sister was still in the nest during the burn. I received a call from Dales Station, less than a mile from the nest, in August, 2020 about an eaglet who had been on the ground for 3 days, standing next to a shallow pool of Paynes Creek. My determination was that it was the female from the nest. She was open-mouthed breathing with a raspy noise. She died a few hours after she was caught and transported. The Wildlife Lab report said: "This was a juvenile female in poor nutritional condition with no fat reserves and minimal pectoral muscle development. Internally, there was evidence of an extensive infection. The visible infection resembled avian tuberculosis which is caused by the bacterium *Mycobacterium avium*. It's widespread in the environment in soil and dust and is usually an opportunistic infection. Depending on where the lesions are in the bird, gives an idea of how it entered the body. The lesions in this bird were primarily in the air sacs suggesting it was inhaled."

The male who had been in care was released in 2020. A first year eagle was seen back at the nest in 2021. Judging by his and the adults' behavior, it was the male who was in care away from the nest during the burn in 2020.

I had occasion to contact Cal Fire in February 2022 about another issue. I had just been informed that the Dales Station bald eagle nest was occupied, so mentioned it in the hope of preventing another burn next to the nest. Cal Fire and its employees are public servants. It is their job to uphold state and federal laws, which include protection of wildlife, but the answer from a Cal Fire employee

contained only dismissive, condescending remarks, clearly refusing to take steps to ensure any protections were implemented.



2020 bald eaglelet being released. He was away from the nest in rehab care during Cal Fire's control burn in 2020, which probably saved his life.

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The Ferrari of Kitchen Knives Now 50% Off

Honjo Müller

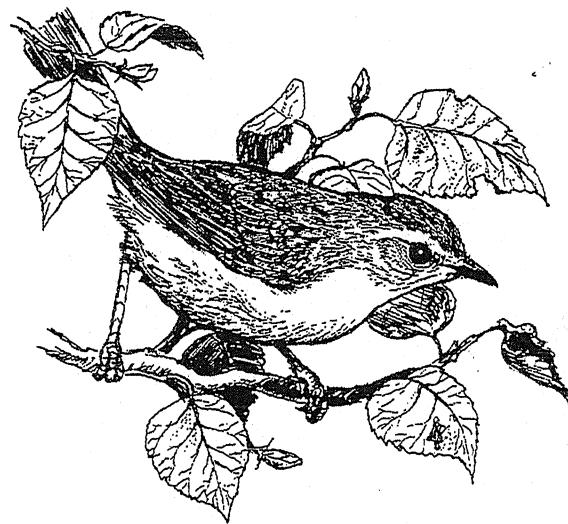
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Neotropical Migrant Landbirds in the Northern Rockies and Great Plains



United States
Department of Agriculture

Forest
Service

Northern Region

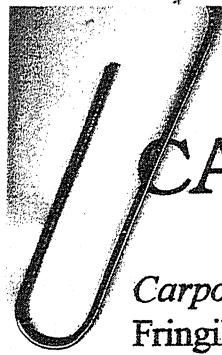


A Handbook for
Conservation
and Management

by
David S. Dobkin

The High Desert Museum
Bend, Oregon

Cal
Baird, Scott
Sousa, D.A.
Pallid, A.M. 11



CASSIN'S FINCH

Carpodacus cassini
Fringillidae

Summer, Permanent, or Winter Resident

WINTERING AREA: 5

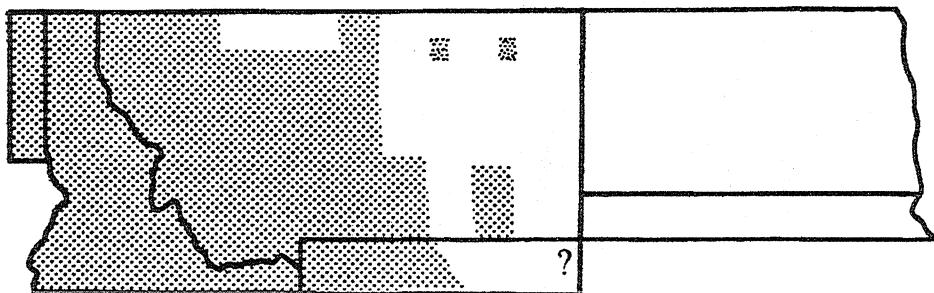
HABITAT REQUIREMENTS: Drier montane coniferous forests and woodlands, especially of ponderosa pine. Nests in coniferous trees.

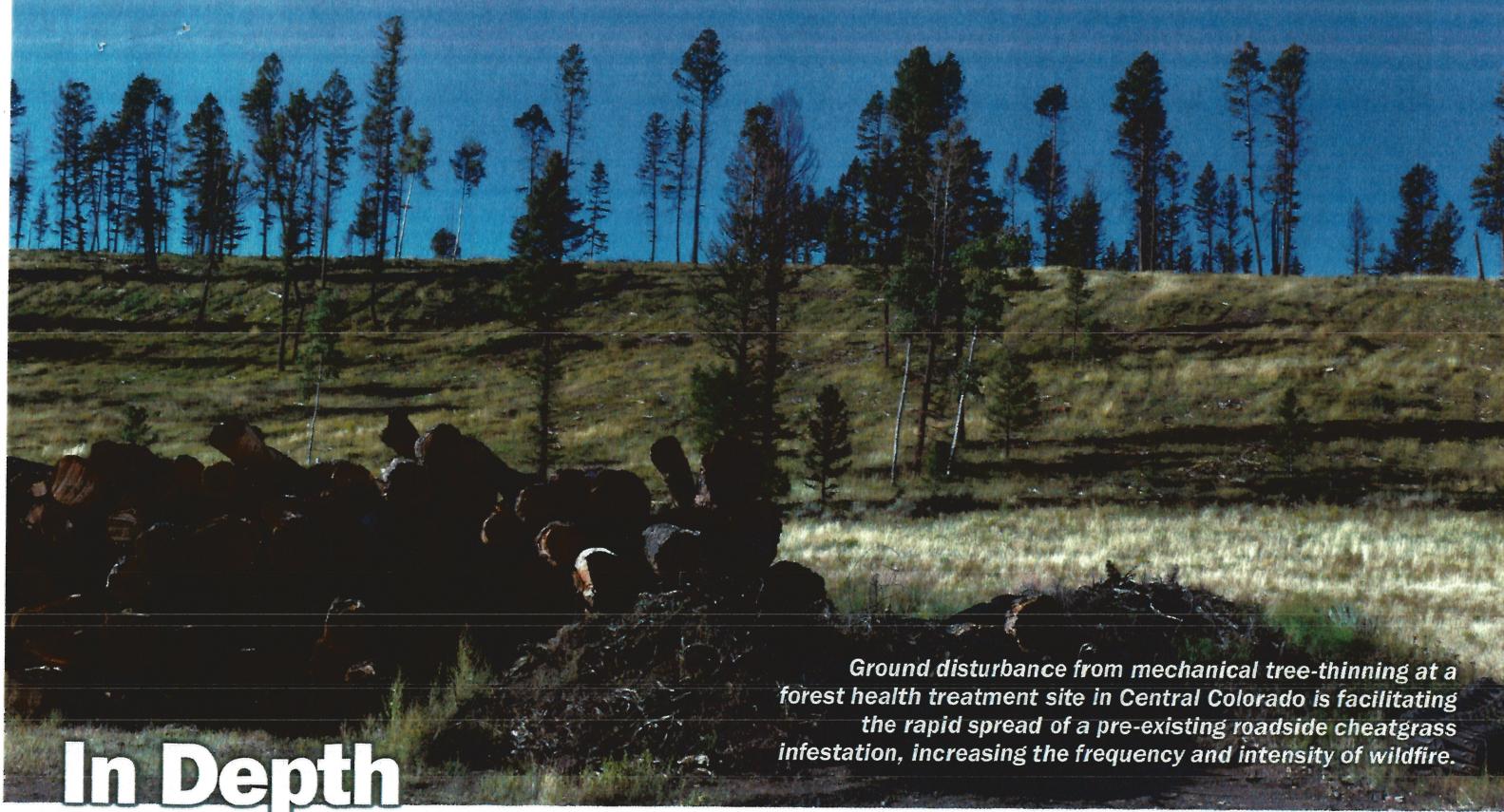
FEEDING: Dines primarily on seeds of conifer trees, also takes insects, buds and berries. Forages on the ground and by gleaning from foliage in trees and shrubs.

STATUS AND MANAGEMENT: Numbers have been highly erratic in Idaho but appear to be increasing

there; numbers have been more stable in Montana but appear to be declining slightly. In the West as a whole, numbers show a small but significant increasing trend. Prefers older rotation-age stands (Mannan and Maslow, 1984) and harvest units (Moore, 1992) over old growth. Cassin's Finch is a nomadic, semi-colonial breeder with resultant fluctuations in local population numbers.

FURTHER READING: Hejl et al., 1988; Mewaldt and King, 1985; Samson, 1976.





Ground disturbance from mechanical tree-thinning at a forest health treatment site in Central Colorado is facilitating the rapid spread of a pre-existing roadside cheatgrass infestation, increasing the frequency and intensity of wildfire.

In Depth

Cheatgrass

'One of the most significant ecological crises facing land managers in the arid West.'

A report published in January, *Cheatgrass Invasions: History, Causes, Consequences, and Solutions*, by Western Watershed Projects is the source of the above quote. Authored by Erik Molvar, Roger Rosentreter, Don Mansfield, and Greta Anderson, the new report draws on a century of research and data supporting a firm scientific consensus that this invasive species fuels a “livestock-cheatgrass-fire cycle” which “now prevails across much of the public lands of the western United States.” As a result, those lands are now “susceptible to larger and more frequent fires.”

Cheatgrass is the most widespread invasive weed in North America with millions of acres converted to cheatgrass monoculture and tens of millions of acres at risk of infestation. This annual grass from Eurasia was introduced to North America in the 1800s. Spread by railroads, vehicles, and livestock, it colonized lands that had been

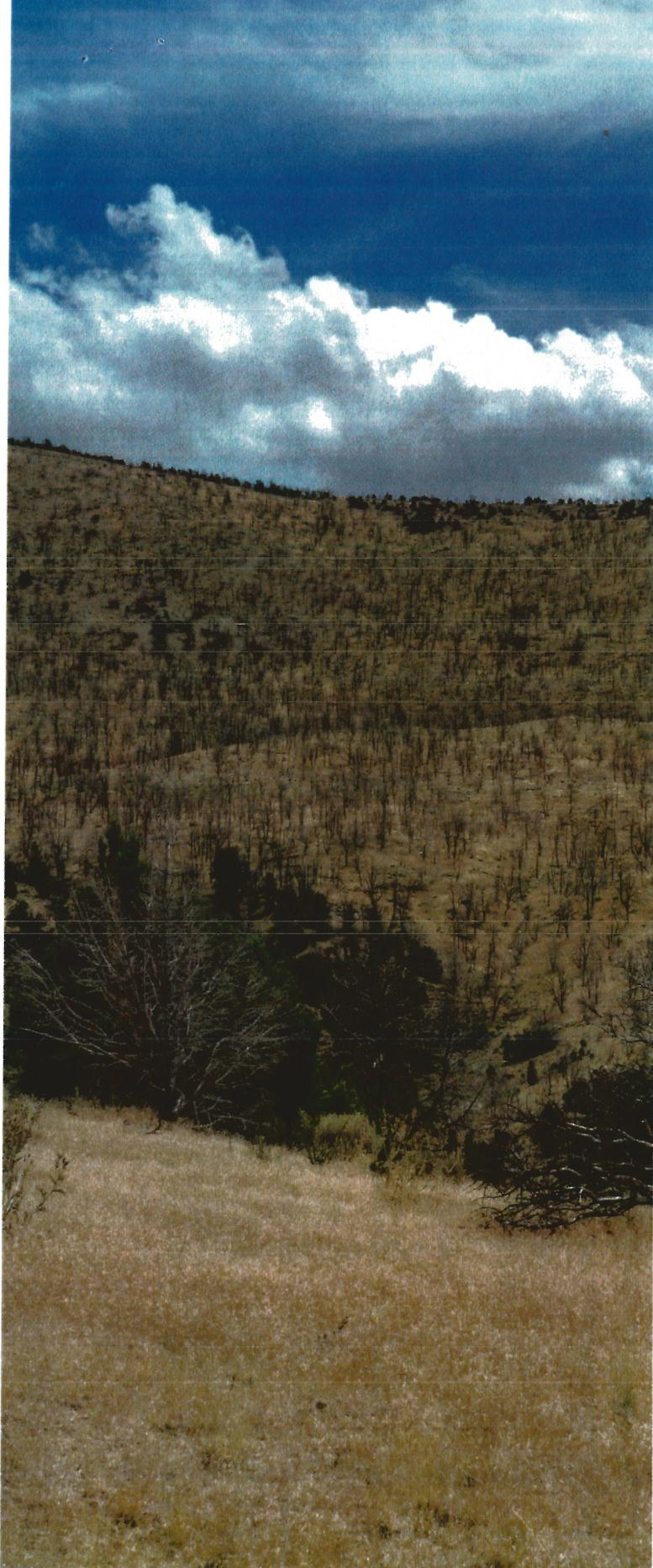
disturbed and degraded, mainly from overgrazing cattle. Molvar et al. provide a comprehensive review of scientific research on cheatgrass and evaluate solutions to restore healthy native ecosystems.

A significant proportion of the public lands at risk from cheatgrass-fueled fire is managed by the Forest Service, an agency currently spending billions of tax

dollars to “mitigate wildfire risk” by cutting down trees. These logging projects don’t address readily combustible fine fuels like cheatgrass, even though the risk is well-documented. The Boy Scouts

Today the honey-colored hills that flank the northwestern mountains derive their hue not from the rich and useful bunchgrass and wheatgrass which once covered them, but from the inferior cheat.... The cause of the substitution is overgrazing. When the too-great herds and flocks chewed and trampled the hide off the foothills, something had to cover the raw eroding earth. Cheat did.

— *A Sand County Almanac*, Aldo Leopold, 1949



Cheatgrass now dominates a former pinyon-juniper woodland following a wildfire in Nevada's White Pine Range.

understand fine fuels, which they call tinder: “Thin, dry material that ignites instantly with a match. It’s the basis of every fire. Examples include dead, dry grasses....”

Cheatgrass produces two crops per year, providing dead, dry grasses in summer and fall. The spring crop of cheatgrass dies off by early summer, leaving “the basis of every fire” available for easy ignition at the height of fire season. According to *Cheatgrass and Wildfire* (Colorado State University Extension) “A typical cheatgrass fire on flat terrain with wind speeds of 20 miles per hour may generate flame lengths up to eight feet in height,” significantly putting cheatgrass in the category of “ladder fuel.” Increase the wind speed, and a cheatgrass fire becomes unstoppable — like the million-acre grass fire that recently burned in Texas.

Multiple scientific studies cited in the cheatgrass report demonstrate that “cheatgrass invasion creates larger and more frequent fires by creating continuity of fine fuels.” Anything from a roadside cigarette butt to a hot tailpipe on an ATV can ignite cheatgrass and spark a wildfire. And cheatgrass seeds are adept at surviving fire; therefore, cheatgrass fires often lead to establishment of a cheatgrass monoculture. “The costs and difficulties of combating both further cheatgrass expansion or retention — and minimizing the frequent fires that result — are high from both the ecological and the economic perspectives.” The science cited in the report puts the threshold for avoiding the ecological and economic consequences of cheatgrass infestation at between 5% and 25% of land area.

The cumulative advantages of this invasive weed over native bunch grasses make cheatgrass a formidable opponent. As the research demonstrates, two key factors facilitate cheatgrass dominance over native plant species:

- Ground disturbance.
- Seed spread.

Livestock grazing continues to cause ground disturbance, and the authors note, “Reduction or elimination of livestock grazing achieves results on a sufficiently large scale, but full restoration can take decades.” They also warn against prescribed fire and fuel-break construction, which “risk a worsening of cheatgrass infestations.”

For wildfire mitigation and containment activities, the report recommends avoiding the use of “ground-disturbing equipment,” which “creates a seedbed for cheatgrass.” The bulk of Forest Service funding for wildfire mitigation goes to mechanical tree-thinning, which employs ground-disturbing equipment like masticators, skidders, and feller bunchers. These

mechanical “forest-health treatments” not only create conditions favorable to cheatgrass infestation, but the machinery used can introduce cheatgrass seeds, causing new infestations. Thinning trees also removes tree canopy, which provides more sunlight on the ground, further supporting the spread of cheatgrass.

Multiple studies identify prevention of ground disturbance as the best way to limit the spread of cheatgrass. Native ground cover in the arid West often consists of a “biological soil crust” (lichens and mosses) and “perennial bunchgrasses,” which are more resistant to ignition than cheatgrass. The combination of biocrust and bunchgrasses also creates a synergy that resists cheatgrass invasion. Soil-disturbing machinery destroys the biocrust and damages native grasses, inviting cheatgrass establishment; then, cheatgrass outcompetes native bunchgrasses.

Soil disturbance also damages the soil’s symbiotic fungal network, which supports native plant species, including trees, and it can take up to a decade for these fungi – i.e., mycorrhizae – to recover from mechanical



As part of a wildfire mitigation project, this masticator was used to grind entire trees into mulch in Central Colorado. Ground-disturbing heavy equipment such as this can spread cheatgrass seeds, damages native plants, and destroys the beneficial fungi network in soil, creating optimal conditions for invasive cheatgrass to take root.

disturbance. Native plant species rely on mycorrhizae, which enhance nutrient uptake, but cheatgrass can thrive without the fungi. Cheatgrass also expands rapidly “because it is a prolific seed producer, can germinate in spring and autumn giving it a competitive advantage over native grasses, is tolerant of grazing, and increases with fires,” according to a 1996 report — *Cheatgrass: The invader that won the West*.

Other studies show that cheatgrass “can outcompete native grasses for water and nutrients because it is already actively growing when native plants are initiating growth.” Cheatgrass “ultimately drains soils of available nitrogen, which helps cheatgrass exclude native grasses” and exhausts other soil nutrients needed by native plants. The science also shows that cheatgrass “depletes soil water in spring much more rapidly than native species,” preventing the survival of native seedlings and subjecting adult native plants to moisture stress.

For a litany of reasons, minimizing cheatgrass infestations and restoring infested lands to natural conditions should be “a priority dictating the outcomes of land-use and land management decisions throughout the arid West.” With their cheatgrass report, Molvar et al. add more scientific weight to the arguments against mechanical forest-thinning for fire mitigation. Recent record-breaking grass fires in Texas, Hawaii and Colorado reinforce their conclusions.



Less than a year after masticators shredded mature pinyon-juniper forest in Central Colorado, fine fuels have spread. Citing established science, the cheatgrass report by Molvar et al. recommends, “Prevent pinyon-juniper removal in areas where woodlands are mature” to prevent cheatgrass infestation.

1975
~~1974~~

NATIVE FAUNAL RELATIONSHIPS WITHIN THE PINYON-JUNIPER ECOSYSTEM

Neil C. Frischknecht

USDA Forest Service, Intermountain Forest
and Range Experiment Station, Ogden, Utah 84401;
stationed in Provo, Utah

Abstract

Of the many species of wildlife that inhabit the pinyon-juniper ecosystem all or part of the year, few species are considered to be obligate. The small mammals most characteristic of the ecosystem are the woodrat and the pinyon mouse. Birds considered to be obligate are the pinyon jay, the titmouse, and the lead-colored bushtit. The peregrine falcon is an endangered species that sometimes uses cliff sites for nesting within the pinyon-juniper ecosystem, but does not depend upon trees.

The highly nutritious pinyon nuts and juniper berries are eaten by many species of birds and animals that serve as seed dispersal agents. It can be expected that the pinyon-juniper woodland, which has expanded greatly since settlement at the expense of shrubs and herbaceous plants, will continue to expand. The great challenge facing resource managers is to achieve a desirable balance among trees, shrubs, and herbaceous plant species that will benefit multiple uses, including utilization by wildlife.

Introduction

A discussion of faunal relationships within an ecosystem would be incomplete without some discussion of the flora, because of interactions. A broader discussion of biotic relationships would be incomplete without some discussion of habitat, or the physical factors of the environment that affect organisms. Some of these interactions will be considered.

According to Shelford (1963), primary habitat is an area of bare surface with its minerals and climate. Over time, it is modified by plants and animals. If we consider that habitat includes topography, we have essentially the same factors determining habitat that Jenny (1941) considered to be factors of soil formation --parent material, topography, climate, organisms, and time. Major (1951) concluded that the same factors determined vegetation. Inasmuch as fauna is a constituent of the organism factor, we can conclude that not only does fauna help to condition other factors but that it, in turn, is conditioned by them.

If the organisms at one level of the food chain are to maintain their existence and provide food

for the next higher level, the density (numbers) or the biomass of producers (plants), must be greater than that of primary consumers, the biomass of primary consumers must be greater than that of secondary consumers, and so on up the chain. This is plausible in theory, but things aren't quite so simple. A dynamic situation exists among biological parameters and great fluctuations occur at all trophic levels. Fluctuations at one level can trigger fluctuations at other levels.

The picture was further complicated by the coming of the white man who introduced his herds of large, domestic herbivores into the ecosystem. Man's dominance becomes increasingly important as the human population and demand for food increase. However, his knowledge of native faunal relationships within the pinyon-juniper ecosystem will provide background for management decisions regarding manipulation of that resource.

The varied topography on which the pygmy forest grows provides a diversity of habitat for fauna. The pygmy forest varies from stunted, isolated trees on sheer rock cliffs to dense tree stands, with more than

In Gifford, G. & Busby, F.
eds The Pinyon-juniper
55-65 Ecosystem: a
Symposium Utah St. U

1,600 trees per acre and canopy cover greater than 60 percent on better sites. Within the altitudinal range of pinyon-juniper (Figure 1), tree cover is often broken by sagebrush flats (*Artemesia spp.*) and such vegetation as scrub oak (*Quercus spp.*), mahogany (*Cercocarpus spp.*), cliffrose (*Cowania stansburiana*), serviceberry (*Amelanchier spp.*), bitterbrush (*Purshia tridentata*) rabbitbrush (*Chrysothamnus spp.*) and various herbaceous species that provide further diversity of habitat for fauna. Also, many faunal species range in, above, and below the pinyon-juniper vegetation zone (Figure 1).

Although the foliage of pinyon-juniper trees varies in palatability among fauna, the highly nutritious pinyon nuts and juniper berries are relished by many species. The cambium of pinyon is also eaten by certain animals and the shreddy bark of juniper is often used in nest building.

Whatever the size of the pinyon-juniper ecosystem, whether 60 million acres (US Forest Service 1958) or 75 million acres (US Department of Agriculture 1936), the area covered by trees is larger today than it was before settlement. Cottam (1961) estimated that the type in Utah had increased sixfold since settlement, and he attributed much of the increase to the coming of the white man and to overgrazing by his domestic animals.

Lack of fires has also contributed to the increase in woody species (Arnold et al. 1964, Barney and Frischknecht 1974). A first effect of heavy grazing would have been removal of the herbaceous fuel that could carry ground fire. Continued heavy use by animals allowed introduction of woody, less palatable species that persisted when competition from herbaceous species was reduced. A diagram depicting changes in vegetation with time following

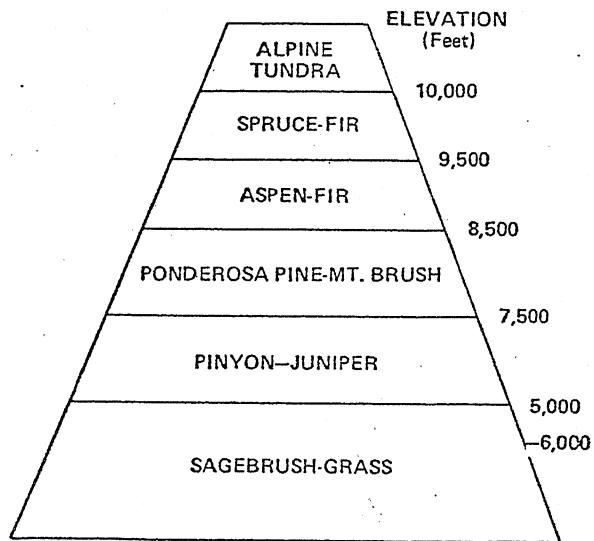


Figure 1. Major vegetation zones according to elevation (ft.).

fire (Barney and Frischknecht 1974) is reproduced in Figure 2. About 45 years following a fire, the tree cover greatly increases, and cover of sagebrush and perennial grasses declines. Thus, burns of different ages can provide diversity of habitat for wildlife.

Fauna

Big Game and Wild Horses

Today deer is a dominant animal and the most important game species to be found in the pinyon-juniper ecosystem. In many parts of the West, mule deer (*Odocoileus hemionus*) depend heavily upon the pinyon-juniper woodland for cover, shelter, and emergency feed during severe winters. On winter stress areas in northern Utah where junipers were limited or lacking, losses within deer herds were about 50 percent during the severe winter of 1948-49 compared to about 9 percent on better pinyon-juniper ranges farther south (Julander 1962).

Julander (1962) opined that the increase of shrubs and trees contributed to an attendant increase in deer numbers beyond what could have been achieved on virgin range. If correct, the pendulum swung too far in that direction, as evidenced by efforts of resource managers to reduce trees and plant more palatable shrubs and herbaceous species. It is recognized also that large increases in deer numbers contributed to range deterioration (Interagency Committee 1950, Julander 1962).

Kufeld et al. (1973) summarized 99 studies in the western United States and Canada where quantitative data were provided on mule deer food habits. Classification of plant species according to their relative importance was made for 202 shrubs and trees, 484 forbs, 84 grasses, sedges, and rushes, and 18 lower plants. Apparently, deer utilize all species of juniper for food at some time during the year. Of the studies cited by Kufeld, et al. (1973), 28 showed deer ate *Juniperus scopulorum*; 22, *J. communis*; 16, *J. osteosperma*; 10, *J. occidentalis*; and 9, *J. horizontalis*. Over half the references involving *J. communis* listed only trace amounts being eaten, which was not the case with other species. Use of all juniper species was greatest in winter, then spring, fall, and summer, in that order.

Not only are there differences in palatability among species of juniper, but there are great differences in palatability among individual trees; some are highlined by deer, others nearby are not eaten. Smith (1959) suggested that this variability in palatability among individual plants could account for differences in consumption of juniper, sagebrush, and other vegetation in feeding trials. He observed that one animal consumed over 2 pounds of juniper per 100 weight over short periods. An earlier paper by Smith and Hubbard (1954) reported that, among 15 shrub species, Rocky Mountain juniper ranked 10th in order of preference by captive mule deer; Utah juniper ranked last.

Obviously, the use of juniper for food by deer depends upon the presence of other palatable species. Julander (1955) reported that the winter diet of deer in Utah consisted mostly of browse--the most