KPOV – *The Point*

Gardening: Get Good at It

“A Sagebrush Sea”

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Look out at a view of the high desert and a sea of sagebrush seems to stretch before you. But a closer look shows a diverse ecosystem with a wide variety of plants and animals.

Variation abounds in this complex plant community. Temperature and moisture promote different species of plants and variation across elevations and soil types. Hundreds of plant and animal species call the sagebrush steppe home and plant diversity varies dramatically, with 25 to 50 species in some locations.

These diverse sagebrush steppe ecosystems are under threat: settlement and mismanagement of livestock grazing until the early 1900s brought an invasion of annual grasses and an unprecedented rise in wildfire magnitude and intensity.

With so much variation, plant species are grouped into deep- and shallow-rooted perennial bunchgrasses; annual grasses; annual and perennial non-grass plants; and shrubs, each filling a niche in the ecosystem. Plants in the sagebrush steppe have unique rooting systems, adapted to access water and nutrients from different parts of the soil profile. Perennial bunchgrasses have a high density of lateral, deeper roots to reach soil moisture and nutrients and can grow through the summer, reducing resources for invasives.

The high desert ecosystem usually receives less than 12 inches of precipitation a year, limiting water resources and leading to areas of bare ground. The area around bunchgrasses might look barren, but by taking an underground view, it’s obvious the plants’ root masses fully utilize that space, reducing the chance for invasives.

Our ecosystems are not static; plant communities change over time. Range management aims for communities composed of native species resistant to threats and resilient to disturbance.

Historically, disturbances such as fire made sites available for native species to reestablish themselves. The surviving seed bank and nearby native species provided the propagules (such as native seeds), to fill the open sites. Before European settlement, our long-lived perennial bunchgrasses had time to wait for ideal conditions that might come once a decade. But today the available species are not limited to natives. They include invasive annual grasses, such as cheatgrass and medusahead rye, which are highly competitive with bunchgrasses.

If natives do not return immediately, the annuals fill the sites, curing quickly in the summer, providing continuous, dry fuel for wildfire to spread. This creates a loop in which the annuals alter the environment to their advantage and a perennial community with burns every 50 to 150 years becomes an annual community with burns every one to five years.

In order to break this fire-annual grass cycle, we must work to conserve and promote bunchgrasses in the sagebrush steppe. The overarching objective of range management is simple: The rooting profile of the soil must be fully occupied by the roots of healthy, noninvasive plants by preventing the loss of established perennial bunchgrasses to annual invasives, improving the resilience of the ecosystem to wildfire.

For more information on the Sagebrush Steppe and many other garden topics, go to our website: [www.gocomga.com](http://www.gocomga.com) and click on the KPOV tab on the orange bar. This has been Gardening: Get Good at It on KPOV’s The Point.

GLOSSARY

Annuals: plants that grow from seed and then die, completing their life cycle within a year

Perennials: plants that use energy stores to come back year after year

Resistance: the ability of an ecosystem to remain unchanged in the face of disturbance

Resilience: the ability of an ecosystem to respond to a disturbance by rapidly recovering

Unoccupied bare ground: bare ground with available resources, ripe for invasion

Occupied bare ground: bare ground in which all resources are fully utilized

Propagules: parts of an organism, such as a seed, that propagate, or produce a new individual

Resources:

“[Western Roots: Diving into a Sagebrush Sea of Diversity](https://catalog.extension.oregonstate.edu/pnw714/html)” by Vanessa Schroeder and Dustin Johnson OSU Extension Service PNW 714    Published August 2018

[Threat-Based Land Management in the Northern Great Basin: A Manager’s Guide](https://catalog.extension.oregonstate.edu/pnw722) OSU Extension Service PNW 722