

Restoring Shrub-Steppe in the Methow Valley



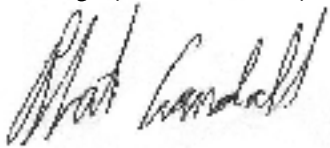
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Dear Friends of the Shrub-Steppe,

For thousands of years, people have lived among the bunchgrass and bitterbrush of the Methow Valley. As its current residents, we inherit the responsibility of caring for this unique ecosystem.

Changes to the land accelerated in the last century, initially with agriculture and grazing. Today the shrub-steppe's natural beauty draws residential development – along with new roads, fragmented wildlife corridors, and invasive weeds. Much of the shrub-steppe habitat has been converted or compromised, affecting complex relationships among plants, animals, and soil.

As stewards, we strive to nurture and protect the land and to search for positive ways to live upon it. The Methow Conservancy and a diverse group of individuals, organizations, and agencies are currently working towards these goals. Join this effort to safeguard our natural heritage by better understanding the land, and by striving to pass on this legacy of wild beauty.



Rob Crandall
Winthrop, Washington
2006

stay together
learn the flowers
go light

(Gary Snyder,
"For the Children,"
Turtle Island)

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Sulphur buckwheat,
Eriogonum umbellatum



What Is Shrub-Steppe?

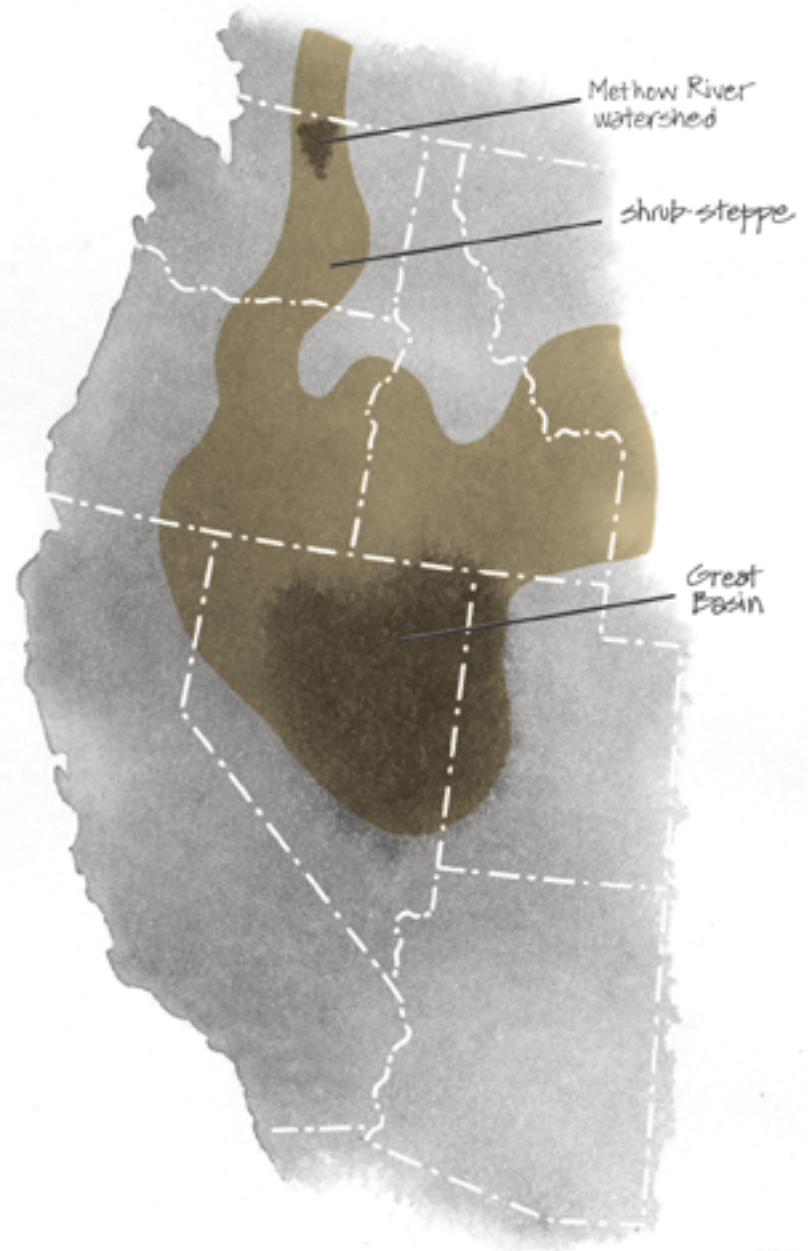
Traditionally, *steppe* is a Russian word meaning vast treeless plain, but *shrub-steppe* refers to semi-arid lands in the western United States that are dominated by perennial grasses and shrubs.

The Methow Valley lies at the northwestern edge of steppe lands in the West and averages 15 inches of annual precipitation, compared to less than 10 inches in most of the Great Basin. This additional moisture sustains flowering shrubs and fingers of ponderosa pine that run through the sage and bitterbrush – so that some call this habitat “meadow-steppe.”

Long ago, shrub-steppe covered vast tracts of eastern Washington, but most of it has been converted to agriculture. Much of what remains is in poor condition. Because a good portion of Methow Valley shrub-steppe lies on land too steep to cultivate, over 60% of original steppe is still intact.

This handbook is for anyone who lives on and cares for shrub-steppe lands. It provides guidance on protecting and restoring shrub-steppe habitat on a small scale, strategies for weed control, and ways to rehabilitate disturbances such as new driveways, septic fields, and homesites.

It's for those who want to understand the shrub-steppe more deeply, who are interested in flowers and seasonal change, curious about collecting seed, and alert to weed life cycles. Though the book pertains to the Methow River watershed in Washington State, it includes information useful for shrub-steppe restoration throughout the West.



An Ancient Landscape

Yellow balsamroot, purple lupine, and silvery bluebunch wheatgrass carpet the springtime hills of the Methow Valley; these expanses are part of the shrub-steppe.

Mile-high glaciers once covered this area; their slow melt and retreat left rounded hills and valleys filled with sand and gravel. Plant communities evolved to survive on the varied topography and today we find rocky hilltops covered in delicate pink bitterroot blooms, dusty slopes of bitterbrush, and verdant draws thick with mock-orange and serviceberry.

These diverse communities flourish in the dry climate, extreme temperatures, and poor soil of the Methow Valley. Because most precipitation in the watershed falls as snow, plants thrive on spring snowmelt; they bloom and bear fruit early in the year. When summer brings long stretches of hot, dry weather, these plants are already falling dormant.

Steppe lands make up 13% of our watershed. Most of the valley floor has been converted to agriculture or residential and commercial development; you'll find the remaining shrub-steppe in the hills.

Life in the Soil

Although steppe soil seems devoid of life, healthy soil teems with *mycorrhizae*, fungi that help roots absorb water and nutrients. Over thousands of years, a complex relationship evolved between these mycorrhizae and the plants that live with them.



Long-flowered bluebell,
Mertensia longiflora

In healthy habitat, a living crust of tiny organisms including algae, moss, and lichens covers much of the soil. This *microbiotic crust* retains precious moisture, catches and converts nutrients, germinates seeds, and stabilizes soil. Plowing, grazing, and excavation disrupt or destroy both microbiotic crust and mycorrhizal relationships, diminishing the soil's ability to support diverse native flora.

Fire Shaped the Plant Life

Historically, fires blazed through the Methow watershed every 7 to 15 years; many were set by Native Americans to encourage growth of plants they harvested. The flora evolved to thrive along with these disruptions. Fires renewed the ecosystem by opening shrub canopies and burning dead matter, releasing nutrients. After a burn, luxuriant bunchgrass and abundant wildflowers jumped up, stimulated by new infusions of nutrients.

Today, complicated patchworks of land ownership, the threat of damage to homes, and the presence of weeds make the reintroduction of fire into Methow communities difficult. Without recurring fires, shrub canopies fill in, shading out wildflowers and reducing plant diversity.

Despite continuing development, aggressive weed invasions, and the absence of renewing fires, large tracts of healthy shrub-steppe still persist in the Methow Valley. By taking an active stewardship role, we can learn strategies to renew and protect this unique landscape.

What Is Restoration?

Restoration seeks to return land to a previous condition that sustains plants and animals naturally inhabiting the community.

Our shrub-steppe community is not static; it developed over thousands of years and exists in a mosaic of diverse habitats. We can't point to one condition and say, "This is perfect; it's what we want to happen here." For many of us, a more realistic goal is simply to reestablish diverse native plants that support wildlife and compete with weeds.



Bluebunch wheatgrass,
Agropyron spicatum

On your own land, your goals may vary. Close to your home, you'll consider landscaping details like color, plant size, and bloom times. You might install higher-maintenance beds, with irrigation systems and rockwork. On disturbed areas away from your home, your goal may be to return land to its previous vegetative state: to put in native plants, reduce weeds, and set up natural growing patterns that continue without regular maintenance. Your goals will drive your choice of restoration techniques.

Native plants in the Methow Valley evolved over millennia, with new plants arriving and others dying out as conditions changed. Since the late 1800s,

Europeans brought dramatic change as they intentionally or unintentionally introduced many new species. Now ecologists label any plant species present before European settlement as "native."

Bunchgrass is any grass growing in a tuft, or clump. Bunchgrasses are *perennial*, reemerging every year from deep roots. They are perfectly adapted to harsh steppe conditions, actively growing in spring and going dormant in summer. As grass blades die back, they create a little skirt of mulch around the clump, protecting roots and conserving precious moisture.

Forbs such as wildflowers are *herbaceous*, or soft-stemmed, broad-leaved plants, as distinguished from grasses or woody shrubs and trees.

Over 160 species of wildflowers live in the shrub lands of the Methow Valley, from diminutive blue-eyed Mary to showy arrowleaf balsamroot. Filling niches between bunchgrasses and effectively competing with weeds, wildflowers provide valuable food to birds, mammals, and insects.



Bitterroot, *Lewisia rediviva*

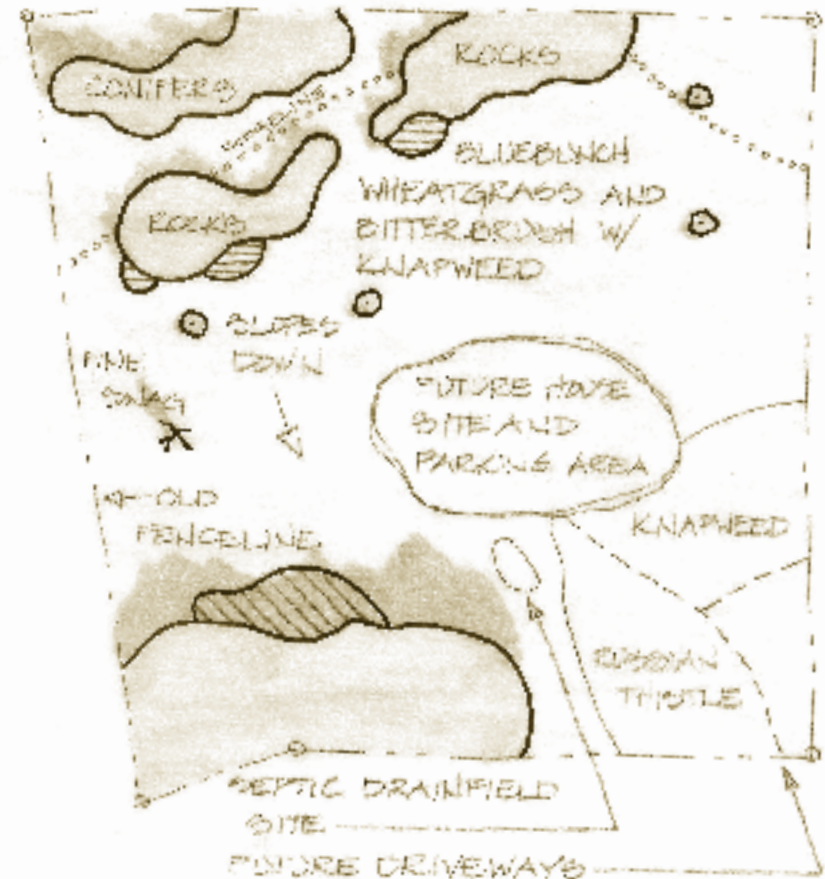
Evaluate Your Site and Set Goals

Before you alter your site, step back and assess its current status. Take note of its unique qualities and keep these in mind as you plan.




Map Your Existing Site


Using surveying or architectural documents as a base, draw a map of your property. Maps drawn roughly to scale are most useful. Indicate natural features such as rock outcrops and structures such as houses, outbuildings, driveways, and utilities. Include vegetation zones like undisturbed steppe, weedy areas, and groves of trees. Investigate and record seasonally changing conditions like windy areas and places that are always in shade.



NORTH

 - DALMATIAN
TOPOLAX

 = SERICEBERRY

 - WHITETOP

Take Inventory. Learn the plants on your land and make a list of them; this gives you insight into current conditions. Which non-native species might spread? Which native plants seem well adapted here? Use field guides or get help from someone with experience; see the resource section, pp. 37-38.

Investigate the History of the Land. Try to determine how your land has been used. You can make better-informed decisions about restoration when you know the origin of your land's current condition. Was your land cultivated? Are there signs of fires in the past?

Assess the Health of Your Soil. Healthy soil is the foundation of any restoration project. Soil disturbance can disrupt complex mycorrhizal relationships and throw soil chemistry out of balance, creating difficult conditions for revegetation.

Look for potential soil problems; have some areas been heavily compacted or eroded? Test your soil for very high or low levels of acidity and for high salts. Check the resource section, p. 38, to get help with testing and amending your soil.

Monitor the Condition of Your Land. Choose a method to document and record changing plant communities; this can range from implementing detailed botanical inventory plots to taking a few notes as you walk and visually inspect plant cover. Setting photograph points is a great way to monitor your land. Pick a handful of spots and shoot photographs from the same angle once or twice every year. Review your records to see if you are making progress.

Recognize Special Features on Your Site

Amidst the arid steppe landscape, ephemeral springs, small streams, and moist ravines encourage communities of Woods's rose, snowberry, water birch, and hawthorn. These shrubby draws are natural magnets for songbirds and mammals, but they may have also attracted cattle and weeds in the past. Rehabilitate them over time by removing weeds and replanting trampled, overgrazed patches.

Aspen groves sprout up wherever moisture sustains them, providing welcome cover for wildlife. They spread by suckering root offshoots. Naturally rejuvenated by fire, many groves are suffering from lack of renewal by fire, from heavy browsing by deer and livestock, and from conifer encroachment.

Snags – standing dead trees – provide homes for animals like northern flying squirrels, Lewis's woodpeckers, and little brown bats. If snags on your land stand far from buildings, preserve them with a surrounding buffer of natural vegetation as valuable animal habitat.

Rock outcrops, though barren in winter, might erupt in vibrant blooms of bitterroot, linear-leaf daisy, or sulphur buckwheat. Short-horned lizards may be burrowing in sandy or gravelly patches. Keep construction away from these areas and take care not to disturb thin soils that can take decades to heal.

