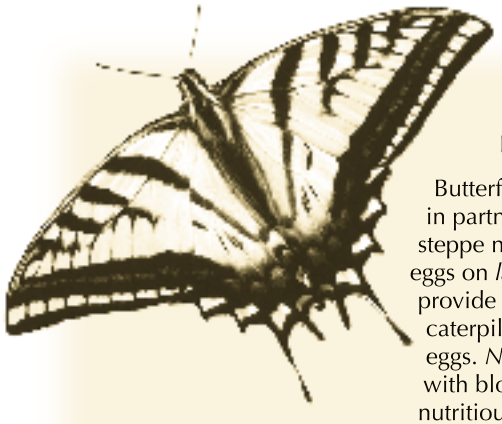


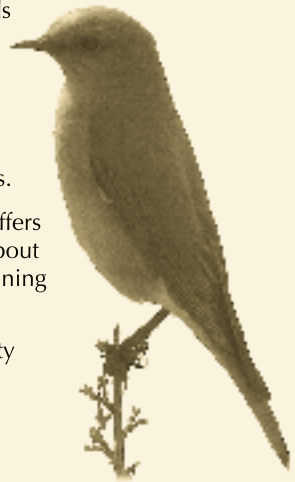
WELCOME MATS FOR BUTTERFLIES

Butterflies have evolved in partnership with shrub-steppe native plants. They lay eggs on *larval host plants* that provide food for *larvae*, or caterpillars that hatch from the eggs. *Nectar plants* are those with blossoms that provide nutritious nectar for butterflies.

The next time you see a fat green caterpillar chewing up choke cherry leaves, think of the beautiful two-tailed swallowtail that will eventually emerge from that caterpillar's chrysalis. Remember that insecticides kill beneficial native insects like bees and butterflies.

BLUEBIRD DAYS

Western and mountain bluebirds arrive every spring to raise their young in the shrub-steppe. You can attract these bug-eaters by installing nest boxes; a good box has simple but precise specifications that fit their needs.



The organization listed below offers everything you need to know about building, installing, and maintaining bluebird nest boxes.

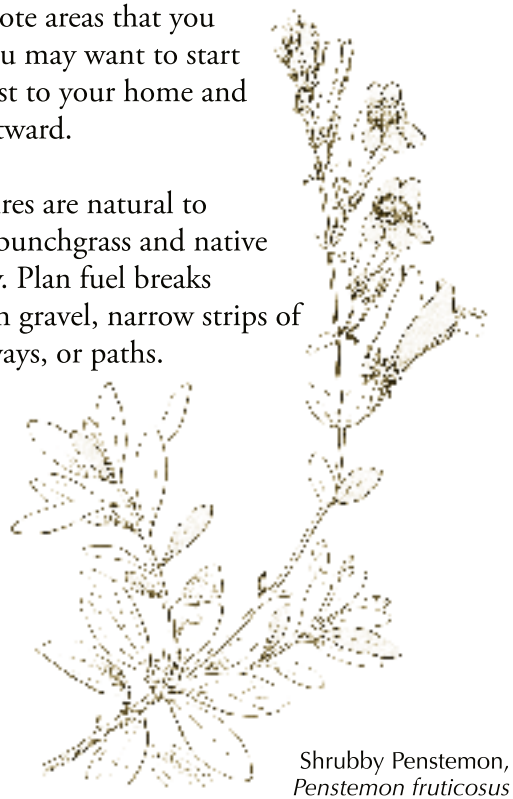
North American Bluebird Society
888-235-1331
www.nabluebirdsociety.org

Establish Your Goals

Consider how you will use your land and what you hope to achieve as its target condition. Many of us simply want weed-free land with diverse native species. You might also want interesting landscaping around your home, reduced fire risk, comfortable spaces to rest or play, and improved wildlife habitat. Plan how you might use your land in the next few years, and after many years.

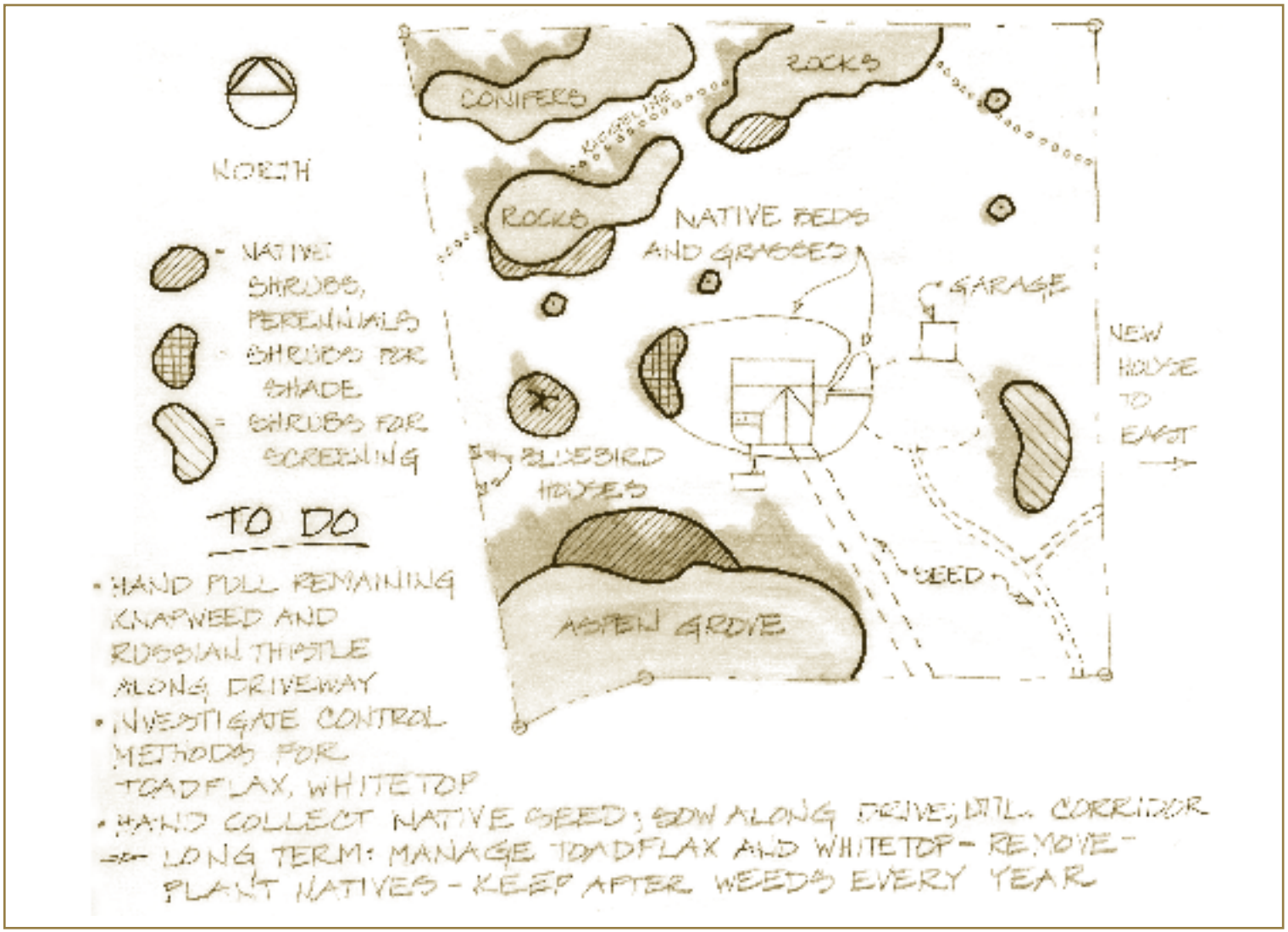
Use the map you've made of your site and draw in all the future uses you can identify: gardens, walkways, or small patches of lawn. Note areas that you want to restore; you may want to start with the area closest to your home and gradually work outward.

Fast-moving wildfires are natural to shrub-steppe; dry bunchgrass and native shrubs ignite easily. Plan fuel breaks around homes with gravel, narrow strips of green lawn, driveways, or paths.



Shrubby Penstemon,
Penstemon fruticosus

Create a Detailed Restoration Plan



Plan to Protect Your Soil

Before any construction work on your site begins, mark boundaries for excavation, parking, and paths with stakes and construction ribbon or temporary fencing. If disturbed areas already exist on your land, try to concentrate heavy use there. Choose an excavator willing to limit soil disturbance, set topsoil aside, and supply weed-free topsoil if you need it. These steps save you many hours of work in the future.

Though much of the Methow Valley lacks rich topsoil, the top six inches of soil still have value. Over time, native plant seeds accumulate there to form the *seed bank*, for future regeneration when conditions are favorable. In areas without invasive species, set aside this top layer of soil and replace it on top when work is complete.

Use temporary fencing to limit soil disturbance during construction.

THE NEIGHBORHOOD CONCEPT

New neighborhoods are sprouting up throughout the hills of the Methow Valley. Vast tracts of bluebunch wheatgrass and bitterbrush are now dotted with driveways and homesites. This new construction fragments habitat and helps spread weeds; restoring affected areas can be a lot of work.

Forming neighborhood restoration action groups is a great way to protect shrub-steppe in your community.Homeowners can develop control strategies that go beyond individual property lines by planning wildflower walks, seed-collecting trips, and weed-pulling parties.

Plan to Avoid Damage from Wildlife

About 15,000 mule deer live in the Methow Valley, the largest wintering herd in the state. These voracious browsers present the most serious obstacle to reestablishing native plants here. Their browsing pattern changes seasonally and from place to place; learning local patterns will help you devise your own strategies.

Experience shows that commercial deer repellents are not completely effective under the intense deer pressure of our valley. Fortunately, deer *generally* ignore bunchgrasses, some wildflowers, and plants with aromatic or hairy leaves. Consult the tables on pp. 21-25 for ideas and experiment with different plant species to see what works in your location.

To protect shrubs like serviceberry or choke cherry, encircle them with steel wire cages at least six feet tall. Keep cages in place until shrubs have grown above the six-foot browse line, then allow mature native plants to provide important winter browse for foraging deer. To permanently protect a planted area, install a seven-foot exclusionary fence.

In fall, bucks *girdle*, or remove bark from saplings by rubbing their antlers against tender trunks. Installing plastic tubing around young trees and shrubs in the fall prevents this. To prevent mice from chewing off saplings' bark in winter, wrap wire *soffit screen*, sold in narrow strips, around their trunks in fall. In spring, remove all bark protection to allow room for tree trunks to expand.

Northern pocket gophers chew up roots and bulbs, especially in old farm fields. It's best to learn to live with them; even trapping is ineffective, as new gophers quickly move in.

Plan Your Watering System

Our scorching hot summers make it difficult to establish new plants. Under natural conditions, many new steppe perennials may find circumstances favorable to getting established once every 10 to 15 years. Giving new plants enough water to survive is a restoration challenge.

Tailor your watering plan to fit each individual plant's needs and group plants with similar needs together. For example, serviceberry needs much more water than sagebrush; planting them together and watering them equally will yield poor results.

Plants that need more water can be established with a temporary watering system for the first two to four growing seasons. A deep weekly watering, wetting the root zone, should be adequate to start. Reduce the frequency of watering as plants get established. Periodic deep watering is more effective than frequent shallow watering and encourages deep root growth that makes plants drought-tolerant in the future.

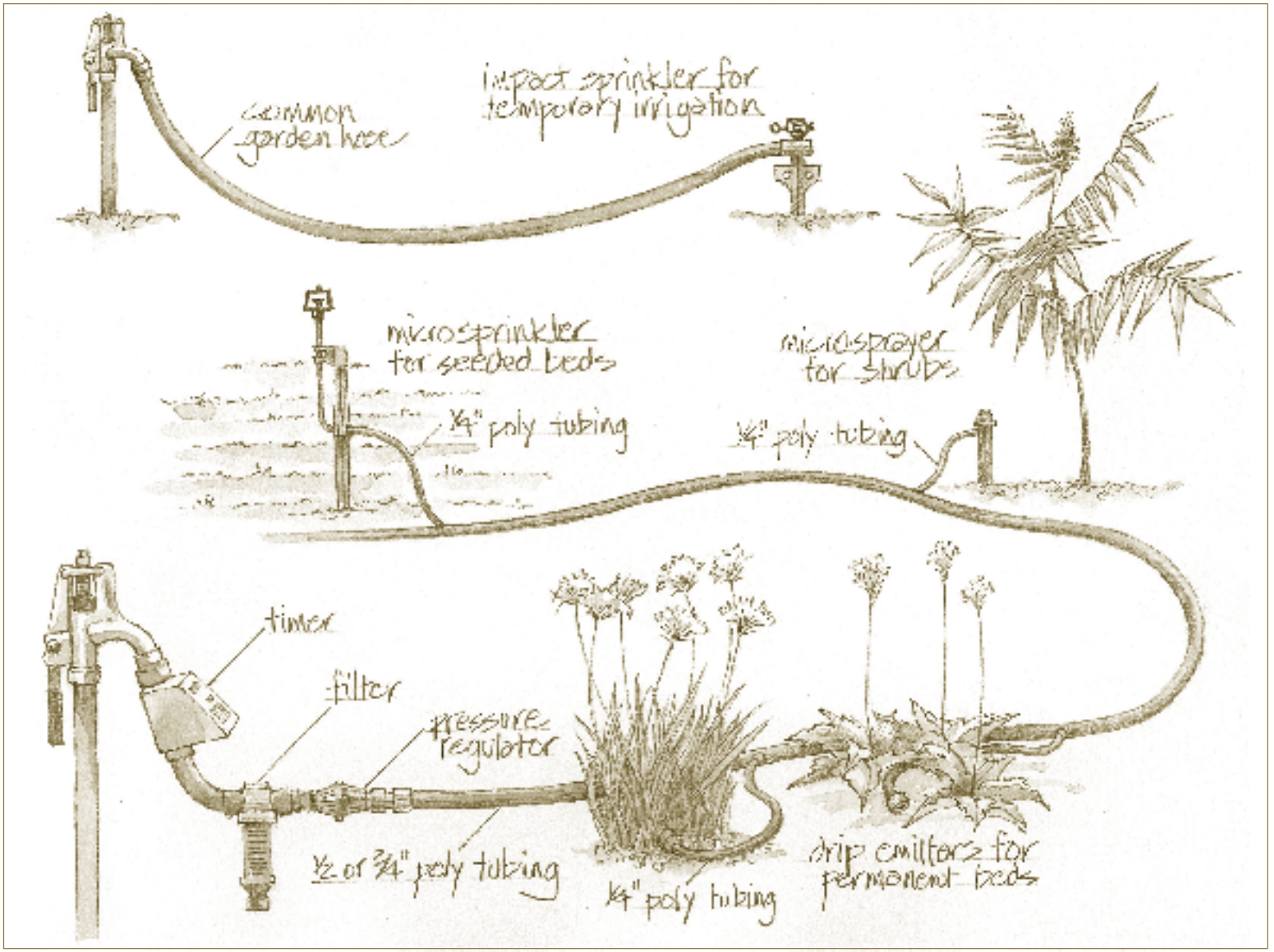
Some places, such as intensely planted landscaping beds near your home or green belts protecting your home from fire may always need regular watering. Permanent underground systems are most effective. Many new wells in the shrub-steppe produce marginal amounts of water and are known to yield less over time. Consider water use when you plan your watering system.

EXTREME WEATHER

Winthrop's record high is 106° F; there have been up to 66 consecutive summer days without rain.

Irrigation Systems	Pros	Cons
Root zone watering		
Hand watering	Conservative with water; discourages weed growth.	Labor-intensive. Requires depressions around each plant to catch water.
Drip irrigation - small emitters on ¼" poly tubing; carries ½-10 gallons/hour. Effective on shrubs.	Conservative with water; encourages deep watering of root zone. Discourages weed growth. Poly tubing need not be drained before winter freeze.	Requires use of filters to keep lines from plugging and regular maintenance to check for blocked lines.
Overhead watering		
Microsprinklers - small heads used with ¼" poly tubing; spray radius 90-360°, up to 15' projection.	Gentle spray, conservative with water, encourages self-seeding.	Wide water distribution encourages weed growth; tall plants can block spray.
Sprinklers - impact and other types used with common garden hose; for example, Rainbirds.	Delivers water to large area, easy to maintain.	Least efficient use of water; large distribution encourages weed growth. Can cause soil compaction.

Which Sprinkler Where?



Living with Weeds

Weeds are the single biggest threat to existing shrub-steppe habitat and successful restoration. After any soil disturbance, they can out-compete native plants for sunlight, nutrients, and space; some weeds invade even undisturbed land. Rather than a cause of habitat damage, weeds are a symptom of previous damage or current management problems.

Many weeds are transitory; they persist for a few years but die out as conditions change and new species take over, or they suddenly flourish and expand due to conditions changing in their favor.

Cheatgrass, *Bromus tectorum*

Know thy enemy
and know thy self
and you will win
a hundred battles.

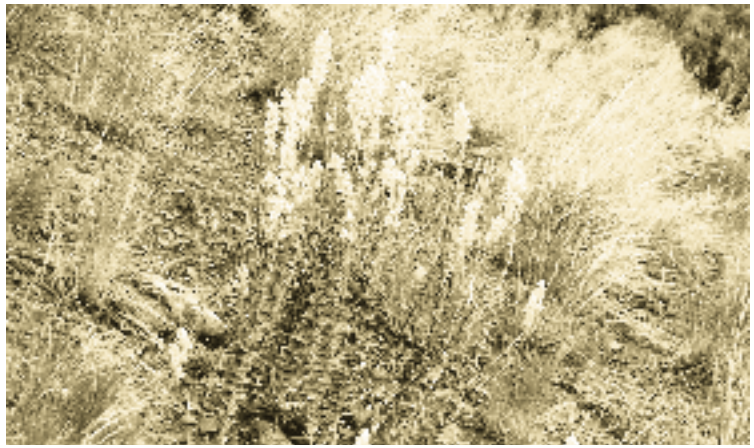
– Sun Tzu Wu,
The Art of War

What is a Weed?

A subjective answer might be "Any plant growing in a place where it's unwanted." But technically, most of our weeds arrived from other places, so they're called *non-native* or *alien* species.

Plants have always migrated in and out of the valley; 12,000 years ago most of the valley was under glaciers a mile thick. When Europeans began living here, they increased the rate of new plant arrivals.

Many of our non-native species arrived from Europe or Asia, where they evolved with human land use for thousands of years to thrive wherever humans disturbed the soil. This gives them a competitive edge over native plants in colonizing disturbances. They also left their natural enemies behind when they migrated here.



Dalmatian toadflax, *Linaria dalmatica*

Develop Your Own Weed Control Strategy

Learn which weeds grow on your land and use your site map to plot their location. Consult a field guide or hire a local weed expert to help with identification; see the resource section, pp. 37-38. Understanding the life cycle of each species is the key to effective control.

Prioritize your work by tackling highly invasive species first; you may find some weed species can be left alone. Catch new invaders in otherwise undisturbed areas, then concentrate on dense infestations.

Monitor your progress with frequent site tours or photographs. Note weed population trends and which control techniques have been successful. Evaluate costs and labor differences among weed control methods. Be watchful for new invaders.

Accept that weeds are a fact of life. The shrub-steppe will never be as it was before Europeans arrived, but we can strive to tip the balance in favor of native plants.

Bulbous bluegrass, *Poa bulbosa*

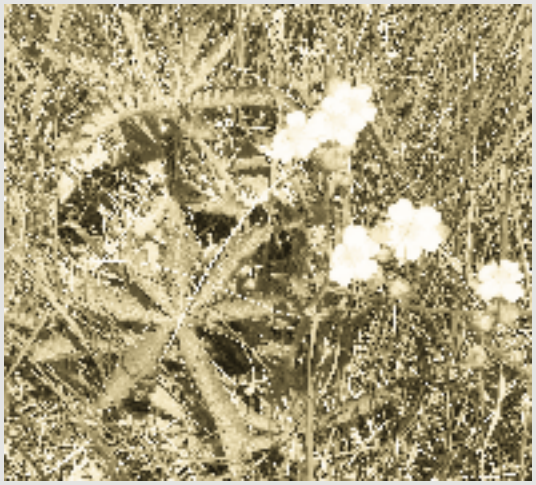
POTENTIAL NEW INVADERS

Watch out for these new weeds identified by the Okanogan County Noxious Weed Control Board.

Now in limited areas of the Methow Valley
Scotch thistle, *Onopordum acanthium*
Musk thistle, *Carduus nutans*
Yellow toadflax, *Linaria vulgaris*
Hoary alyssum, *Berteroa incana*
Longspine sandbur, *Cenchrus longispinus*
Fiddleneck, *Amsinckia intermedia*

Potential invaders of shrub-steppe
Leafy spurge, *Euphorbia hirsutum*
Rush skeletonweed, *Chondrilla juncea*
Spotted knapweed, *Centaurea maculosa*
* Common crupina, *Crupina vulgaris*
Sulfur cinquefoil, *Potentilla recta*

* Federal class A weed; now in Chelan County



Sulfur cinquefoil, *Potentilla recta*