

NATIVE GRASSES

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- When the settlers first made their way west from the founding colonies, they were greeted with a wide expanse of native grasses across the plains and prairies. Having evolved in the Americas, they needed no watering or fertilizing to thrive.
- In an effort to reduce water usage, as well as the need for mowing, fertilizing and pest management, HOAs and homeowners often consider the replacement of mowed, irrigated turf with native grass species.
- These areas are often referred to as “native grass” areas because their unmowed appearance sometimes looks like that of a native prairie.
- The impact and management of these low maintenance native areas is often a concern within HOA communities – especially for those who live next to them.

Types of Native Grasses

The types of native grasses available are divided into two classes, warm-season varieties or cool-season varieties. Within those two classes are both ornamental grasses and varieties suitable for turf.

Warm-Season versus Cool-Season

Warm-season and cool-season grasses differ in their photosynthetic pathways, demanding slightly different growing conditions. Hence it’s important to understand the different types if you are choosing a native grass for your landscape.

Warm-Season Grasses

- A minimum air temperature of 60° to 65° F and soil temperatures of 50° F are needed for growth to begin.
- They produce most of their growth in the hottest months (July to September).
- Optimum biomass production occurs when average temperatures are 85° F to 95° F.
- They have a greater photosynthesis rate at higher temperatures to better utilize nitrogen and phosphorus.
- They are better adapted to high-stress situations such as drought, high temperatures, and high oxygen/low carbon dioxide concentrations.
- They will go dormant and turn brown in areas with a cold winter.

Cool-Season Grasses

- A minimum air temperature of 40° to 42° F is required for active shoot growth.
- The plants produce most of their growth in the spring and late fall in cooler air and soil temperatures.
- They tend to slow down in growth rate during periods of high temperatures.
- Optimum biomass production occurs when average temperatures are 65° to 75° F.

- More water is required for them to stay green during a hot summer.
- They will go dormant in the summer months if not irrigated.

Sod-Forming and Bunch-Type Grasses

- We are all familiar with the standard concept of turfgrass such as bluegrass — the sod-forming types that spread by runners above ground (stolons) and below ground (rhizomes).
- Some native grasses form sod (Buffalo Grass), but most are “bunch type” grasses (such as Little Bluestem), which grow in separate clumps.
- A few of the bunch types (such as Blue Grama) can be planted so closely together that they form a turf-like surface, but most like a little more room.

Advantages of Native Grasses

- They consume less water and are more drought resistant.
- They are hardier than “traditional” developed turf species.
- There is an increased resistance to pests, insects, and diseases, as they are adapted to their environment.
- They encourage animal biodiversity and native wildlife habitats in open areas.
- You typically see significantly fewer weeds due to increased leaf density.

Disadvantages of Native Grasses

- There are more native ornamental grasses than “traditional” turf species.
- They take more effort at first, as sod-type native grasses (such as Buffalo Grass) are harder to establish as a lawn.
- Clump type native grasses require even more care during establishment (Blue Grama) to keep them weed free until they fill in (one to two seasons)
- May not look as green and uniform as a “traditional” lawn from nonnative turfgrass species.

Native Grass Mixes for Colorado

DOUGLAS COUNTY PERMANENT SEED MIX

A native seed mix designed for Douglas County Colorado.

- This mixture has cool and warm season grasses, bunch and sod-forming grasses.
- Very drought tolerant and adapts to various soil types.

Big Bluestem

- Warm-season bunch/sod forming grass. It is a tall grass, reaching a height of 6-8 feet on most sites when left un-grazed

Indian Grass

- Warm-season bunchgrass. It can grow 3-5 feet tall. Grows best in deep, well drained soils.

Switchgrass

- Warm-season sod forming grass. It can grow 3-5 feet tall. Tolerant of poor soils, flooding, and drought.

Sideoats Grama

- Warm-season bunch/sod grass. A medium sized perennial 15-30 inches tall and it is adapted to most soil conditions.

Western Wheatgrass

- Cool-season sod forming grass. Grows 12-36 inches tall and adapts to most disturbed soils.

Blue Grama

- Warm-season bunch grass. Will grow 10-20 inches. Has good drought and fair salinity tolerances.

Thickspike Wheatgrass

- Cool-season sod forming grass. Grows 12-36 inches and has extensive rhizomatous root system.

Prairie Sandreed

- Warm-season sod forming grass. Grows 24-72 inches tall. Prefers sandy sites, drought tolerant and winter hardy.

Green Needlegrass

- Cool-season bunchgrass. Grows 18-36 inches tall and prefers medium to fine textured soils.

Slender Wheatgrass

- Cool-season bunchgrass. A native species to the mountain and intermountain areas of the western United States and the northern Great Plains. Grows from 24-30 inches tall and has very short rhizomes.

Streambank Wheatgrass

- Cool-season sod forming grass. Will grow 12-36 tall, drought tolerant and commonly used for reclamation.
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FOOTHILLS MIX

A mixture developed for elevations of 3,000 to 8,000 feet to provide natural cover under dryland conditions.

- Contains both cool and warm season grasses adapted to the Western Great Plains and Southwest region.
- Has excellent cold and drought tolerance. Good for soil stabilization on poor soils.

Annual Ryegrass

- Cool-season bunchgrass. Noted for quick germination. Provides fast green up and root structure to stabilize soil. ANNUAL.

Slender Wheatgrass

- Cool-season bunchgrass. A native species to the mountain and intermountain areas of the western United States and the northern Great Plains.

Crested Wheatgrass

- Cool-season bunchgrass. Drought tolerant and winter hardy grass with deep rooted system making an excellent soil binder.

Mountain Brome

- Cool-season bunchgrass. Survives on thin, dry or coarse soils, and displays strong winter hardiness. Will produce best in moist deep fertile soils.

Hard Fescue

- Cool-season bunchgrass. Well adapted to many soil types and often used for erosion control.

Canada Bluegrass

- Cool-season bunch/sod-forming grass. Resistant to drought and some salinity. It is used to reclaim disturbed area such as gravel pits, cut roads, roadsides, and mines.

Sideoats Grama

- Warm-season bunch/sod forming grass. A medium-sized perennial 15 – 30" tall, it is adapted to most soil conditions.

Big Bluestem

- Warm-season sod-former. It is tall grass, reaching a height of 6 to 8 feet on most sites when left unmowed.

Blue Grama

- Warm-season bunch grass. Will grow 10-20 inches. Has good drought and fair salinity tolerances.

Switchgrass

- Warm-season sod forming grass. It can grow 3-5 feet tall. Tolerant to poor soils, flooding, and drought.

Sand Dropseed

- Warm-season bunchgrass. Commonly grows on sandy soils but is adapted to medium textured soils also.
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LOW GROW MIX

A mixture of perennial, cool season, drought tolerant grass seeds suitable for areas where mowing is difficult or not desirable.

- It grows an average of 8-12 inches a year with normal rain fall in the Intermountain region and the Desert Southwest, grows up to 10,000 ft.
- This mix is a great soil stabilizer and it is very compatible with wildflower mixes.

Ephraim Crested Wheatgrass

- Slightly rhizomatous cool-season bunchgrass. Drought resistant and winter hardy with a deep root system making it an excellent soil binder. Well adapted to stabilization of disturbed soils and does well on a variety of soil types.

Sheep Fescue

- Cool-season bunchgrass. Well adapted to most soil conditions and is great for soil erosion control and low maintenance mixtures.

Perennial Ryegrass

- Cool-season bunchgrass. One of the most widely used grasses and is adaptable to a wide variety of soils and climate conditions. It has a leafy head and fine stem.

Chewings Fescue

- Cool-season bunchgrass. A fine fescue that is shade tolerant and requires little water. Persists in dry and infertile soils.

Canada Bluegrass

- Cool-season sod-forming grass. Resistant to drought and some salinity. It is used to reclaim disturbed area such as gravel pits, cut roads, roadsides, and mines.
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NATIVE WONDER SEED MIX

A mixture of warm season grasses featuring Bowie Turf-Type Buffalograss and Blue Grama.

- Native to the Great Plains, these grasses are ideal for those desiring a true native lawn with that “back to nature” look. Very heat and drought tolerant.
- Grows 10-20 inches tall if un-mowed. Requires little to no maintenance. Persists in elevations up to 6,800 ft.

Turf Type Buffalo Grass 70%

- A warm-season sod-former. Buffalo grass has become very popular as a low-maintenance lawn grass.
- This hardy grass greens up two-to-three weeks later than Kentucky Bluegrass in spring, and stays green all summer with little or no care. It goes dormant at the first killing frost and turns a beautiful buff color until it breaks dormancy again in the spring.

- Buffalo grass is known for its low water usage, winter hardiness and low vertical growth habit. These traits reduce labor, irrigation, mowing and fertilization costs significantly.
- Bowie buffalo grass meets all of today's standards for a low maintenance turf grass. Developed specifically for turf quality, Bowie possesses medium green color, fine leaf texture, good turf density, and low growth habit. Bowie has improved lateral growth for quicker establishment.

Native Blue Grama

- Warm-season bunchgrass. This grass demonstrates good drought, fair salinity, and moderate alkalinity tolerances. A great companion for buffalo grass in native turf areas.

ROCKY MOUNTAIN NATIVE SEED MIX

This native seed mixture was developed for the Rocky Mountain region. It consists of native grasses that include both cool and warm season species.

- Provides great cold and drought tolerance for the extremes of the region.
- Grows 25-36 inches with average rainfall. Great for holding mountain soils.

Slender Wheatgrass

- Cool-season bunchgrass. A native species to the mountain and intermountain areas of the western United States and the northern Great Plains. It establishes quickly, and thus is frequently used for reclamation.

Mountain Brome

- Cool-season bunchgrass. Survives on thin, dry or coarse soils, and displays strong winter hardiness. Will produce best in moist deep fertile soils.

Green Needlegrass

- Cool-season bunchgrass. A grass native to the area from the Northern Great Plains to Arizona. It naturally occurs on bottom lands and river basins throughout the foothill and mountain altitudes.

Thickspike Wheatgrass

- Cool-season sod forming grass. Grows 12-36 inches and has an extensive rhizomatous root system.

Rocky Mountain Fescue

- Cool-season native bunchgrass. Cold and drought tolerant, common at higher, subalpine and alpine elevations.

Blue Grama

- Warm-season bunch grass. Will grow 10-20 inches. Has good drought and fair salinity tolerances.

Indian Ricegrass

- Cool-season bunchgrass. A widely adapted, highly palatable grass often used in the stabilization of erosion prone soils.

Sandberg Bluegrass

- Cool-season, drought tolerant, perennial bunchgrass. This grass is one of the first to green up in the spring, but is dormant by early summer. The plant usually occurs as small tufts. Does well in a variety of soils.

Bottlebrush Squirreltail

- Cool-season, quick establishing, short-lived perennial bunch grass. It grows 1 to 2 feet tall, with a unique seed head and long bristle-like appendages that resemble a squirrel's tail. Adapted to a wide

variety of environmental conditions and soils. Used for erosion control, as well as on marginal or depleted rangeland.

Managing Native Grass Stands

WEED MANAGEMENT

- Management of weeds in native grass stands can be achieved by a combination of control measures. This is known as Integrated Weed Management (IWM).
- IWM for weed control consists of the following:
 - *Physical control (hand pulling/cutting)*
 - *Mechanical Control (mowing)*
 - *Cultural control (over seeding)*
 - *Biological control (insects)*
 - *Chemical control (herbicides)*
- Each of these techniques have advantages and limitations.

Physical Control

- Physical controls (hand pulling or cutting) should be limited to those areas where chemical treatment cannot be made due to sensitive environmental conditions, or where weeds exist in areas of herbicide sensitive non-target plant species.
- Physical control can also be used in areas where single plants are identified and could be physically removed, carried away and disposed of properly.
- Because of the prohibitive cost and labor requirements of physical control, it should only be used in these types of sensitive areas.
- Removing mature seed heads by cutting, when practical, is preferred to mowing.

Pulling/Cutting works best for:

- Small infestations of weeds that can be pulled one patch at a time.
- Annual and biennial plants (although seed banks will remain for some time).
- Shallow-rooted plant species that do not resprout from any residual roots.
- Plants growing on sandy or gravelly soils. If possible, concentrate pulling when the soil is moist and soft; for example, after a heavy, soaking rain.
- Situations where chemicals or motorized equipment cannot be used or are undesirable, such as riparian areas.
- Eliminating or reducing seed production in small infestations.

Limitations of Pulling/Cutting:

- Pulling generally does not remove the entire weed root system except under the most favorable conditions. Thus, pulling is often ineffective for killing rhizomatous weed species such as Canada thistle, field bindweed, Russian knapweed, leafy spurge, or yellow toadflax. However, if your goal is reducing seed production, pulling may be very effective.
- ***If pulled weeds contain seeds, they should be removed from the site and burned or disposed of in a landfill. Don't compost this material!***
- Pulling will not reduce a soil seed bank, although it can keep a seed bank in the soil from increasing.

- It is not cost effective for large infestations, due to the labor involved. Pulling may not be cost-effective for small infestations, either, unless plants are easy to pull and a volunteer work force is available.

Pitfalls of Pulling/Cutting:

- Volunteer burnout from endless hours of boring work.
- Lack of psychological reward if the results of pulling are not apparent.
- Soil disturbance which stimulates germination of weed seeds in soil, as has been noted with diffuse knapweed.
- Temporarily creating bare soil and providing more sites for weed seed germination and establishment.
- Some weeds produce chemicals that can cause allergic reactions or dermatitis in some people. Always wear work gloves and a long-sleeved shirt for pulling plants. Wash your hands with soap and water afterwards.

Mechanical Control

- Mowing employs mechanical tools (mowers, string trimmers) to sever the above ground portion of a plant from its roots.
- Tall grasses are more water conserving, as tall plants help shade the ground and adjacent grass plants, reducing evaporation of the moisture in the soil.
- This results in a healthier, more vigorous stand of grass. Tall grasses also provide great wildlife habitat.
- Mowing during the growing season will weaken the native grasses, as they will go dormant and stop growing during the heat of summer.
- This allows room for weed seeds to germinate and take over the native areas. Letting native areas grow tall helps to choke out noxious weeds through competition, and reduces the need for herbicides to control those weeds.

Mowing works best for:

- Large, relatively flat and dry areas that can be mowed with few safety or equipment concerns.
- Preventing tall, erect biennial weed species such as mullein from setting seed when other control techniques are not feasible.
- Preventing the “tumbling” action of certain weed species such as diffuse knapweed, kochia and Russian thistle that spreads seeds of these species across wide areas.
- Weakening weed plants by depleting root and rhizome reserves through repeated mowing, in cases where such mowing can be conducted efficiently.
- Combining with other control methods, such as herbicide treatment.

Limitations of Mowing:

- Rarely kills weeds.
- Having to repeat mowing frequently for control to be effective.
- Sites that are inaccessible or too rocky cannot be mowed, although weed whips and machetes can be effective in such situations.
- Cut plants resprouting to larger sizes than prior to cutting (tamarisk, Russian olive).
- Weakening some rhizomatous plants only slightly (for example, Russian knapweed) unless the frequency of cutting is very high.

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Pitfalls of Mowing:

- Failing to remove and dispose of cut stems if they contain seeds.
- Mowing will weaken stands of desirable native grasses, cause dormancy, and will let weeds further invade the stand.
- Turning annual or biennial plants such as diffuse knapweed into short-lived perennials through repeated mowing.
- Weed seeds spread by mowing equipment to areas previously free of infestations.
 - Clean equipment which has been used in weed infested areas before moving it to another area. Make sure that borrowed or rented equipment is free of weed seeds by inspecting equipment before it enters your property. Or you can insist that the equipment must be cleaned first.

Cultural Control

- Cultural controls seek to control weed problems by establishing desired plant species.
- It mainly consists of seeding of disturbed areas with native dry land grass species mixtures suitable to the soil conditions present.
- Soils fertility testing and the addition of deficient soil nutrients may be needed in certain conditions.
- Contractors entering a weed management area (WMA) to perform activities related to cultural control should have in place a Weed Free Certification program.
- This will help to ensure that weed seed is not introduced into a WMA from off site by way of trucks, equipment and seed.
- Verify that all mud, field debris, and seed has been removed from the equipment in an offsite location before entering a WMA.

Cultural controls work best for:

- Re-establishing native plant communities on disturbed or depleted areas so desirable plants can prevent or reduce weed infestation through competition. Disturbances such as pipelines, temporary roads, and construction sites need to be re-seeded immediately once the work is completed.
- Large restoration projects. Cultivating is often necessary to reduce the number of weed seeds in the soil before planting desirable plant species.
- Cultivating for a year prior to reseeding kills weeds that have sprouted since the last cultivation and progressively reduces the bank of weed seeds.
- *Cultivation is not usually appropriate for natural areas because cultivation causes major disruption of established plant communities, and renders them susceptible to weed infestation.*

Limitations of Cultural Controls:

- Lack of availability of seeds from locally adapted plants.
- Lack of availability of seeds of certain native species, especially forbs (vegetation other than grass, such as wildflowers) and shrubs.
- Cultivating is not normally suitable for natural communities.
- Cultivating is appropriate only for restoration of drastically disturbed sites.

Pitfalls of Cultural Controls:

- Seed mixes may be contaminated with weed seeds.
- Cultivation may result in germination and establishment of weed species if there is not adequate follow-up weed control.
- Temporary cover crops such as wheat, rye or barley used to reduce soil erosion must be mowed or grazed to eliminate their seed production.
- Promoting weed growth by adding unneeded nitrogen fertilizers. Native plant species are generally adapted to low-nitrogen conditions, while weed species are adapted to high-nitrogen conditions.
- As previously noted, importing weed seeds on borrowed or rented equipment, or on shoes or clothing. You can reduce this risk by inspecting equipment and clothing before it enters your property, or you can insist that it must be cleaned first.

Biological Control

- Biological control agents are organisms (usually insects) that are deliberately introduced to an area to control weeds.
- The aim of biological control is not eradication, but rather to exert enough pressure on a weed to reduce its abundance to acceptable levels.
- These noxious weed species have biological control programs in Colorado:
 - Leafy spurge
 - Puncturevine
 - Russian thistle
 - Yellow and Dalmatian toadflax
 - Musk thistle
 - Canada thistle
 - Bull thistle
 - Purple loosestrife
 - Russian knapweed
 - Diffuse and spotted knapweed

Biological controls work best for:

- Reducing seed production or weakening plants.
- Large, dense infestations where other control methods are not cost-effective.
- Situations where a reduced but effectively permanent presence of a noxious weed species is acceptable.
- Typical areas suitable for biological control includes riparian areas, or areas near the water's edge where control by the application of herbicides or mechanical means is not possible.

Limitations of Biological Controls:

- Failing to eradicate the target plant species. Do not use biocontrol agents where you seek to eradicate a weed population. Eradication of weeds with biological agents never occurs.
- Use of biological control is an admission that a particular weed species is here to stay.
- Feasible for only a handful of weed species due to the high cost of finding, screening and testing potential control organisms. Biological controls have a mixed record with some tremendous successes but also with many failures.
- Lack of effective biological control agents for most noxious weed species, and they may not be available when you want them.
- Necessity of having a reservoir of host weeds to support biological agents over the long term.

Pitfalls of Biological Controls:

- Insects attacking beneficial, non-target plants. For example, the seed weevil that has been used to control musk thistle also attacks native thistles. There are indications that this weevil is adversely affecting a rare thistle in Colorado. Another weevil introduced for control of Canada thistle has been reported to attack native thistle species as well. Insects that have been released to control St.

Johnswort also feed on native Hypericum species, and some insects released for leafy spurge control also attack native spurge species.

- Inability to establish populations of biological control organisms for reasons relating to climate, soils and so forth that are not well understood

Chemical Control

- Chemical controls are herbicides formulated to kill or injure plants.
- There are many kinds of herbicides; some are derived from plants and others are manufactured synthetically.
- Herbicides can be classified in terms of their mode of action. These chemicals include growth regulators, amino acid inhibitors, grass meristem destroyers, cell membrane destroyers, root and shoot inhibitors and amino acid derivatives which interfere with plant metabolism in a variety of ways.
- The choice of which herbicide is best for a particular situation depends on the target weed species, the presence of desirable plant species, soil texture, depth and distance to water, and environmental conditions
- Herbicides can be selective or non-selective.

Chemical controls work best for:

- Eradicating some weed species in certain situations. Herbicides are most effective on pure stands of a single weed species where desirable non-target plants are scarce or absent. In this situation, one often has the option of selecting from several different herbicides.
- Small patches of weeds where hand pulling or cutting is not effective or feasible.
- Use in combination with other control methods. For example, Canada thistle can be controlled by repeated cutting during the growing season followed by treatment with a clopyralid herbicide in the fall. Tamarisk, Russian olive and Siberian elm can be controlled very effectively by cutting stems very close to the ground in the fall then immediately spraying or painting the cut stems with a herbicide.

Limitations of Chemical Controls:

- Damaging or killing non-target plants. Herbicides may not be completely selective in their toxicity to the target plant species. Effects on non-target plants can be minimized by selecting an appropriate herbicide.
- Difficulty of using herbicides to control small weeds when they occur among taller desirable plant species.
- Toxicity to humans to varying degrees. Thus, their use is regulated by federal and state laws. People who use herbicides need to know these regulations. Certain herbicides are classified as “restricted use herbicides” whose application is limited by federal and state regulations.
- Restricted use herbicides are often available only at licensed outlets by ordering through reputable distributors. You must be licensed by the Colorado Department of Agriculture to purchase and use them.
- Herbicides must be applied in conformance with the label. Applying an herbicide beyond the bounds specified on the label is illegal.
- Certain herbicides may not be used around or on water. This is an important consideration for weeds such as Canada thistle, perennial pepperweed, purple loosestrife, and tamarisk that grow in wetlands or riparian areas.
- One must possess the proper equipment and requisite knowledge to apply chemicals safely. Proper clothing must be used, and materials to contain spills must be on hand when using herbicides.
- Herbicides can move beyond the area where they are applied and affect non-target plants and animals.
- Populations of weeds may develop resistance to a particular herbicide over time.

Pitfalls of Chemical Controls:

- Like most other control methods, herbicides are short-term solutions that do not address reasons for weed problems in the first place. Therefore, spraying an herbicide treats a symptom of a problem. Even if an herbicide eradicates a weed infestation, another infestation may appear if the underlying cause of the infestation persists.
- Simplifying diverse plant communities by suppressing certain plant species, although this effect may be temporary.
- Herbicide applicators who cannot distinguish noxious weeds from desirable plant species, resulting in accidental damage to the latter.

Why an Integrated Approach is Important

- With herbicides, more is not necessarily better. Timing and application rates are the keys to good results. Rely on the information available from herbicide labels and research - it gives the best recommendations.
- It is important to find the appropriate chemical, and to use it in combination with other control methods.
- Reclamation and reseeding must be part of a weed control plan from the start. It is critical to prevent new weeds from taking over areas where other weeds have been killed.
- Public education is essential - try to get information about the weed problem out to the public, and use a variety of activities to communicate ideas.
- It is also helpful to lower your initial expectations of success, and tackle smaller patches and problems first.

Weed Prevention

Be Informed

- Become aware of the problem, and spread the word that noxious weeds are everyone's concern.
- Learn how to identify high-priority weed species in the field so you can spot them. Learn how to distinguish native species from weeds - especially native thistles.

Detect Weeds Early

- Periodically inspect your property to detect new weed establishment.
- Pay particular attention to areas such as riparian areas.
- Be extra vigilant where fill material is brought in from elsewhere; weed seeds in this material can start new infestations, and bare soil provides an ideal environment for weed establishment

Limit Dispersal

- Don't transport flowering plants that you cannot identify.
- Avoid transporting weed seeds which are stuck on clothing, gear or pets.
- Avoid driving in weed infested areas. Inspect vehicles for weed seeds stuck in tire treads or mud on the vehicle and prevent them from being carried to unaffected areas. Don't clean infested vehicles in weed free areas!
- Inspect maintenance or heavy equipment for weed seeds before it enters the property. Require that such equipment be cleaned first to remove weed seeds.
- If you find a small number of isolated noxious weeds that have no flowers or seeds, pull the weeds and leave them where you found them to dry out. If flowers or seeds are present, place the weeds in a plastic bag or similar container and dispose of properly.

Minimize Disturbances

- Don't drive through sensitive areas.
- Limit the formation of social trails.
- Avoid leaving piles of exposed soil in construction areas. Cover with plastic, and revegetate with native species as soon as possible. If possible, spread material excavated during construction back on the site instead of piling it on the side.

Establish and Maintain Native Plant Communities

- Re-seed drastically disturbed areas immediately after the disturbance ends. Perennial native grasses are especially valuable for re-seeding.
- Limit use of fertilizers when reseeded; their use may favor weeds over native perennial species.
- Avoid irrigating native areas. This inhibits healthy native stands and encourages weed infestation.