USDA Natural resources conservation service

arizona

Vegetation Management and control methods

The following target species and treatment methods are approved for use in conservation practice designs by NRCS Field Offices in Arizona.

| **SPECIES** | **TREATMENT METHOD** | **TIME** | **WHERE APPLICABLE** | **TECHNIQUES OF APPLICATION** |
| --- | --- | --- | --- | --- |
| BURROWEED (Isocoma tenuisectus) TURPINTINE BUSH (Ericameria laricifolia) | 1. Mowing or shredding | June-July | All stands. Treatment area must be open, free of surface stones, and relatively level | Clip as close to the ground as possible. Treatment area must be open, free of surface stones, and relatively level |
| 2. Plowing and seeding | Spring and fall, prior to seeding dates. Avoid treatment during seed production periods. Treatment needs to coincide with seeding dates | Heavy stands | Use a disk plow for effective control. Seeding is required as a follow-up practice. Treatment needs to coincide with seeding dates |
| 3. Prescribed burning. (Refer to Prescribed Burning Specifications) |  |  |  |
| 4. Imprinting/ seeding | May – June | Heavy stands with non-stony surfaces and slopes < 15 percent | Pull imprinter over brush to break crust and crush stems. Broadcast seeding of desirable species is required if needed for stand recovery |
| BURROWEED (Isocoma tenuisectus) TURPINTINE BUSH (Ericameria laricifolia) | 5. Chemical Treatment Methods. (Consult with certified herbicide applicators and/or product specimen labels.) |  |  |  |
| CATCLAW ACACIA (Acacia greggii) | 1. Root plowing | Spring and fall, prior to appropriate seeding dates | Medium to heavy stands on deep and moderately deep soils, in 10o or higher rainfall areas | Plow should be equipped with fins or kickers to bring roots to the surface. Cut roots at least 9o below soil surface. Range seeding is required as a follow-up measure |
| 2. Pushing | Any time | Light and medium stands | Plants must be cut off below the root zone to avoid crown resprouting. Catclaw will resprout from root ends left sticking out of the ground. These should be controlled during maintenance treatments |
| 3. Chemical Treatment Methods (Consult with certified herbicide applicators and/or product specimen labels) |  |  |  |
| CACTUS, CHOLLA(Opuntia sp.)CACTUS, PRICKLY PEAR (Opuntia sp.) | 1. Root cutting, grubbing, and stacking | Yearlong, except when soil is frozen | Deep, rock-free soils | Sever plants at least 3 inches below ground level. Plants may be left on the ground to dry, then stacked and burned |
| CACTUS, CHOLLA(Opuntia sp.)CACTUS, PRICKLY PEAR (Opuntia sp.) | 2. Cabling or chaining | After first hard frost, until about Jan. 15th. Good soil moisture is essential to insure that plants will pull up and not break off | Only applies to Cholla at elevations above 3500 feet | Pull a cable between two vehicles in such a manner that the cactus is pulled out of the ground and uprooted. The area should be treated on opposite directions. Recabling/railing the area during the summer dry season can greatly increase mortality |
| 3. Chopping | After first hard frost, until about January 15 | Dry soils above 3,500 feet elevation without physical | Pull roller chopper or land imprinter over cactus to break and crush stalks and pads  |
| 4. Imprinting/ seeding | March – May | Heavy stands with non-stony surfaces and slopes < 15 percent | Pull imprinter over cactus to break crust and crush moisture from stocks and pads. Broadcast seed to desirable species if required for stand recovery |
| 5. Prescribed Burning (Refer to prescribed burning conservation practice standard) | May and June | Grassland sites invaded by cholla and/or prickly pear | Burn to remove spines and graze with cattle to consume burned plants |
| 6. Chemical Treatment Methods (Consult with certified herbicide applicators and/or product specimen labels) |  |  |  |
| CHAPARRAL | 1. Rootplowing | Spring and fall, prior to appropriate seeding dates | Medium to heavy stands on deep and moderately deep soils. Slopes less than 15 percent | Plow should be equipped with fins or kickers to bring roots to the surface. Cut roots at least 12’ below soil surface. Range seeding is required as a follow-up measure |
| CHAPARRAL | 2. Crushing | Anytime | Medium to heavy stands on deep and moderately deep soils. Slopes less than 15% | Pull brush-crusher or land imprinter over site to break and crush vegetation. This practice must be followed with a prescribed burn or special grazing management program to release forage species. Manzanita will not sprout following crushing, seeds are heat scarified, thus prescribed burning is not recommended in areas where manzanita dominates |
| 3. Prescribed burning (Refer to prescribed burning conservation practice standard) |  | Medium to heavy stands on deep and moderately deep soils. Slopes less than 15% |  |
| 4. Chemical Treatment Methods (Consult with certified herbicide applicators and/or product specimen labels) |  | Medium to heavy stands on deep and moderately deep soils. Slopes less than 15% |  |
| CREOSOTEBUSH& TARBUSH (Larrea tridentata)/(Flourensia cernua) | 1. Root plowing, disking | Spring and fall, prior to appropriate seeding dates. | Medium to heavy stands on deep and moderately deep soils. Slopes less that 15 percent and average annual precipitation is greater than 12inches. | Plow should be equipped with fins or kickers to bring roots to the surface. Cut roots at least 2” below soil surface. Range seeding is required as a follow-up measure. |
| CREOSOTEBUSH& TARBUSH (Larrea tridentata)/(Flourensia cernua) | 2. Chemical Treatment Methods (Consult with certified herbicide applicators and/or product specimen labels) |  | Medium to heavy stands on deep and moderately deep soils. Slopes less that 15 percent and average annual precipitation is greater than 12inches. |  |
| JUNIPER & PINYON PONDEROSA PINEOneseed juniper(Juniperus monosperma)Alligator juniper(Juniperus deppeana)Pinyon pine(Pinus edulis) (Pinus monophylla)Ponderosa Pine(Pinus ponderosa) | 1. Hand grubbing, sawing. | Year long | Applicable on light to moderate stands or where slope or soils prevent the use of alternative methods. | Trees should be uprooted completely or if sawed, stumps should be less than 6” high, with all branches removed. Trees may be harvested for fuel wood or posts. Alligator juniper should be sawed only. |
| 2. Pushing | Yearlong, except when ground is frozen | Sites with slopes less than 15 percent. On sparse to medium stands, works better on smaller trees | Trees should be uprooted completely. Fuel wood and posts should be removed, if feasible before slash is wind-rowed or stacked |
| 3. Prescribed burning (Refer to prescribed burning conservation practice standard) |  |  |  |
| JUNIPER & PINYON Oneseed juniper(Juniperus monosperma)Alligator juniper(Juniperus deppeana)Pinyon pine(Pinus edulis) (Pinus monophylla) | 4. Chaining/ Cabling | Yearlong, except when ground is frozen or muddy | Even-age class trees with developed trunks on slopes less than 10 percent. Avoid alligator juniper areas with potential for reinfestation, and areas of cholla infestation | Use a heavy chain (70 pounds per link or heavier) and sufficient power to pull the chain 3 miles per hour. Down trees may be used for posts and fuel wood with slash scattered or stacked in piles. Back chain after leaves dry. Broadcast or drill seed to desirable species if required for stand |
| 5. Chainsaw with herbicide applied to cut stump. | Yearlong | Alligator juniper  | Cutting the juniper with a chainsaw and applying herbicide to the cambium on the cut stump per the product label/recommendations.  |
| 6. Chemical Treatment Methods (Consult with certified herbicide applicators and/or product specimen labels) |  |  |  |
|  | 7. Shearing/ Grinding | Yearlong, except when ground is wet/muddy | Juniper/ Pinyon pine dominated sites with slopes less than 15 percent. Works best on light to medium density stands. Avoid alligator juniper areas with potential for reinfestation | Remove all live plant parts within 4 inches of soil surface. Fuel wood and posts should be removed, if feasible, before slash is wind-rowed or stacked. If slash is to be ground or mulched, then height of slash should not inhibit wildlife habitat requirements. |
| MESQUITE(Prosopis sp.) | 1. Sawing. | Yearlong | Large trees, suitable for firewood | Apply oil or diesel around the trunk to penetrate to the lowest bud zone. Saturate until puddling occurs |
| 2. Pushing/ dozing | Anytime | Light and medium stands | Use corner of dozer blade or blade equipped with a stinger or fin to insure that plants are uprooted or cut off below the root zone (14 inches below soil surface) to avoid crown resprouting |
| 3. Basal oil treatment | In the spring, when plant growth is between full leaf and seedpod formation. Soils should be dry | Scattered stands and spot treatments of single stemmed plants only | Apply oil or diesel around the trunk to penetrate to the lowest bud zone. Saturate until puddling occurs |
| MESQUITE(Prosopis sp.) | 4. Root plowing | Spring and fall, prior to appropriate seeding dates | Medium to heavy stands on deep and moderately deep soils, in 10” or higher rainfall areas | Plow should be equipped with fins or kickers to bring roots to the surface. Cut roots at least 14” below soil surface. Range seeding is required as a follow-up measure |
| 5. Cabling or chaining | Winter and early spring before frost leaves the ground | Areas of mature trees with sufficient desirable understory vegetation to repopulate the site. Slopes should be less than 15 percent | Pull a cable between two vehicles in such a manner that the trees are pulled out of the ground and uprooted. The area should be treated in both directions. Chains with at least 70 pound links work most effectively |
| 6. Grubbing (Hand and Mechanical) | Yearlong | Hand - Areas of small widely scattered trees. Mechanical - Medium to heavy stands on deep and moderately deep soils.  | Sever plants below bud zone and remove plant completely from the ground. Grubbing must remove entire crown as plants readily sprout from roots, crown and stems.  |
| 7. Prescribed Burning (Refer to prescribed burning conservation practice standard) | May and June | Grassland sites invaded by trees | Fire will control a high percent of trees under one-inch stem diameter. Trees bigger than that will sprout. |
| 8. Chemical Treatment Methods (Consult with certified herbicide applicators and/or product specimen labels) |  |  |  |
| RABBITBRUSH  rubber rabbitbrush(Ericameria nauseosa)Douglas rabbitbrush(Chrysothamnus visidiflorus)Greene rabbitbrush (Chrysothamnus greenei) | 1. Rootplowing | Spring and fall, prior to appropriate seeding dates | Medium to heavy stands on deep and moderately deep soils, in 10” or higher rainfall areas | Plow should be equipped with fins or kickers to bring roots to the surface. Cut roots at least 6” below soil surface, Range seeding is required as a follow-up measure |
|  | 2. Plowing and seeding | Spring and fall, prior to seeding dates. Avoid treatment during seed production periods | Medium and heavy stands on deep and moderately deep soils, in 10” or higher rainfall areas. Insufficient desirable species are present | Use a disk plow for effective control. Seeding is required as a follow-up practice. Treatment needs to coincide with seeding dates |
| 3. Chemical Treatment Methods (Consult with certified herbicide applicators and/or product specimen labels) |  |  |  |
| SAGEBRUSHWyoming big sagebrush(Artemisia tridentata, Wyomingensis)basin big sagebrush(Artemisia tridentata, tridentata)sand sagebrush(Artemisia filifolia) | 1. Plowing and seeding | Spring and fall, prior to seeding dates. Avoid treatment during seed production periods | Medium and heavy stands on deep and moderately deep soils, in 10” or higher rainfall areas where insufficient remnants of desirable species are present | Use a disk plow for effective control. Plants would be severed at least 3 inches below ground level. Seeding is required as a follow-up practice. Treatment needs to coincide with seeding dates |
|  | 2. Shredding or mowing | Full leaf stage. May, June and July | Mature, even-age stands with sufficient desirable understory vegetation to repopulate the site. Limited to sites that are free of rabbitbrush and rocks | Remove all plant parts to within 4 inches of the soil surface. Follow-up treatment may be necessary |
| 3. Chopping | Late winter | Medium to heavy stands on deep and moderately deep soils. Slopes less than 15 percent that are free of rabbitbrush, snakeweed and rocks | Pull brush crusher or chopper over site to break and crush vegetation. This practice must be followed with a prescribed burn or special grazing management program to release forage species |
| 4. Cabling or chaining | Winter and early spring before frost leaves the ground | Level areas with sufficient desirable understory vegetation to repopulate the site | Pull a cable between two vehicles in such a manner that the brush is pulled out of the ground and uprooted. The area should be treated on opposite directions. Ely chain works effectively |
| SAGEBRUSHWyoming big sagebrush(Artemisia tridentata, Wyomingensis)basin big sagebrush(Artemisia tridentata, tridentata)sand sagebrush(Artemisia filifolia) | 5. Prescribed burning (Refer to prescribed burning conservation practice standard) |  |  |  |
| 6. Chemical Treatment Methods (Consult with certified herbicide applicators and/or product specimen labels) |  |  |  |
| SNAKEWEED (Gutierrezia sarothrae)(Gutierrezia microcephala) | 1. Root cutting or grubbing | Yearlong, except when soil is frozen | Deep, rock-free soils. Light stands | Sever plants at least 3” below ground level with a grubbing hoe |
| 2. Prescribed burning (Refer to prescribed burning conservation practice standard) |  |  |  |
| 3. Imprinting/ seeding | May – June | Heavy stands with non-stony surfaces and slopes < 15 percent | Pull imprinter over brush to break crust and crush moisture from stems. Broadcast seeding of desirable species is required if needed for stand recovery |
| 4. Chemical Treatment Methods (Consult with certified herbicide applicators and/or product specimen labels) |  |  |  |
| SALT CEDAR (Tamarix ramosissima) | 1. Root plowing, grubbing | Spring and fall, prior to appropriate seeding dates | Medium to heavy stands on deep and moderately deep soils, in area where there is little danger of streambank erosion or damage to riparian habitat | Plow should be equipped with fins or kickers to bring roots to the surface. Cut roots at least 12” below soil surface. Grubbing must remove entire crown because saltcedar readily sprouts from roots, crown and stems |
| 2. Pushing | Yearlong, except when ground is frozen | Medium to heavy stands on deep and moderately deep soils, in area where there is little danger of stream bank erosion or damage to riparian habitat | Trees should be uprooted completely. Fuel wood and posts can be removed, if desired before slash is wind rowed or stacked |
| 3. Chemical Treatment Methods (Consult with certified herbicide applicators and/or product specimen labels) |  |  |  |
| WAIT-A-MINUTE/ WHITEHORNWait-a-minute(Mimosa biuncifera)Whitethorn(Acacia constricta) | 1. Root plowing | Spring and fall, prior to appropriate seeding dates | Medium to heavy stands on deep and moderately deep soils, in 10” or higher rainfall areas and slopes less than 15 percent | Plow should be equipped with fins or kickers to bring roots to the surface. Cut roots at least 6” below soil surface. Range seeding is required as a follow-up measure |
| 2. Pushing | Any time | Light and medium stands | Plants must be uprooted or cut off below the root zone to avoid crown resprouting |
|  | 3. Basal oil treatment | In the spring, when plant growth is between full leaf and seedpod formation. Soils should be dry | Scattered stands and spot treatments of single stemmed plants only | Apply oil or diesel around the trunk to penetrate to the lowest bud zone. Saturate until puddling occurs |
| WAIT-A-MINUTE/ WHITEHORNWait-a-minute(Mimosa biuncifera)Whitethorn(Acacia constricta) | 4. Hand grubbing | Yearlong | Areas of small, widely scattered trees | Sever plants below bud zone and remove plant completely from the ground |
| 5. Chemical Treatment Methods (Consult with certified herbicide applicators and/or product specimen labels) |  |  |  |