

## SECTION 407. LANDSCAPING REQUIREMENTS.

### A. PURPOSE AND INTENT

The provisions set forth in this Section are designed to provide standards for the installation of landscaping and irrigation, site stabilization, preservation of natural open space, re-vegetation and enhancement of development projects within the City of Cottonwood so as to promote and protect the public health, safety, and general welfare of the community. The standards are intended to protect and enhance property values, conserve water resources, enhance aesthetic qualities, and improve the quality of life for both residents and visitors in Cottonwood.

### B. APPLICABILITY

1. Landscaping is required for all new buildings, structures and uses of land which are to be hereafter erected, constructed, converted, established, altered, or enlarged within the City of Cottonwood, as follows:
  - a. Proposed Development: The provisions of this Section shall apply to all sites, buildings, structures and signs, except single-family residences not otherwise part of a planned area development, which are to be hereafter erected, constructed, or established within the City of Cottonwood.
  - b. Existing Properties: The provisions of this Section shall apply to existing development, except single-family residences not otherwise part of a planned area development, which are to be hereafter remodeled, converted, altered, or enlarged after the effective date of this ordinance, or when there is a change in the distinguishing traits or primary features of the use of a building or land as evidenced by increased parking requirements, change in occupancy designation, change in outside storage, or other such features and changes which occur after the effective date of this Ordinance. The use of a building or land shall refer to the primary or specific purpose for which the building or land is occupied, designed, intended or maintained. Landscaping requirements for existing developments shall be further defined, as follows:
    - 1) Minimum quantities of landscaping shall be provided for such changes to existing properties in direct relation to those additions, alteration or changes.
    - 2) Additional landscaping may be required as a condition of approval for rezoning, conditional use permits or development review, as necessary to address screening, compatibility of uses, consistency with existing conditions or aesthetic considerations.

## C. LANDSCAPE PLAN REQUIREMENTS.

### 1. Landscape Plan Submittal and Review.

- a. A landscape plan shall be provided for all new development, except for single family residential and manufactured homes. For building additions or expansion of existing development a landscape plan shall be provided to indicate landscaping required in association with the new development.
  - b. Landscape plans shall be prepared by a landscape architect, architect, landscape designer or other qualified professional.
  - c. The following items shall be included on the landscape plan:
    - 1) Project name and location, address, and Assessor's parcel number/s;
    - 2) Property owner, applicant and designer's name, address, phone number and contact information;
    - 3) Scale (bar and numerical) and north arrow;
    - 4) Property lines, lot dimensions, adjacent rights-of-way, building foot prints, parking lots, driveways, drainage structures, pedestrian and circulation areas, and other existing features and site improvements, drawn to scale with appropriate dimensions;
    - 5) Proposed landscaped areas with total area (in square feet) provided. The location, size, and type of all proposed plant and non-plant materials, including any existing vegetation or landscape features to be retained, shall be shown on the plan with unique symbols for different types of plants indicated on a corresponding identification key;
    - 6) A plant identification key which includes both common and botanical plant names, sizes (container size or trunk diameter) and quantities for each;
    - 7) Proposed contour lines based on an approved grading plan drawn to a scale adequate to interpret the topography (2' or 5' contours); and
    - 8) Indicate natural open space areas and significant topographical features to be maintained, including natural drainage features, washes, floodplains, steep hillsides, rock outcroppings and similar features.
2. Irrigation Plan. Irrigation systems shall be designed to maximize efficient water use and minimize the waste of water, according to the following:
- a. An irrigation system shall be provided with the initial installation of all landscape plant material unless an alternate method for watering plants is approved.

- b. The irrigation system shall be maintained until such time as low-water use, drought tolerant plants are self-sustaining, which in no case shall be less than three (3) years. It shall remain the responsibility of the property owner and/or tenant/s to ensure adequate watering is provided for maintenance of the plants.
  - c. For development with greater than 10,000 square feet of landscaping area, a separate irrigation plan is required at the same scale and dimension as the landscape plan. Indicate location and size of all irrigation pipes on the plan. Show location of backflow prevention device and source of water.
  - d. Design irrigation systems to accommodate planting groups with similar watering requirements. Plants that require moderate water, including some riparian type plants, fruit trees, turf areas and decorative flowers, should generally be grouped together. Low water use plants with similar requirements should also be grouped together for irrigation purposes.
  - e. The use of reclaimed water from an approved treatment facility, techniques to capture rainwater runoff, and other alternative methods of irrigation are encouraged. Indicate alternative water collection features, including rainwater and greywater sources, and related techniques on the irrigation plan.
  - f. A waiver from all or part of the automatic irrigation system requirements may be approved by the Planning Director for projects which demonstrate an adequate means of watering through alternative practices, including a comprehensive xeriscape program with rainwater and greywater harvesting, or other approved techniques.
3. Revisions that significantly modify approved development plans or site plans shall require revised landscape and irrigation plans to be submitted and approved.
  4. If a project is developed in phases, the required landscaping and screening must be completed in sequence with development phases, as shown on the landscape plan. For phased projects approved in connection with a change of zoning, conditional use permit or subdivision plat, all or part of the landscape plan may be required to be installed with the first phase, so as to address screening and buffering, continuity along streets or other design objectives.

#### D. GENERAL REGULATIONS.

1. Applicability. The provisions of this section shall apply to all parcels within the city limits of Cottonwood, except single family residential uses not otherwise part of a planned area development.
2. Undeveloped areas. All portions of the development site not occupied by buildings, structures, vehicle access and parking areas, loading / unloading areas, and approved storage areas shall be landscaped in accordance with these provisions.

3. Landscape ground treatment. The portions of the required landscape area that do not have trees, shrubs and other plants shall be covered with decomposed granite, organic mulch or acceptable alternative.
4. Phased development. Future building pads within a phased development shall be improved with temporary landscaping, or otherwise maintained weed-free in such a manner as may be approved by the director. Disturbed portions of future development areas approved for phased development shall be treated with approved landscape material or covered with an approved aggregate groundcover, such as decomposed granite or gravel.
5. Maintenance. The property owner or tenant/s shall maintain all plants and landscape materials in accordance with approved plans. Dead or missing trees or plants must be replaced.
6. Right-of-way Landscaping. It shall be the responsibility of the developer to provide and maintain landscaping in the street right-of-way area contiguous with their development site for all areas not used for streets, driveways, sidewalks, curbs, gutters and other similar development. Proposed and existing landscaping within abutting right-of-way must be shown on landscape plan.
7. Curbs. Where wheel stops are required to prevent vehicular intrusion into landscape areas, continuous curbing shall be installed, except for openings to allow pedestrian connections, drainage structures and to allow collection of rainwater runoff for adjacent landscaping areas.
8. Trash and Refuse Collection Area. Where visible from the street and/or public parking areas, trash enclosures shall have a masonry screening wall enclosure with landscape buffering treatment. Gates and doors, which may be wood or chain link with slats shall be oriented away from any streets, driveway entrance or from a primary building entrance.
9. Certificate of Occupancy. Landscaping must be installed prior to issuance of a Certificate of Occupancy or receiving a final inspection from the City of Cottonwood. If the landscaping cannot be installed due to seasonal or weather related issues, or some other authorized reason, the owner shall provide the Community Development Director with a written request to allow occupancy prior to completion of landscaping.

#### E. LANDSCAPING STANDARDS

The landscaping requirements for a development site shall be based on the separate design calculations for Street Frontage, Interior Property Lines, Parking Lots and Building Area Landscaping. Where such areas overlap, an exception shall be granted to allow the concurrent calculation of such landscape material where the intent of each section is determined to be addressed. Additional landscaping may be required with Open Space Areas, Retention Basins and undeveloped areas of a site.

1. Street Perimeter Landscaping.

- a. The required landscape areas adjacent to street frontages shall be considered exclusive of parking areas, interior drive aisles and building structures. The street landscape yard shall be maintained with plant materials and groundcovers but may include sidewalks, driveway crossings, signs, utility equipment, low decorative screen walls and retention basins.
- b. Landscaping in the Right-of Way: Landscaping of undeveloped right-of-way between the property line and the constructed street edge is required in addition to the minimum on-site landscaping requirements. Right-of-way landscaping shall be limited to decomposed granite, ground cover, low shrubs and other approved low water use plants. Trees may be located in the right-of-way where approved by the City so as to not impact site visibility standards for vehicles.
- c. Street Frontage Landscaping:
  - 1) Arterial Streets and Highways: Minimum fifteen feet (15') landscape yard width measured from the right-of-way line.
  - 2) Collector Streets and all other streets: Minimum ten feet (10') landscape yard measured from the right-of-way line.
  - 3) Number of Plants: The required number of plants shall be based on the total lineal length of the property line for the landscape area where at least one (1) tree and three (3) shrubs shall be calculated per twenty-five (25) linear feet of adjacent property line. Plants may be clustered according to xeriscape principles, as long as the total number included is based on the length of the landscape area.
  - 4) Size of Plants: Required trees shall be at least fifteen (15) gallon size tree. Shrubs shall be minimum 1 gallon size.
- d. Street Frontage Exceptions:
  - 1) Where the buildings and structures are located directly abutting a public sidewalk, such as in the Cottonwood Commercial Historic District or proposed developments with pedestrian-oriented streetscape design, the landscaping between the building and the street may be limited to trees wells in the sidewalk and/or landscape planters next to the building.
  - 2) Parcels and development sites that are one (1) acre or less in area or have less than 100 feet of lineal frontage on a street may reduce the street frontage landscape yard on that street frontage to ten (10) feet in width measured back from the property line.
  - 3) For automobile or vehicle sales uses that include vehicle display located along street frontage, the landscape area in front of the vehicle display may be reduced to a 5 feet strip planted with low shrubs and groundcovers.

## 2. Interior Property Line Landscaping.

- a. Perimeter Landscaping: Required landscaped areas adjacent to the property lines of the site shall be installed with the first phase of construction when adjacent to residential districts or uses.
- b. Landscaping Adjacent to Single Residence Uses:
  - 1) Landscape Yard Width: Minimum twelve (12) feet measured from the common property line.
  - 2) Number of Plants: The required number of plants shall be based on the total lineal length of the property line for the landscape area where at least one (1) tree and three (3) shrubs shall be calculated per twenty-five (25) linear feet of adjacent property line.
  - 3) Size of Plants: Required trees shall be at least fifteen (15) gallon size tree. Shrubs shall be minimum 1 gallon size.
- c. Landscaping adjacent to other than Single Residence Uses:
  - 1) Where required through a change of zoning, conditional use permit, variance, subdivision plat or other development application, interior property line landscaping may be required for purposes of screening, buffering or to provide continuity of development or other aesthetic purposes.
- d. Exceptions to Interior Property Line Landscaping:
  - 1) Landscaping between similar industrial and outdoor storage uses may be eliminated, including for outdoor storage yards, processing uses, warehousing, and mini-storage facilities.

## 3. Parking Lot Landscaping:

- a. Applicability: The interior parking lot landscaping standards of this section shall apply to new and expanded off-street parking lots. These standards shall not apply to vehicle/equipment storage lots or vehicle/equipment sales lots. Standards for Parking and Loading Requirements are found in Section 406 of this ordinance.
- b. Landscape Islands:
  - 1) Parking lot landscape islands shall be installed at each end of a row of stalls and in between to allow a maximum of fifteen (15) contiguous parking spaces.
  - 2) Landscape islands shall be a minimum of eight (8) feet wide and fifteen (15) feet in length for single-row and thirty (30) feet in length for double-row parking. All measurements are from face of curb.

- c. Medians: Where divider medians occur adjacent to head-in parking, allow for vehicle overhang as follows:
    - 1) Single-row parking: Minimum six (6) feet landscape area measured from face of curb to face of curb. Minimum median width does not include any sidewalk.
    - 2) Double-row parking: Minimum eight (8) feet landscape area measured from face of curb to face of curb. Minimum median width does not include any sidewalk.
    - 3) Sidewalks integrated with parking lot landscape medians shall be a minimum of five (5) feet in width. Excessively meandering sidewalks shall be avoided.
  - d. Parking Lot Plant Materials:
    - 1) Number of plants: Parking lot landscape islands: Provide one (1) shade tree and minimum two (2) shrubs for each single-stall parking island. Provide two (2) shade trees and four (4) shrubs for every double-stall parking island.
    - 2) Median Dividers Islands: In addition to the above requirements, where landscaped medians are provided there shall be a minimum of one (1) shade tree and five (5) shrubs for every fifteen (15) parking spaces.
    - 3) Size of Plants: Required trees shall be at least fifteen (15) gallon size tree. Shrubs shall be minimum 1 gallon size.
  - e. Construction Materials: Landscape islands or planter areas located adjacent to parking or drive aisles shall provide poured-in-place continuous concrete curbing or continuous concrete wheel stops, except for openings to allow pedestrian connections, drainage structures and to allow collection of rainwater runoff for adjacent landscaping areas.
4. Building Area Landscaping:
- a. Applicability: New building and building additions shall provide plant materials, including trees, shrubs, ground covers and/or accent plants in the areas adjacent to the building with emphasis on locations in proximity to the building entries and pedestrian areas.
  - b. Standards for Landscaping Adjacent to Buildings:
    - 1) Landscape planting areas: Provide minimum three (3) feet wide landscape area for shrubs and groundcovers and minimum five (5) feet wide landscape area for trees

- 2) Building Entrances: For large scale retail, theaters, office buildings, hospitals, schools, churches and other uses which typically have large pedestrian movement at building entries, it may be necessary to provide additional pedestrian area at the entrance to ensure there is adequate entry plaza area and/or drop-off area.
  - 3) Exterior walls: For all exterior walls visible from public parking or right-of-way: provide landscape area equal in length to twenty-five percent (25%) minimum of adjacent exterior wall with a minimum landscape area at least three (3) feet by five (5) feet in plan dimension.
  - 4) Number of Trees: Minimum one (1) tree per fifty (50) linear feet or less of exterior wall length of a building for front and sides of building. Trees in parking lot landscape islands and within thirty (30) feet of the building may be counted toward this requirement.
  - 5) Setback for raised planter boxes: Raised planter boxes shall be setback a minimum of five (5) feet from the face of curb at drive aisles and parking stalls.
  - 6) Setbacks for columns, low landscape walls and similar building features: Columns or walls shall be setback a minimum of five (5) feet from the face of column or wall to the face of curb at drive aisles and parking stalls.
  - 7) Pedestrian Areas:
    - a) Sidewalks adjacent to buildings shall be a minimum of five (5) feet wide.
    - b) Attached sidewalks with adjacent head-in parking spaces: Add at least two (2) feet extra to sidewalk width to account for vehicle overhang.
    - c) Provide shade trees and landscaping for walkways, courtyards, plazas and other pedestrian circulation areas.
  - 8) Size of Plants: Required trees shall be at least fifteen (15) gallon size tree. Shrubs shall be minimum 1 gallon size.
- d. Building Landscape Exceptions:
- 1) Loading and Service Areas: Landscaping is not required along exterior walls at loading and service areas not visible from the street or public parking areas. Supplemental landscape screening may be required between a loading or service area visible from the street or public parking area.
  - 2) Landscape at Pick-Up Window: Landscaping is not required at the pick up window. If a landscape area is provided along the exterior wall adjacent to a drive-through lane, the planting area shall be at least two (2) feet wide.
  - 3) Outdoor Storage Areas: No landscaping is required for the interior perimeter of outdoor storage areas that are screened from public view.

- 4) Mini-Storage Facilities: Exterior areas at public entrances for mini-storage facilities, driveway entrances and street frontage area surrounding such facilities shall require landscaping as per this ordinance. No landscaping is required where the exterior wall of a mini-storage structure is located on an interior property line or for the interior building layout, unless required as a condition of approval.

## F. LANDSCAPE WATER CONSERVATION

1. Xeriscape Landscaping. Landscape plans shall incorporate xeriscape principles to the greatest extent possible so as to achieve the best results for water conservation goals. “Xeriscape” refers to a landscaping technique that includes the use of drought-tolerant, low water use plants and supporting management practices.
2. Rainwater Harvesting. Rainwater harvesting is the capture, diversion, and storage of water for plant irrigation and other uses. It is appropriate for large scale landscapes such as parks, schools, commercial sites, parking lots, and apartment complexes, as well as small-scale and single-family residential landscapes.
  - a. Water collection and distribution systems: Water harvesting systems range from simple to complex. In a simple system the rainwater is collected on-site and diverted to the landscape planting area for immediate use. Complex systems may include more elaborate rainwater storage components for slower release or a combination of controlled release areas to direct water to different areas of a site. Most existing sites can be adapted with simple water harvesting improvements. New construction can be designed to include water harvesting techniques.
  - b. Simple water harvesting system: Roof catchment, gutters, downspouts and bermed landscape holding area. A simple system usually consists of a catchment area, and a means of distribution, which operates by gravity. The water is directed to a landscape area, usually a concave area or basin, where it can be used immediately by the plants. A catchment area is any area from which water can be harvested, including roofs, paved areas or the ground surface. The amount of water harvested from each rainfall event depends on the size, surface texture, and slope of the catchment area.
  - c. Complex water harvesting system: Components of complex systems that utilize water storage include catchment areas, usually a roof, conveyance systems, storage, and distribution systems to control where the water goes. The steps involved in designing a complex water harvesting system include site analysis, calculation, design, and construction. If the project is complicated, either because of its size or because it has numerous catchments and planting areas, divide the site into sub-drainage areas.
  - d. Distribution systems: The distribution system connects the catchment area to the landscape area. Distribution systems direct water flow, and can be simple or sophisticated. Components of distribution system include the following:
    - 1) Gutters and downspouts to direct roof water to a landscape area;
    - 2) Sloped hillsides direct water from a catchment area to a landscape area;

- 3) Channels, ditches, and swales all can be utilized to move water. Elaborate open channel distribution systems may require gates and diverters to direct the water from one area to another;
  - 4) Standard or perforated pipes and drip irrigation systems can be designed to distribute water; and
  - 5) Curb cutouts can channel street or parking lot water to planted areas. Gently sloped sidewalks distribute water to a planted area.
3. Parking Lot Water Harvesting Techniques: Parking lot design shall be encouraged to employ rainwater harvesting techniques to allow diversion of runoff to adjacent landscape areas wherever possible. Swales, gutters, curb openings and scuppers should be used to direct runoff water to adjacent landscape areas. Where possible, the surface elevation of the landscape area should be lower than surface of the adjacent parking lot so the water may easily drain to the landscape basin.
  4. Street and Pedestrian Area Runoff Water Harvesting. Rainwater runoff can be diverted to landscape planting along streets through the use of techniques such as strategically placed curb cuts and scuppers to direct rainwater to landscape swales and catchment basins. Drainage patterns in hardscaped pedestrian areas should be designed to direct runoff to landscaped areas, including tree wells with grates or integrated basins.
  5. Fruit Trees and Edible Plants. The opportunity to integrate food producing plants into the developed landscape provides a range of attractive benefits; however, fruit and nut trees planted in this area generally require large quantities of water to thrive as healthy plants. Edible plants and trees proposed as part of required landscape plans need to be located within landscape areas designed to capture as much natural rainwater and runoff as possible. Where such trees and plants are located in non-riparian areas, water harvesting techniques, including interconnected basins and catchments, should be used in the site design to serve those trees and plants.

#### G. ADDITIONAL LANDSCAPING REQUIREMENTS

1. Open space. Open space shall be identified as an integral part of a development. Open space shall include both developed areas and natural undisturbed areas.
2. Buffering and Screening:
  - a. As per the standards set forth in this Ordinance, landscape buffering is required between non-residential uses and residential uses, and between multi-family residential and single family uses.
  - b. Buffering may consist of landscape screening, including trees and shrubs, solid masonry walls, grade changes or berms, or a combination of design components.

3. Maintenance:

- a. The property owner, tenant or lessee shall maintain or cause to be maintained all landscape materials and landscaped areas in accordance with the approved landscape plan. Maintenance shall include regular irrigation, weeding, fertilizing and pruning, as necessary to ensure the survival of plant material.
- b. The Planning Director, or designee, shall provide the property owner and/or the tenant or lessee written notice of dead or missing landscape material in violation of the approved landscape plan, and they shall allow at least ninety (90) days time to provide for the replacement of such materials.

4. Backflow Prevention Device Screening Requirements.

- a. Purpose: Backflow prevention devices are installed in commercial projects to prevent water from private users from flowing back into the main line, possibly contaminating the entire system. Backflow prevention assemblies are mechanical devices that are typically installed above ground at or near the property line in proximity to the connection with the city water line. The standards in this section provide a method to screen backflow prevention devices from public view in a manner that integrates with the overall design of a development.
- b. Applicability: Backflow Prevention Device Screening Guidelines shall apply to all such assemblies and equipment installed within the City of Cottonwood for commercial, industrial, institutional and multi-unit residential developments. Single-family residential development not in a planned area development shall be exempt from these requirements.
- c. Design Standards: The location of the water line and backflow assembly shall be considered as early as possible in the design process. The location of the backflow prevention device shall be shown on the preliminary site plan so as to coordinate the screening requirements with the best location for the assembly. It shall be located in a manner that minimizes visibility from public view while providing all necessary access for safety and maintenance, as per the following:
  - 1) All backflow prevention devices two (2) inches in size or less shall be covered by a wire mesh basket-type cover. The basket and assembly shall be painted a similar color, which needs to be compatible with the building design or landscape features.
  - 2) All backflow prevention devices greater than two (2) inches in size shall be screened from view from adjacent streets by a combination of a low masonry wall and landscaping. The screening wall shall be comprised of decorative block, stone, stucco or other masonry material that is 36 inches to 40 inches in height above grade and at least six (6) feet in length along one side screening the assembly.
  - 3) The masonry screening wall shall be constructed with materials, colors and design details that compliment the overall development theme, including building architecture, site features or landscaping.

- 4) Where landscaping is included with required screening features for larger assemblies, there shall be a minimum of three (3) shrubs that are each five (5) gallon size or larger when planted.
  - 5) If insulating bags are used to cover the assembly so as to prevent the devices from freezing, the color of the cover shall be compatible with the overall screening treatment, including site walls, landscaping plants and groundcover material. If a device is screened by a wire mesh basket and includes an insulating bag underneath, they need to be the same or similar color and the color needs to be compatible with the building walls, site walls or landscape features.
- d. Backflow Device Screening Options: Options to the masonry screening wall for the backflow prevention device may be considered through the Design Review process subject to one or more of the following conditions:
- 1) A freestanding monument sign with an architecturally integrated base may be considered in place of the masonry wall as screening for the backflow prevention device.
  - 2) Rocks, boulders or similar natural materials used as landscape elements.
  - 3) Portions of buildings and architectural features that project into the landscape in an integrated manner.
  - 4) Utility cabinets, trash enclosures and similar utility features that may be located within the landscape area, provided such features include integrated landscaping materials and design features.

#### H. COTTONWOOD AREA LANDSCAPE PLANT LIST

1. Purpose and Intent: The Cottonwood Area Plant List provides recommended plants for Cottonwood, Arizona. The list includes both native and adaptive plants that are appropriate for landscaping in the area of Cottonwood. Native plants are indigenous to this area and are the best suited to the climate and location. Other non-native, low water use plants that may be suitable for this climate and environment are said to be adaptive.
2. Plant Communities: The Cottonwood Area Plant List is organized according to plant communities, which are defined as associations of plants within a common environment that interact with each other in an interdependent manner. For Cottonwood, there are two dominant plant communities, which are identified as the following:
  - a. Upper Sonoran Chaparral. The dry rocky slopes above 3,500 feet elevation between the river corridor and the mountain foothills are characterized by a chaparral-type plant community. Grasses, cactus, trees and small shrubs in these areas tend to be drought tolerant and well adapted to hot summers and cold winters.

- b. Riparian. The Verde River corridor and intersecting side washes include a number of trees and plants that are specifically adapted to the river and wash drainage environments and are generally not recommended for use outside of those areas due to higher water requirements. However, many plants, such as various cactus varieties, grow naturally and thrive in both desert riparian areas and dry upland hillsides so there may be more flexibility with plant choices in the riparian and wash areas.
3. Modification of the Plant List for Cottonwood: For approved landscape plans, proposals to modify the plant list may be submitted to the Planning Director for administrative approval where such plants meet the criteria for appropriate low-water use landscaping. For development applications requiring approval by the Planning and Zoning Commission, proposals to modify the plant list may be submitted with the application. The Commission shall have the authority to approve or deny modifications to the Plant List where such plants are deemed as appropriate based on the criteria as described in this ordinance.
  4. Prohibited Plants: The following plants shall not be approved for use with required landscape plans due to their tendencies as high water use plants, invasive species and/or high-pollen producing characteristics. Plants with these characteristics should generally be avoided for landscape plantings in the Cottonwood area.
    - a. Common Bermuda Grass (*Cynodon dactylon*) Weed grass that is known for its profuse production of allergy-producing pollen.
    - b. Desert Broom (*Baccharis sarothroides*). At one time planted in disturbed areas to control erosion due to its ability to spread quickly and take hold in sandy soil and steep hillsides. Weed plant that tends to spread airborne seeds widely. Not recommended as landscape plant due to tendency to take over areas.
    - c. Red Brome (*Bromus rubens*). Non-native winter grass spreads easily and becomes fuel for wildfires in dry season.
    - d. Fountain Grass (*Pennisetum setaceum*). Self-seeding perennial bunchgrass used as landscape accent plant is defined as a weed with the potential to spread widely and become a fire hazard.
    - e. (Male) Mulberry Tree (*Morus, male var.*) Noxious pollen producers should generally be avoided, especially near residential development. (Male varieties create pollen; Female mulberry are acceptable)
    - f. Oleander (*Nerium oleander*) Common landscape plant used for screening. Large shrub considered invasive and highly toxic.
    - g. Olive Tree (*Olea europaea*) Known for profuse production of allergy-producing pollen. "Swan Hill," "Wilson Hill" and similar non-flowering varieties that produce no pollen may be considered. Fruiting varieties can cause problems due to dropped fruits that stain pavement and harm turf and other vegetation.

- h. Russian Olive (*Elaeagnus angustifolia*) Fast growing, hardy tree used to provide screening and barriers along highways. Non-native invasive tree, spreads easily, colonizes disturbed areas, including washes and wetlands, reduces diversity, out-competes native species, and taxes water reserves.
- i. Pampas Grass (*Cortaderia selloana*). Fast growing, tall clump grass has a tendency to spread seeds over wide area and choke out native plants.
- j. Paradise Tree (*Ailanthus altissima*). Also known as Tree-of-Heaven, is a non-native, highly invasive weed tree that originated in China. Fast growth to fifty feet, tends to drop branches, invasive roots, hard to control.
- k. Giant Reed (*Arundo donax*). Large, fast-growing non-native grass planted as windbreak, for erosion control and as dramatic landscape feature is extremely invasive and difficult to control. Tends to crowd out native landscape
- l. Russian Thistle (*Salsola tragus* & *Salsola iberica*). Small shrub, also known as Common Tumbleweed, grows two to four feet in diameter. When dry the prickly bushy ball of stems breaks off at base allowing the plant to roll in the wind scattering thousands of seeds.
- m. Tamarisk (*Tamarix chinensi*) Aggressive invasive tree or large shrub, also known as Saltcedar, is a heavy water user and crowds out native streamside vegetation. Usually found near rivers and streams or sometimes along dry washes.

## CHAPARRAL AND DRY HILLSIDES

COMMON NAME	SCIENTIFIC NAME	SIZE/WATER	NOTES
<b>NATIVE TREES</b>			
Arizona Cypress	<i>Cupressus arizonica</i>	30-40'/very low	Dry soils, evergreen
Arizona Walnut	<i>Juglans major</i>	35-40'/low-mod	Stream banks, canyons
Neatleaf Hackberry	<i>Celtis reticulata</i>	20-30'/low	Riparian and desert areas
One-seed Juniper	<i>Juniperus monosperma</i>	15-25'/very low	Dry mesas, hillsides
Utah Juniper	<i>Juniperus osteosperma</i>	15-25'/very low	One main trunk, dry areas
Velvet Mesquite	<i>Prosopis velutina</i>	15-25'/very low	Riparian and desert areas
Gambel Oak	<i>Quercus gambelii</i>	20-50'/low	Prefers higher elevations
<b>ADAPTIVE TREES</b>			
Arizona Rosewood	<i>Vauquelinia californica</i>	8-10'/low	Evergreen, large shrub
Ash, Modesto	<i>Fraxinus velutina</i>	30-50'/low	Shade
Cedar, Deodar	<i>Cedrus deodara</i>	60-80'/very low	Evergreen, check varieties
Chinaberry	<i>Melia azedarach</i>	30-50'/low	Grows in poor soil
Chinese Pistache	<i>Pistacia chinensis</i>	30-40'/low	Seasonal color, hardy
Crabapple, Flowering	<i>Malus</i> varieties	6-30'/low-mod	Check avail. local varieties
Crape Myrtle	<i>Lagerstroemia indica</i>	6-25'/ low	Infrequent deep water
Elm, Chinese	<i>Ulmus parvifolia</i>	40-60'/low	Semi-evergreen
Emory Oak (Live Oak)	<i>Quercus emoryi</i>	20-50'/low	Lower slopes, evergreen
Hackberry, Common	<i>Celtis occidentalis</i>	45'/low-mod	Street tree
Honey Locust	<i>Gleditsia triacanthos</i>	35-70'/low	Street tree
Locust	<i>Robinia ambigua</i>	30-40'/very low	Aggressive roots
Monk's Pepper Tree	<i>Vitex agnus-castus</i>	10-20'/low	Chaste tree, deciduous
Pine, Aleppo	<i>Pinus halepensis</i>	30-60'/low	Hardy to heat, aridity, wind
Plum, Flowering	<i>Prunus</i> varieties	20-30'/low-mod	Requires maintenance
Texas Mountain Laurel	<i>Sophora secundiflora</i>	15-25'/very low	Evergreen, parking lots
Texas Honey Mesquite	<i>Prosopis glandulosa</i>	25-30'/very low	Thornless available
Western Redbud	<i>Cercis occidentalis</i>	15-20'/low-mod	Large shrub
<b>NATIVE SHRUBS AND BUSHES</b>			
Catclaw Acacia	<i>Acacia greggii</i>	4-10'/very low	Common shrub or small tree
Cliffrose	<i>Cowania mexicana</i>	4-10'/very low	Dry rocky hillsides
Creosote Bush	<i>Larrea tridentata</i>	4-8'/very low	Roots emit repellents
Feather Dalea	<i>Dalea formosa</i>	1-2'/very low	Dry, rocky slopes
Graythorn	<i>Ziziphus obtusifolia</i>	6-10'/very low	Riparian, grasslands, bird habitat
Manzanita (Pointleaf)	<i>Arctostaphylos pungens</i>	4-6'/very low	Dry hillsides above 4,000'
Mountain Mahogany	<i>Cercocarpus montanus</i>	10-15'/low	High slopes
Mormon Tea	<i>Ephedra viridis</i>	2-6'/very low	Dry soil
Ocotillo	<i>Fouquieria splendens</i>	8-15'/very low	Steep hillsides, good drainage
Sage, Desert	<i>Salvia columbariae</i>	12-20"/very low	Sandy washes, below 4,000'
Saltbush, Four-wing	<i>Atriplex canescens</i>	4-6'/very low	Common, wildlife habitat
Scrub Oak	<i>Quercus turbinella</i>	6-10'/very low	High slopes, dry washes
Snakeweed	<i>Gutierrezia sarothrae</i>	2-4'/very low	Common, over grazed areas
Sugar Sumac	<i>Rhus ovata</i>	2-12'/very low	Part shade, dry slopes
Winter Fat	<i>Eurotia lanata</i>	2-3'/very low	(White Sage) Open rangeland

## CHAPARRAL AND DRY HILLSIDES

COMMON NAME	SCIENTIFIC NAME	SIZE/WATER	NOTES
<b>ADAPTIVE SHRUBS AND BUSHES</b>			
Autumn Sage	<i>Salvia greggii</i>	2-3'/very low	Southern Arizona native
Bird of Paradise, Yellow	<i>Caesalpinia gilliesii</i>	4-6'/low	Yellow flowers
Butterfly Bush, Fountain	<i>Buddleia alternifolia</i>	8-12'/low	Long flower clusters
Cotoneaster, Spreading	<i>Cotoneaster divaricata</i>	5-6'/low	Hardy deciduous
Deer Grass	<i>Muhlenbergia rigens</i>	3-4'/low-mod	Clumps, grass-like
Desert Spoon	<i>Dasyilirion wheeleri</i>	4-5'/low	grass like clumps
Dusty Miller	<i>Artemisia stelleriana</i>	2-3'/low	Evergreen shrub
Globe Mallow	<i>Sphaeralcea ambigua</i>	3'/very low	Colorful flowers
Juniper	<i>Juniperus chinensis</i>	2-15'/very low	Evergreen
Juniper	<i>Juniperus sabina</i>	2-4'/very low	Evergreen
Juniper, spreading	<i>Juniperus horizontalis</i>	1-2'/very low	Evergreen groundcover
Pittosporum	<i>Pittosporum tobria</i>	6-15'/low	Best some water
Photinia, Chinese	<i>Photinia serrulata</i>	6-12'/low	Water to establish
Pyracantha (Firethorn)	<i>Pyracantha coccinea</i>	6-12'/low	Trains to fence
Rosemary	<i>Rosemary officinalis</i>	2-6'/low	Needs drainage, aromatic
Santolina, Gray	<i>Santolina chamaecyparissus</i>	1-2'/very low	Evergreen
Santolina,	<i>Green Santolina virens</i>	1-2'/very low	Good ground cover
Sage, Big	<i>Artemisia tridentate</i>	3-6'/ low	Evergreen , western native
Texas Sage	<i>Leucophyllum frutescens</i>	3-5'/very low	Purple sage, summer flowers
Viburnum, various	<i>Viburnum var.</i>	4-12'/low- mod	Partial sun
Xylosma	<i>Xylosma congestum</i>	8-10'/low	Heat tolerant
<b>NATIVE CACTI AND SUCCULENTS</b>			
Beargrass	<i>Nolina microcarpa</i>	4-6'/very low	Large grass like, dry hillsides
Century Plant	<i>Agave parryi</i>	3'/very low	Tall flower stalk, Parry's
Agave			
Cholla, Plateau	<i>Opuntia whipplei</i>	2-4'/very low	Long branching sections
Hedgehog, Claret Cup	<i>Echinocereus triglochidiatus</i>	1-2'/very low	Dense mounds of stems
Hedgehog, Fendler	<i>Echinocereus fendleri</i>	6"-1'/very low	Small clumps, rocky slopes
Prickly Pear, Desert	<i>Opuntia phaeacantha</i>	2-5'/very low	Dry hillsides
Prickly Pear	<i>Opuntia var.</i>	1-6'/very low	Many varieties
Yucca, Banana	<i>Yucca baccata</i>	2-3'/very low	Dense flower clusters
Yucca, Soaptree	<i>Yucca elata</i>	2-15'/very low	Single trunk, flowering spike
Yucca, Spanish Bayonet	<i>Yucca alioifolia</i>	2-3'/very low	Accent plant, tall spike
<b>ADAPTIVE CACTI AND SUCCULENTS</b>			
Red Yucca	<i>Hesperaloe paviflora</i>	2-3'/very low	Flowering accent
Golden Barrel	<i>Echinocactus grusonii</i>	1-3'/very low	Color accent
Argentine Giant	<i>Echinopsis candicans</i>	2-4'/very low	Multiple large flowers

## RIPARIAN AREAS AND WASHES

COMMON NAME	SCIENTIFIC NAME	SIZE/WATER	NOTES
<b>NATIVE TREES</b>			
Arizona Ash (Velvet)	<i>Fraxinus velutina</i>	30-40'/low-mod.	Streams and washes
Cottonwood, Freemont	<i>Populus fremontii</i>	40-60'/lmod	Riparian, invasive roots
Desert Willow	<i>Chilopsis linearis</i>	10-25'/low mod.	Deciduous, flowering
Alder, Arizona	<i>Alnus oblongifolia</i>	40-50'/mod	Riparian
Elder, Arizona	<i>Sambucus mexicana</i>	30'/mod	Riparian and desert grasslands
Velvet Mesquite	<i>Prosopis velutina</i>	15-25'/low	Riparian, adapts to dry areas
Neatleaf Hackberry	<i>Celtis reticulata</i>	20-30'/low	Edge riparian and dry hillsides
Goodding Willow	<i>Salix gooddingii</i>	30-50'/mod	Riparian, invasive roots
Sycamore, Arizona	<i>Platanus wrightii</i>	50'/mod	Riparian
Western Soapberry	<i>Sapindus saponaria</i>	50'/low	Riparian and desert grasslands
<b>ADAPTIVE TREES</b>			
Ash, Green	<i>Fraxinus pennsylvanica</i>	40'/low-mod	Tolerates dry soil
Chinaberry	<i>Melia azedarach</i>	30-50'/low	Grows in poor soil
Crabapple, Flowering	<i>Malus varieties</i>	6-30'/low-mod	Check avail. local varieties
Globe Willow	<i>Salix matsudana</i>	20-30'/mod	Moist locations
Plum, Flowering	<i>Prunus varieties</i>	20-30'/low-mod	Requires maintenance
<b>NATIVE SHRUBS AND BUSHES</b>			
Arizona Grape	<i>Vitis arizonica</i>	sprawling vine	Along streams and canyons
Curly Dock	<i>Rumex crispus</i>	to 4' height	Moist soil, streams and washes
<b>ADAPTIVE SHRUBS AND BUSHES</b>			
Heavenly Bamboo	<i>Nandina domestica</i>	6-8'/low-mod	Some water, shade
Bird of Paradise Bush	<i>Caesalpinia gilliesii</i>	4-6'/moderate	Tree Var. 12'
Pittosporum (Tobria)	<i>Pittosporum tobria</i>	6-15'/low	Best some water
Photinia, Chinese	<i>Photinia serrulata</i>	6-12'/low	Water to establish