



DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT HOOD
FORT HOOD, TEXAS 76544-5002

MEMORANDUM OF INSTRUCTION

SUBJECT: Landscaping and Tree Care on Fort Hood Memorandum of Instruction (MOI)

1. References:

- a. Landscaping on Fort Hood Memorandum of Instruction (27 JUN 2012)
- b. Fort Hood Tree Care Ordinance (27 JUN 2012)
- c. Fort Hood Regulation 200-1

2. Purpose. This MOI establishes procedures allowing Fort Hood to be landscaped with vegetation native to the Fort Hood region. This MOI also establishes a Tree Board, defines the duties of the Board, and establishes standards necessary to ensure that Fort Hood will continue to realize the benefits provided by its urban trees. Trees are important in our community because they enhance urban environments by providing shade, beauty, and wind protection. They also protect the soil, muffle noises, filter air, and provide screen between buildings. Large, healthy trees are attractive and desired in our community.

3. General. This MOI applies to all units, directorates, tenant organizations, and Family housing areas on Fort Hood.

4. Tasks, Conditions, and Standards. This MOI shall require certain standards to be met regarding landscaping, including plant selection, tree replacement, and planting guidelines.

a. Definitions

1. A tree is defined as a self-supporting woody perennial plant with a total vertical height of at least 6 feet with at least one trunk measuring at least 3 inches in diameter at breast height (DBH) (located 4.5 feet above existing grade) or having a trunk diameter of at least 2 inches if planted by or for Fort Hood. Trees which split into several trunks of sufficient diameter (each measuring 3 inches or greater) under DBH will be considered as separate trees, regardless of whether they arise from the same rootball.

2. Heritage Tree.

- (a.) Any tree having a trunk diameter of 15 inches or greater measured at DBH.
- (b.) Any hardwood tree native to Fort Hood having a trunk diameter of 12 inches or greater measured at DBH. Inquiries into Fort Hood native tree species can be made at Fort Hood DPW Natural Resources Management Branch office.
- (c.) Any tree or group of trees specifically designated by the Tree Board for protection because of historical significance, special character, ecological value, or community benefit.

b. Establishment of a Tree Board and Ordinances

1. A Tree Board is hereby created and established for Fort Hood. The purpose of the Board is to provide the preservation, protection, replacement, proper planting, and proper maintenance of trees located within the cantonment areas of Fort Hood. The Tree Board will be composed of representatives of organizations who are responsible for the care of trees on Fort Hood. The Tree Board includes DPW Environmental Division (Natural Resources Management Branch), DPW Operations and Maintenance Division (one representative from Roads and Grounds and one COR from Services), DPW Engineering Division, Fort Hood Family Housing, and the Directorate of Morale, Welfare, and Recreation (Outdoor Recreation Branch).
2. The Installation Agronomist is the presiding chair of the Tree Board.
3. The responsibilities of the presiding chair of the Tree Board are to conduct the meetings of the Tree Board, keep the Board members informed, and to request input from the Board members.
4. The responsibilities of the Board members are to attend the Board meetings, to represent the position of their organization to the Board, and to communicate the decisions of the Board back to their organization.
5. The Tree Board will meet as frequently as needed. Only the presiding chair of the Tree Board may schedule meetings. Board members may submit a request to the chairman to call a meeting.
6. Decisions of the Tree Board will be made by a consensus vote.
7. Most business of the Tree Board should be conducted through email. This includes voting on business items.
8. This board shall be established by ordinance and applies to all trees located within the cantonment areas of Fort Hood.

c. Planting and Care of Trees and Shrubs

1. Locate and mark planting sites and apply for an approved excavation permit (FH 200-X10). A permit is required prior to any digging on Fort Hood and necessary to prevent damage to the underground utility systems.
2. Select the right plants for the right locations. Consider future plant size in relation to conflict with sidewalks, drives, buildings, streets, and overhead utility lines. See the approved plant list for guidance on plant heights.
3. Locate and dig holes so that the hole is two to three times the diameter of the container and no deeper than the container. Keep all original topsoil for backfilling. Be certain that hole has rough and uneven edges and is irregular in size, as this will encourage the new roots to spread and not become root-bound within the hole. Plant only as deep as the level of the dirt in the original pot; planting too deeply may kill the plant. See attached diagram.
4. Always handle plants by the container or the ball, never by the stems, as this will damage the plant. If the plant is root-bound, make two cuts across the bottom layer of roots and several cuts along the sides to loosen the roots.
5. Set the plant in the hole vertically and remove the container or the burlap and wire. Backfill only with the original soil. Do not backfill with compost, peat moss, or other materials. Add one-third of backfill soil at a time; tamp very lightly, and use slow running water to settle the soil and help secure the plant. Repeat this process until the

hole is full and thoroughly watered.

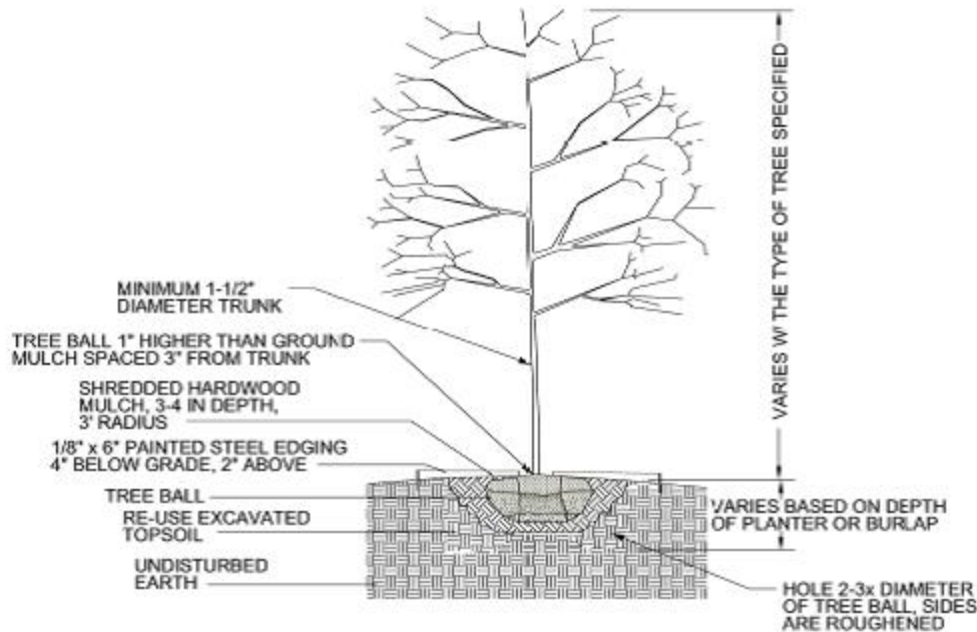
6. It is recommended that you install a landscape fabric. Place fabric beneath edging so that it covers the entire surface of the bed. Use a fabric, which allows air and water to penetrate and restricts weeds, but do NOT use a solid plastic film.

7. If desired, you may install edging. Metal edging, installed 4 inches below the surface and 2 inches above, is preferred because it will help to keep grass from invading into the planting area. However, stone edging, installed no more than one high, may be installed around individual trees or around shrub beds.

8. Place a 3- to 4-inch-thick layer of mulch around all plants to keep them free of weeds and grass. Use only shredded hardwood mulch, hardwood chips, or cedar mulch. Do not use pine bark mulch. Do not use rock of any type instead of mulch. For planting beds, mulch the entire bed. For individual plantings of trees or shrubs, mulch 2 to 3 feet around the trunk in every direction.

9. For trees, do not use tree stakes or guy wires of any kind. These actually weaken trees. Also, do not wrap any material around the base of the trunk. These encourage problems with insects and diseases. Do not prune trees and shrubs at planting time. Do not paint trees. The only exception to the no-staking rule is for very large (greater than 4-inch trunk) balled and burlapped trees. These trees may be staked for a period not to exceed 2 years, after which time all stakes and guy wires must be removed.

10. Do not plant trees and shrubs without a commitment to care for them. Trees and shrubs will need to be watered when rainfall is not sufficient; a rain of at least 1 inch per week is sufficient. When rainfall is less than 1 inch, each tree and shrub will need to be watered once per week during the summer months and every other week during the fall, winter, and spring months for 1 to 2 years. A slow trickle of water from a water hose for one hour is the preferred method of watering. Sprinkling, especially during the summer months, is very wasteful. More water is lost to evaporation rather than soaking into the soil.



NOTES:

1. MATERIALS AND METHODS FOR INSTALLATION SHALL BE IN ACCORDANCE WITH SPECIFICATIONS
2. DO NOT STAKE TREES UNLESS OTHERWISE INDICATED
3. PRUNE ONLY DEAD OR DAMAGED LIMBS AT TIME OF PLANTING
4. ALL TREES SHALL COMPLY WITH THE AMERICAN STANDARDS FOR NURSERY STOCK - INCLUDING TREE PIT DEPTH AND WIDTH



TREE PLANTING DETAIL

SCALE: 1/2"=1'

d. Tree Maintenance and Care Provisions

1. All tree care that occurs will follow the American National Standard for Tree Care Operations - Standard Practices for Pruning, available from American National Standards Institute (www.ansi.org).
2. For pruning and trimming of trees, do not make flush cuts; only collar cuts are allowed. Flush cuts are cuts that are made flush against the tree trunk or limbs; these cuts severely damage trees by removing the branch collar. A collar cut is defined as a cut that leaves the branch collar intact. If the collar is left in place, the tree can heal properly, preventing rot and insect attack.
3. Special provision for oak trees: It is required that all pruning and trimming cuts on all species of oak trees be sprayed with wound paint immediately after each cut is made (spray within 10 seconds after cut is made) in order to help prevent the spread of oak wilt disease.
4. Trees should not be topped. Topping is defined as the severe removal or cutting back of large limbs within the tree canopy to stubs, so that the normal canopy is removed and

the tree is disfigured. Topping results in the rotting of branches, insect infestations, rapid growth of weak branches, and often, death of the tree. Trees that are exempt from this provision include trees severely damaged by storms or trees under obstructions where normal pruning is impractical.

e. Tree Preservation, Protection, and Replacement

1. No person shall intentionally damage, cut, carve, paint, abuse, or harm any tree or injure the bark of any tree located within the cantonment areas of Fort Hood. Any non-approved removal shall be replaced as stated in the next paragraph at no cost to the government.
2. Tree removal and replacement policy: All native hardwood trees should be preserved and protected. Preservation of trees is preferred over replacement. If removal of a tree becomes necessary, each tree that is removed must be replaced at required ratios. Replacement trees must also be maintained (including watering) for 1 year after planting. Any replacement tree that dies within one year of the planting date must be replaced and maintained for another year. Replacement policies as follows:
 - (a.) If a heritage tree is removed, it will be replaced at a 10:1 ratio (10 trees planted for every 1 removed). Replacement trees must have a minimum DBH of 4 inches or greater.
 - (b.) Any native hardwood tree (with DBH greater than 3 inches; not classified as a heritage tree) removed will be replaced at a 10:1 ratio. Replacement trees must have a minimum DBH of 2 inches.
 - (c.) Any tree removed with a DBH of 3 inches or less does not need to be replaced, unless it is a landscaping tree planted by or for Fort Hood. These trees must be replaced at a ratio of 1:1, and replacement trees must have a minimum DBH of 2 inches.
3. Any request for waiver of the replacement policy must be presented in writing to the Chairman of the Tree Board. This written request must include the reason for requesting the waiver. It will then be submitted to the Tree Board for vote, and will only be approved if a majority affirmative vote is received.
4. Dead or diseased trees not under contract that are a hazard to life or property should be removed and replaced at a ratio of one new tree for each tree removed. All tree classifications of 'dead or diseased' must be approved by the Fort Hood Agronomist before tree removal occurs.
5. New plantings (including replacements): Species of trees must be selected from the species listed in Appendix N of the Installation Design Guide (Plant Palette) or in the Memorandum of Instruction (MOI)-Landscaping Unit Areas. Any species not found in the approved plant list cannot be planted on Fort Hood without the expressed permission of the Fort Hood Tree Board.
6. Exemptions to the replacement policy.
 - (a.) Trees can be removed within 10 feet of existing Fort Hood utility easements/corridors and replaced at a 1:1 ratio with small landscaping trees/shrubs where applicable as determined by DPW. Inquiries into proper landscaping trees/shrubs for utility corridors/easements can be made at Fort Hood DPW Natural

Resources Management Branch office. Any new utility easements/corridors must follow the applicable tree replacement policies in section 4.

(b.) In accordance with Army Regulation 190-11 RAR, trees may be removed within the 30 foot clear zone of cantonment outer perimeter fence as a force protection measure, except for trees which must be retained "for erosion control, passive defense, or for legal reasons". Trees removed in this clear zone will not be subject to the tree replacement policy, unless they are trees determined to be an exception to this regulation. All tree removal (including removal under AR 190-11 RAR) must be coordinated through the Fort Hood Agronomist.

(c.) Tree removal as required by Federal Aviation Administration (FAA) regulations is exempt from the tree replacement policy. All tree removal (including removal under FAA regulations) must be coordinated through the Fort Hood Agronomist.

f. Approved Plant List

Plant List for Landscaping on Fort Hood		
*indicates plants native to Fort Hood		
Common name	Scientific Name	Description
LARGE TREES		
Anacua (Sandpaper tree)	<i>Ehretia anacua</i>	up to 30 feet tall; sun/part shade; evergreen or partly deciduous; often with multiple trunks; may die back in cold winters; white, fragrant flowers, yellow-orange fruit; needs frequent watering until established
Bald cypress	<i>Taxodium distichum</i>	20-50 feet tall; sun/part shade; soft, ferny, deciduous foliage, wet areas only
Big-tooth maple*	<i>Acer grandidentatum</i>	20-50 feet tall; full sun; needs very little water; golden to red fall color
Black walnut*	<i>Juglans nigra</i>	up to 50 feet tall; sun/part shade; slow-growing if not in moist, rich, sunny sites; wet areas only
Bur oak*	<i>Quercus macrocarpa</i>	60-80 feet tall, 50 feet spread; sun/part shade; needs deep, rich soil; very large leaves and acorns
Cedar elm*	<i>Ulmus crassifolia</i>	up to 70 feet tall, 40 feet spread; sun/part shade; good for narrow spaces; yellow-golden fall color
Chinkapin oak*	<i>Quercus muehlenbergii</i>	up to 50 feet tall; sun/part shade; prefers deep soil; yellow to brown fall color
Escarpment black cherry	<i>Prunus serotina var. eximia</i>	up to 25 feet tall; sun/part shade; white flower clusters followed by small black cherries; yellow fall color; needs moist soil

Lacey oak	<i>Quercus laceyi</i> (<i>Q. glaucooides</i>)	up to 20 feet tall; part shade; slow growth rate; interesting blue-green leaf color
Monterrey oak (Mexican white oak)	<i>Quercus polymorpha</i>	up to 50 feet tall; sun/part shade; deciduous to evergreen; prefers well-drained soil; bronze leaf color
Pecan*	<i>Carya illinoensis</i>	up to 90 feet tall; full sun; needs deep, rich soil; edible nuts
Plateau live oak*	<i>Quercus fusiformis</i> (<i>Q. virginiana</i>)	up to 30 feet tall; sun/part shade; evergreen; susceptible to oak wilt
Shumard oak	<i>Quercus shumardii</i>	up to 50 feet tall; sun/part shade; prefers moist, deep soil; red to yellow fall color
Texas red oak*	<i>Quercus buckleyi</i>	up to 50 feet tall; sun/part shade; red to yellow fall foliage
Texas white ash* (NOT Arizona ash or Fan Tex ash)	<i>Fraxinus texensis</i> (NOT <i>F. velutinus</i>)	40-50 feet tall; sun/part shade; fast growing; yellow to orange fall color
SMALL TREES		
Anacacho orchid tree	<i>Bauhinia lunarioides</i>	6-12 feet tall; part shade; single or multi-stemmed trunk; clusters of white, orchid-like flowers; should be planted on south side of buildings to protect from frost
Blanco crabapple	<i>Pyrus ioensis</i> var. <i>texana</i> (<i>Malus ioensis</i> var. <i>texana</i>)	up to 12 feet tall; full sun; pink flowers in spring, interesting fruit
Carolina buckthorn*	<i>Rhamnus caroliniana</i> (<i>Frangula caroliniana</i>)	up to 15 feet tall; sun/shade; large glossy leaves; small purple fruit
Desert willow	<i>Chilopsis linearis</i>	up to 15 feet tall; sun/shade; showy pink flowers; avoid overwatering
Eve's necklace*	<i>Styphnolobium affine</i> (<i>Sophora affinis</i>)	up to 20 feet tall; part shade; beautiful pink flower clusters, fruit black bead-like pods; needs well-drained soil
Little walnut*	<i>Juglans microcarpa</i>	up to 20 feet tall; part shade; yellow-green foliage
Mexican plum*	<i>Prunus mexicana</i>	up to 20 feet tall; sun/part shade; white, fragrant flowers in early spring; flaky bark
Prairie flame-leaf sumac*	<i>Rhus lanceolata</i>	up to 20 feet tall; sun; small white flowers in summer, red berries; brilliant red fall color; will spread to become several small trees, needs room to expand
Rusty blackhaw viburnum*	<i>Viburnum rufidulum</i>	10-20 feet tall; sun/part shade; large white flowers in spring, red fall color

Smoketree	<i>Cotinus obovatus</i>	12-20 feet tall; sun/part shade; flowers and fruit look like smoke; orange fall color
Texas persimmon*	<i>Diospyrus texana</i>	10-15 feet tall; sun/part shade; semi-evergreen; multi-trunked; interesting peeling bark
Texas redbud*	<i>Cercis canadensis</i> var. <i>texensis</i>	20-30 feet tall; sun/part shade; pink flowers early spring

TALL SHRUBS		
Bee-brush	<i>Aloysia gratissima</i>	up to 10 feet tall; sun/part shade; small white, vanilla-scented flowers in spikes; can be pruned into hedge
Cenizo	<i>Leucophyllum frutescens</i>	2-6 feet tall, 4-6 feet wide; sun/part shade; silvery gray shrub with bright pink-lavender flowers; several months of flowering; good hedge or screen
Deciduous holly*	<i>Ilex decidua</i>	12-20 feet tall; sun/part shade; striking red berries on female plants persist into winter
Dwarf wax myrtle	<i>Myrica pusilla</i>	8-12 feet tall; sun/part shade; evergreen; golden yellow flowers; small blue fruits
Evergreen sumac*	<i>Rhus virens</i>	4-12 feet tall, 6-8 feet wide; full sun; thick evergreen foliage, may bronze after a freeze; red berries in late fall; do not overwater
Golden-ball lead tree	<i>Leucaena retusa</i>	up to 12 feet tall; sun/part shade; yellow puff flowers in spring, summer and fall; do not overwater
False indigo*	<i>Amorpha fruticosa</i>	up to 12 feet tall; sun/part shade; dark purple flowers in spring; wet areas only
Mexican buckeye*	<i>Ungnadia speciosa</i>	12-20 feet tall, 12-20 feet wide; sun/part shade; pink flowers in early spring; yellow fall color
Prickly ash* (Toothache tree)	<i>Zanthoxylum hirsutum</i>	up to 15 feet tall; sun/part shade; fragrant foliage; has many sharp spines (do not plant near sidewalks)
Roughleaf dogwood*	<i>Cornus drummondii</i>	up to 16 feet; part shade; thicket-forming, to maintain as tree, mow or pull shoots; grows best in moist soil; purplish-red fall color
Silktassel	<i>Garrya ovata</i> var. <i>lindheimeri</i> (G. <i>lindheimeri</i>)	3-12 feet tall; full sun; evergreen, silvery-gray leaves
Texas kidneywood*	<i>Eysenhardtia texana</i>	3-12 feet tall; full sun; multi-branched open shrub; white, fragrant flowers
Texas mock orange	<i>Philadelphus texensis</i>	up to 12 feet tall; sun/part shade; white flowers late spring and early summer

Texas mountain laurel*	<i>Sophora secundiflora</i>	10-20 feet; sun/part shade; fragrant purple flowers; slow growing
Texas pistache (NOT Chinese pistache)	<i>Pistacia texana</i> (NOT <i>P. chinensis</i>)	12-30 feet tall, 15-20 feet wide; full sun; evergreen; leaves small and glossy
Wafer-ash* (Hop tree)	<i>Ptelea trifoliata</i>	3-12 feet tall; sun/part shade; interesting fragrant foliage and fruit
Wax myrtle	<i>Myrica cerifera</i>	up to 15 feet tall; sun/part shade; evergreen; golden yellow flowers; small blue fruits
Witch hazel	<i>Hamamelis virginiana</i>	up to 30 feet tall; part shade/full shade; golden yellow fall color; yellow flowers in late fall

LOW SHRUBS		
American beautyberry	<i>Callicarpa americana</i>	3-5 feet tall, 3-5 feet wide; part shade; needs moist conditions, clusters of purple fruit
Agarita*	<i>Berberis trifoliata</i>	3-6 feet tall, 3-6 feet wide; sun/part shade; evergreen; spiny leaves (do not plant near sidewalk); fragrant yellow flowers early spring, fruit small red berries
Black dalea*	<i>Dalea frutescens</i>	1-3 feet tall, 3-4 feet wide; full sun; small delicate leaves; purple flowers in summer and fall
Butterfly bush	<i>Buddleja marrubiifolia</i>	4-6 feet tall, 4-6 feet wide; sun/part shade; semi-evergreen; silvery-gray leaves; orange flowers summer and fall
Buttonbush*	<i>Cephalanthus occidentalis</i>	6-12 feet tall; part shade/shade; spreading multi-branched shrub with balls of white flowers resembling pincushions; wet areas only
Chili pequin	<i>Capsicum annuum</i>	2-3 feet tall; part-shade/full shade; small white flowers in summer and fall, small red berries
Elbowbush*	<i>Forestiera pubescens</i>	up to 10 feet tall; sun/part shade/shade; open shrub, turns yellow in fall
Flame acanthus	<i>Anisicanthus quadrifidus</i> var. <i>wrightii</i>	3-4 feet tall; sun/part shade; flowers are orange or red from summer to fall; attract hummingbirds
Fragrant mimosa*	<i>Mimosa borealis</i>	3-7 feet tall; full sun; has many sharp spines (do not plant near sidewalks); many beautiful pink flowers in early spring
Gregg dalea	<i>Dalea greggii</i>	1 foot tall, 2-4 feet wide; full sun; good ground cover; flowers summer and fall

Gregg sage	<i>Salvia greggii</i>	up to 3 feet tall, up to 3 feet wide; full sun; evergreen; flowers range from pink to red to white, spring summer and fall; attracts hummingbirds
Mexican oregano	<i>Poliomentha longiflora</i>	up to 3 feet tall, up to 3 feet wide; full sun; evergreen; pink flowers spring, summer, and fall; attracts hummingbirds
Mountain sage	<i>Salvia regla</i>	3-6 feet tall, 3-4 feet wide; part shade; red flowers in fall; attract hummingbirds; wet areas only
Shrubby blue sage	<i>Salvia ballotiflora</i>	up to 6 feet tall; full sun; flowers spring, summer, and fall; fragrant (minty) leaves
Shrubby boneset* (White mistflower)	<i>Ageratina havanensis</i> (<i>Eupatorium havanense</i>)	3-5 feet tall, 3-5 feet wide; part shade; white flowers in late summer and fall
Skeleton-leaf Goldeneye	<i>Viguiera stenoloba</i>	2-4 feet tall; sun/part shade; prolific, daisy-like, yellow-orange flowers in summer and fall; needs good drainage
Skunkbush* (Aromatic sumac)	<i>Rhus trilobata</i> (<i>R. aromatica</i>)	up to 3 feet tall, 3-5 feet wide; sun/part shade; red berries in fall, red fall foliage
Texas lantana*	<i>Lantana urticoides</i> ONLY (NOT <i>L. camara</i>)	3-6 feet tall; full sun; red, orange, and yellow flower clusters; poisonous blue-black fruit clusters
Turk's cap*	<i>Malvaviscus arboreus</i> var. <i>drummondii</i>	2-6 feet tall, 3-5 feet wide; part shade/shade; red flowers in summer and fall
Yaupon holly*	<i>Ilex vomitoria</i>	12-20 feet tall, 10-15 feet wide; sun/shade; evergreen; red berries on females; available in dwarf variety growing 2-4 feet tall and 2-4 feet wide
Yellow bells	<i>Tecoma stans</i>	3-6 feet tall; sun/part shade; large, showy, yellow trumpet-shaped flowers; may die in harsh winters; do not overwater
Zexmenia* (Wedelia)	<i>Wedelia texana</i>	up to 3 feet tall; sun/part shade; showy yellow daisy-like flowers from summer to frost; do not overwater

VINES		
Carolina jessamine	<i>Gelsemium sempervirens</i>	sun/part shade; evergreen; yellow trumpet-shaped flowers; prefers moist, rich soil; poisonous to livestock
Coral honeysuckle	<i>Lonicera sempervirens</i>	full sun; evergreen; elongate red flowers in early spring, some in summer; attracts hummingbirds

Crossvine	<i>Bignonia capreolata</i>	sun/part shade; evergreen; large orange flowers in spring
Lindheimer's morning glory	<i>Ipomoea lindheimeri</i>	sun/part shade; delicate perennial; large pale purple flowers
Purple leather flower*	<i>Clematis pitcheri</i>	sun/part shade; delicate perennial; purple flowers with leathery petals
Trumpet creeper	<i>Campsis radicans</i>	full sun; aggressive vine, to keep in check, plant near an area that can be mowed; showy, trumpet-shaped flowers ranging from orange to red in color, flowers throughout summer
Virginia creeper*	<i>Parthenocissus quinquefolia</i>	sun/part shade; interesting leaves; bright red fall color
White bush honeysuckle*	<i>Lonicera albiflora</i>	full sun; grows as shrub or vine; small white, fragrant flowers; red berries in summer

XEROPHYTES		
Texas sotol	<i>Dasyliion texanum</i>	3-4 feet wide; full sun; interesting spiny foliage; tall flower stalks
Devil's shoestring*	<i>Nolina lindheimeriana</i>	1-3 feet tall; full sun; resembles clump of grass; green rosette in late spring
Lechuguilla	<i>Agave lechuguilla</i>	1-2 feet tall; full sun; interesting spiny foliage; very tall flower stalks; needs room to expand
Pale-leaf yucca*	<i>Yucca pallida</i>	1-2 feet tall; full sun; pale blue-green color; needs good drainage
Red yucca	<i>Hesperaloe parviflora</i>	2-3 feet tall; full sun; red flowers on tall stalk; attracts hummingbirds
Spanish dagger	<i>Yucca treculeana (Y. torreyi)</i>	3-12 feet tall; full sun; leaves stiff and spear-like (do not plant near sidewalks); white flowers in spring
Spice lily	<i>Manfreda maculosa</i>	1-2 feet tall; sun/part shade; fleshy green leaves have irregular maroon spots; white flower cluster on tall stalk; prefers light shade
Texas sacahuista*	<i>Nolina texana</i>	up to 3 feet wide; full sun; resembles clump of grass; white flowers hidden in leaves
Twist-leaf yucca*	<i>Yucca rupicola</i>	up to 2 feet tall; sun/ part shade; leaves become twisted with age; white flower cluster on tall stalk

PERENNIAL FLOWERS		
Aromatic aster*	<i>Aster oblongifolius</i>	2-3 feet tall, 2-3 feet wide; sun/part shade; purple flowers in fall

Big red sage	<i>Salvia penstemonoides</i>	3-4 feet tall, 1-2 feet wide; sun/part shade; magenta flowers in summer and fall
Blackfoot daisy*	<i>Melampodium leucanthum</i>	up to 1 foot tall, 1-2 feet wide; full sun; white flowers during spring, summer, and fall
Bushy skullcap*	<i>Scutellaria wrightii</i>	up to 1 foot tall, 1 foot wide; full sun; small purple flowers in spring, summer and fall
Butterflyweed	<i>Asclepias tuberosa</i>	up to 2 feet tall; sun/part shade; clusters of yellow-orange flowers
Canyon sage	<i>Salvia lycoides</i>	up to 3 feet tall; part shade; blue flowers spring and fall
Cedar sage*	<i>Salvia roemariana</i>	1-2 feet tall, 3 feet wide; part shade/full shade; evergreen; red flowers in spring
Chocolate daisy	<i>Berlandiera lyrata</i>	1-2 feet tall; sun/part shade; yellow daisy-like flowers in spring and fall, smell like chocolate
Crimson-eyed rosemallow	<i>Hibiscus moschuetos</i>	3-8 feet tall; sun/part shade; white flowers in late summer; wet areas only
Damianita	<i>Chrysactinia mexicana</i>	1-2 feet tall, 1-2 feet wide; full sun; yellow flowers
Engelmann daisy*	<i>Engelmannia pinnatifida (E. peristenia)</i>	up to 2 feet tall; full sun; yellow flowers in spring and summer
Fall obedient plant	<i>Physostegia virginiana</i>	2-4 feet tall, 3 feet wide; part sun/shade; purple flowers in fall
Fluttermill*	<i>Oenothera missouriensis</i>	up to 1 foot tall; full sun; large yellow flowers open early evening in spring and summer
Frogfruit*	<i>Phyla nodiflora (P. incisa)</i>	less than 1 foot tall; sun/part shade; semi-evergreen; good groundcover; small white flower clusters through spring, summer and fall
Gaura*	<i>Gaura lindheimeri</i>	2-4 feet tall, 3 feet wide; sun/part shade; showy pink to white flowers spring and summer
Gayfeather*	<i>Liatris mucronata</i>	1-2 feet tall; full sun; purple flowers in the fall; do not overwater
Giant blue sage*	<i>Salvia azurea</i>	3-6 feet tall; sun/part shade; delicate blue flowers in fall
Goldenrod*	<i>Solidago canadensis (S. nemoralis)</i>	2-5 feet tall; sun/part shade/shade; abundant yellow flowers in the fall
Heath aster*	<i>Aster ericoides (Symphyotrichum ericoides)</i>	1-2 feet tall; full sun; numerous small white flowers in the fall
Mealy sage*	<i>Salvia farinacea</i>	1-3 feet tall, 1-2 feet wide; full sun; purple/blue flowers in spring, summer and fall

Missouri violet*	<i>Viola missouriensis</i>	less than 1 foot tall; part shade/full shade; purple or lavender flower, appears for 3 weeks early spring; colonizes via rhizomes; wet areas only
Pigeonberry*	<i>Rivina humilis</i>	1-2 feet tall, up to 2 feet wide; part shade/shade; white flowers and bright red fruits from summer to fall; wet areas only
Pink skullcap	<i>Scutellaria suffretescens</i>	can spread up to 2 feet wide; shade; dark pink flowers in spring, summer and fall
Ponyfoot*	<i>Dichondra carolinensis</i>	less than 1 foot tall; sun/part shade/shade; pony foot shaped leaves; good ground cover; prefers moist soil
Prairie larkspur*	<i>Delphinium carolinianum</i>	1-2 foot tall; sun/part shade; white or blue flowers on tall stalks
Prostrate lawnflower*	<i>Calyptocarpus vialis</i>	less than 1 foot tall; sun/part shade; small yellow flowers in spring, summer and fall; good ground cover; can be mowed
Purple cone-flower*	<i>Echinacea angustifolia</i>	1-2 feet tall; sun/part shade; large purple flowers in the spring and summer
Rain lily*	<i>Cooperia pedunculata</i>	1-1.5 feet tall; full sun; white trumpet-shaped blooms in spring, or after a rain event; need moist areas
Red columbine*	<i>Aquilegia canadensis</i>	1-3 feet tall and 1-2 feet wide; part shade/shade; interesting leaves, beautiful red flowers; prefers moist areas
Rock penstemon	<i>Penstemon baccharifolius</i>	up to 2 feet tall; sun/part shade; large, red, tubular flowers in spring, summer and fall
Scarlet penstemon	<i>Penstemon triflorus</i>	1-2 feet tall, 1-2 feet wide; sun/part shade; pinkish-red flowers in spring and fall
Silver ponyfoot	<i>Dichondra argentea</i>	up to 4 inches tall; sun/part shade; silver-gray foliage has metallic appearance in sun; great groundcover for large, open, sunny sites
Snakeherb*	<i>Dyschoriste linearis</i>	up to 1 foot tall; full sun; purple and lavender bell-shaped flowers through spring, summer and fall; wet areas only
Standing cypress*	<i>Ipomopsis rubra</i>	2-4 foot tall; sun/part shade; biennial, first year of growth fernlike in appearance, less than 1 foot tall, second year becomes a stiff unbranched stalk with showy, red, tubular flowers in the spring and early summer
Swordleaf blue-eyed grass*	<i>Sisyrinchium chilense</i>	less than 1 foot tall; sun/part shade; grass-like leaves with showy blue-purple flowers at tip of stalks in spring

Texas betony	<i>Stachys coccinea</i>	1-2 feet tall, 2-3 feet wide; shade; leaves gray-green; red flowers in spring, summer and fall
Texas rock rose	<i>Pavonia lasiopetala</i>	1-3 feet tall, up to 2-3 feet wide; sun/part shade; pink flowers during summer and fall
Texas star hibiscus	<i>Hibiscus coccineus</i>	up to 4 feet tall, up to 4 feet wide; full sun; orange star-like flowers in the summer and fall
Tropical sage*	<i>Salvia coccinea</i>	up to 3 feet tall, 1-2 feet wide; sun/shade; red flowers in spring, summer, and fall
White avens*	<i>Geum canadense</i>	up to 2 feet tall; part shade/shade; good groundcover; small white flowers in spring; wet areas only
Wild fox-glove*	<i>Pentemon cobaea</i>	1-2 feet tall; full sun; large white flowers in spring
Winecup*	<i>Callirhoe involucrata</i>	less than 1 foot tall, 3 feet wide, mat-forming; sun/part shade; pink, purple or maroon cup-shaped flowers on stalk
Wood-fern*	<i>Thlypteris kunthii</i>	2-5 feet tall, 3 feet wide; shade; wet areas only
Woolly ironweed*	<i>Vernonia lindheimeri</i>	1-2 feet tall; full sun; lots of small purple flowers in summer
Woolly stemodia	<i>Stemodia lanata (S. tomentosa)</i>	up to 1 foot tall; full sun; silvery-gray foliage with lavender or white flowers through spring, summer, and fall

ORNAMENTAL (TALL) GRASSES		
Big bluestem*	<i>Andropogon gerardii</i>	3-5 feet tall; sun/part shade; needs room to spread; flowers in fall
Big muhly	<i>Muhlenbergia capillaris</i>	1-3 feet tall; full sun; prefers moist, sandy soil; has a pinkish hue in fall
Bull muhly	<i>Muhlenbergia emersleyi</i>	3-5 feet tall; sun/part shade; flowers in the fall have purplish color
Bushy bluestem*	<i>Andropogon glomeratus</i>	2-5 feet tall; full sun; fluffly flower heads resemble cotton candy; blue-green foliage turns coppery brown in fall; prefers moist areas
Indian grass*	<i>Sorghastrum nutans</i>	3-5 feet tall; sun/part shade; need room to spread; yellow fall color
Inland sea oats*	<i>Chasmanthium latifolium</i>	2-4 feet tall; part shade/shade; interesting drooping oat-like seedheads; will form colonies; wet areas only
Lindheimer's muhly*	<i>Muhlenbergia lindheimeri</i>	3-5 feet tall, 3 feet wide; full sun; flowers in fall; use instead of pampas grass

Little bluestem*	<i>Schizachyrium scoparium</i>	2-5 feet tall; full sun; needs room to spread; leaves blue-green, turning bronze after first frost
Mexican feathergrass	<i>Stipa tenuissima</i>	1-2 feet tall; sun/part-shade; leaves thin and bright green; flowers late summer
Pine muhly	<i>Muhlenbergia dubia</i>	1-2 feet tall; full sun; leaves gray-green in color
Sideoats grama*	<i>Bouteloua curtipendula</i>	2-3 feet tall; sun/part shade; purplish shade in fall; does not compete well with other tall grasses
Switchgrass*	<i>Panicum virgatum</i>	3-6 feet tall; sun/part shade; bright green turning to bright yellow in fall

TURF GRASSES		
Buffalograss*	<i>Buchloe dactyloides</i>	full sun; needs little mowing; very little water needed once established; does not respond to fertilizer; spreads by seeds as well as runners; needs to be weeded once established
Bermuda grass	<i>Cynodon dactylon</i>	sun/shade; grows short, needs mowing; needs 1 inch of water per week; will invade nearby beds
Zoysia	<i>Zoysia matrella</i> (Z. japonica)	sun/part shade; forms dense turf; needs 1 inch of water per week
Native sun turf grass mix (buffalograss and blue grama)	<i>Buchloe dactyloides</i> and <i>Bouteloua gracilis</i>	full sun; only available as seed, plant spring to summer; needs little mowing; does not respond to fertilizer
Thunder turf grass mix (buffalograss, blue grama, and curly mesquite)	<i>Buchloe dactyloides</i> , <i>Bouteloua gracilis</i> , and <i>Hilaria belangeri</i>	sun/part shade (up to 50%); only available as seed, plant spring to summer; needs little mowing; provides even textured, dense turf; cannot mow too often, over watering and fertilizing increase weeds

5. The point of contact for this MOI is Carla Picinich, Fort Hood Agronomist, carla.m.picinich.civ@mail.mil, 254-288-2074 or Dr. Amber Dankert, Wildlife Management Team Supervisor, amber.l.dankert.civ@mail.mil, 254-287-1088.

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