



Earth-Kind®

**Introduction to landscape
Earth-Kind approaches:
Principles for healthy plants**

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MG First Detector Training

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“3-way
match”





Earth-Kind[®]

- **Planning and design**
- **Soil analysis and improvement**
- **Practical turf areas**
- **Appropriate plant selection**
- **Efficient irrigation**
- **Use of mulches**
- **Appropriate maintenance**



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- **Landscape water conservation**
- **Reduction of fertilizer and pesticide use**
- **Landscaping for energy conservation**
- **Reduction of landscape wastes entering landfills**



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1. Planning and design
(with plant health from the start)



“3-way
match”



Landscape styles

<http://www.sabot.org/?nd=watersavers>

<http://www.saws.org/Conservation/Outdoor/WaterSaverLane/>

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Cottage Gardens



Wildscape Landscapes



Texas Hill Country



Spanish Courtyard



Manicured Xeriscape



Traditional Landscapes



Traditional American Lawn



Cottage Gardens



Texas Hill Country Landscapes



Vegetable Garden



Spanish Courtyard

Site Assessment

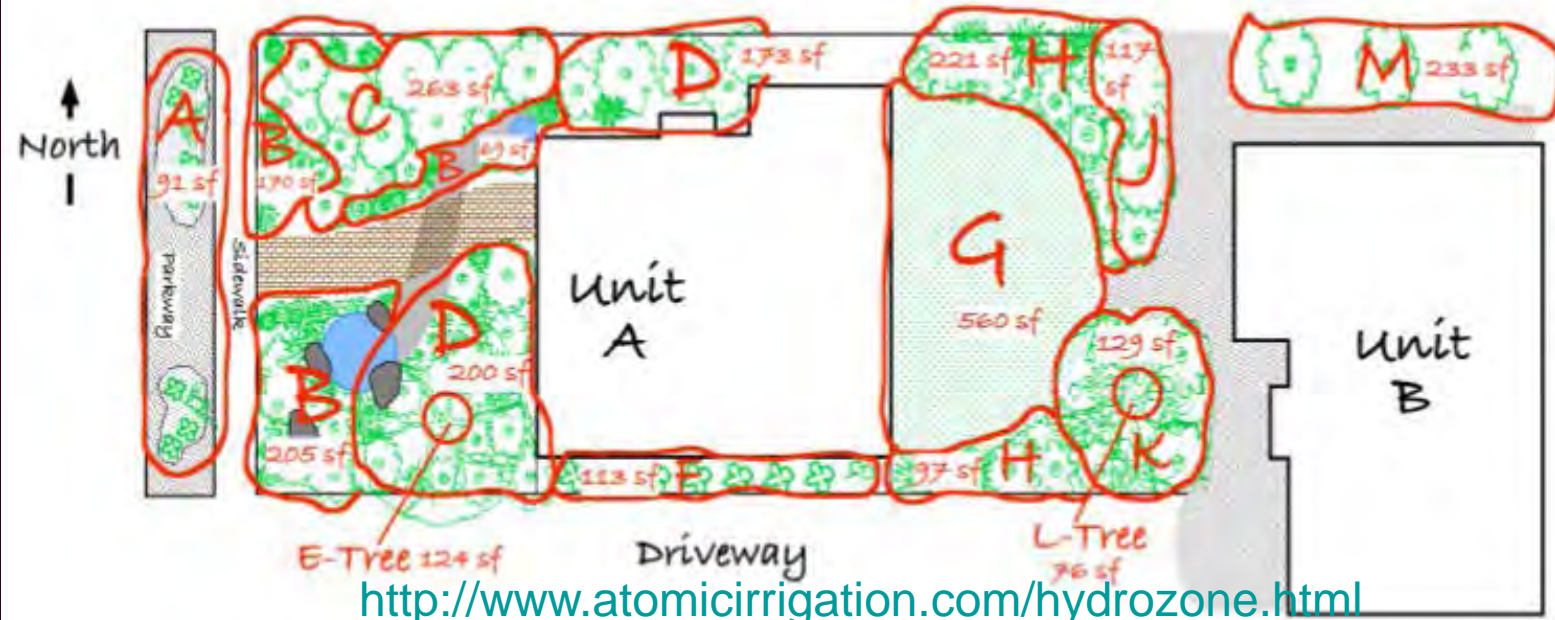
(physical and environmental)

- Sun/shade----summer & winter; existing plants and structures
- Earth----soil; foot traffic; drainage/slope
- Water-----rainwater; grey water; downspouts
- Breeze (wind)
- Existing plant materials and planting beds

Design with 'zones'

- The landscape area has its own 'zones'
- Water requirement zones----at least 3 zones
- Water savings by hydrozoning

SAMPLE HYDROZONE PLAN



Hydrozone = A grouping of plants with similar watering requirements based on plant type, irrigation method, sun exposure, soil type, slope or other criteria.

<http://www.atomicirrigation.com/hydrozone.html>

Hydrozone	Sq Ft	% of Total Area	Plant Type	Hydrozone Descr	Exposure
A	91	2	LVL	Native Grass/Shrub	Sun all day
B	444	11	LVL	Medium-Low Water Shrub	Sun all day
C	263	7	LVL	Large-Low Water Shrub	Sun all day
D	173	4	LVL	Medium Low-Water Shrub	Part Shade
E	124	3	LVL	Native Tree	Part Shade
F	113	3	H	Mixed Roses	Sun all day
G	560	14	H	Warm Season Turf	Sun all day
H	318	8	M	Medium Shrub	Part Sun
J	117	3	M	Large Shrub	Sun all day
K	129	3	M	Medium Shrub	Part Shade
L	76	2	M	Flowering Tree	Sun all day
M	233	6	M	Mixed Citrus Tree	Sun all day

LVL=Low-Very Low, M= Medium, H=High



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2. Soil Analysis and Improvement

- Organic matter, pH, macros, micros...
- Take proper soil samples
- Soil amendment



“3-way
match”





• Macro

• Micro

Fertilizer	Analysis	Speed of Reaction	Soil Reaction
Ammonium nitrate	33-0-0	Rapid	Acidic
Ammonium sulfite	20-0-0	rapid	Very acidic
Urea	46-0-0	Rapid	Sl. acidic
Urea formaldehyd	38-0-0	Slow	Sl. acidic
Di-ammonium phosphate	18-46-0	Rapid	Acidic
Calcium nitrate	15-0-0	Rapid	Alkaline
Potassium nitrate	13-0-44	Rapid	Neutral

Long-term strategy: Feed the soil!

- Improve soil physical/chemical/biological properties (water holding capacity, drainage, cation exchange capacity, nutrient levels, mycorrhizae, earthworms, microbes, etc.)
- Then enjoy!



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3. Practical turf area

Integrate lawn in the design

- Monoculture (almost)
- Lawn as a design element, not as 'filler'
- Impact from surround elements
- Consider area for irrigation and mowing efficiency
- Reduce water runoff and nonpoint source pollution of nearby waterways by surrounding lawn with planting beds
- Lawn requires the most amount of potable water
- Mowing + irrigation + fertilizing + weeding

Integrate lawn in the design

- Recommend strongly against lawn for difficult-to-manage areas
 - Steep slopes
 - Difficult-to-mow areas
 - Poor drainage areas



Map

Traffic

200 ft
50 ft



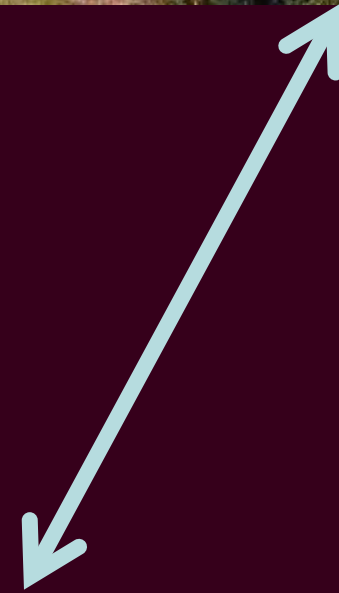
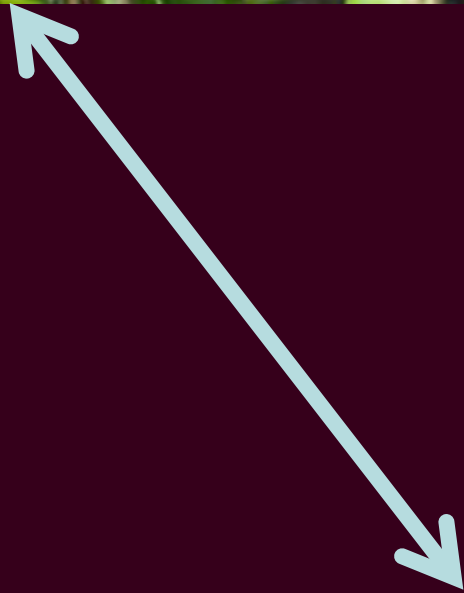


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4. Appropriate plant selection



“3-way
match”



Aggie Horticulture®



Academics



Fruit and Nut Resources



Vegetable Resources



Earth-Kind® Landscaping



Junior Master Gardener®



Texas Master GardenerSM



Small Acreage Horticultural Crops



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Landscaping



Earth-Kind Introduction

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Playlist: Earth-Kind Introduction (7 videos)

0:00 / 0:53

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[Earth-Kind® Plant Selector](#)

[Search the Earth-Kind® Plant Selector](#)

[Earth-Kind® Publications](#)

Earth-Kind Landscaping uses research-proven techniques to provide maximum

Earth-Kind® Plant Selector

Select your general region on the map or use the region list. You can also find your zone by searching with your zip code. The next page will allow you to search for plants by specific characteristics.

The Earth-Kind Plant Selector **DOES NOT** provide information concerning the potential invasiveness of landscape plants, though plants with a high Earth-Kind Index value will generally be more "aggressive" in their growth habit than plants with a lower value. See [About Invasiveness](#) for more information.



Zip Code

Please enter the Texas zip code in which you reside to find your region.

Region

Please select the Texas region you reside in below.

Region F - Hill Country and Central Coast

Additional Considerations

- [Making Plant Selections](#)
- [About Invasiveness](#)

More Resources

- [Earth-Kind®](#)
- [Urban Landscape Guide](#)

Earth-Kind® Plant Selector

Search for Plants in Region F - Hill Country and Central Coast

To find all listed plants click search with no search criteria entered. Plants will be ordered by those most well adapted to your region.

Enter the following information for each plant. Use the specific categories defined. *Photos are not available for all plants at this time.*

Common name:

Growth Habit

Habit or plant use

Exposure

sun partial sun shade

Blooming

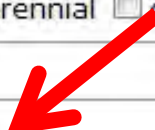
Flower color:

Bloom period: spring summer fall winter

Leaf Character

annual herbaceous perennial deciduous evergreen semievergreen

Search All Plants



Search for and return all plants based on any criteria provided. May return plants that are not well adapted for your region.

Quick List (Plants rated 8 or higher)

Generate a listing of all plants in your area with Earth-Kind indexes of 8 or greater and with any of the criteria above.

Plants found for Region F - Hill Country and Central Coast

Results 1 to 20 (415)

First Previous 1 2 3 Next Last

Photo	Scientific Name	Common Name	Earth-Kind Index
 <p>Copyright © Michael Arnold</p>	Castilleja indivisa	Indian Paintbrush	See note regarding cool season annuals
 <p>Copyright © Michael Arnold</p>	Juniperus ashei	Ash Juniper	10.00
 <p>Copyright © Michael Arnold</p>	Quercus laceyi (Quercus glaucoides)	Lacey Oak	10.00
 <p>Copyright © Michael Arnold</p>	Jasminum mesnyi	Primrose Jasmine	10.00
 <p>Copyright © Michael Arnold</p>	Berberis trifoliolata	Agarito	10.00

A Table of over 300 plants with Earth-Kind Index of 8 or more

TABLE 5-6: Landscape plants with Earth-Kind indexes of 8 or more in each region of Texas

Landscape plant	Size (maximum or alternate)	Earth-Kind Index	Panhandle and High Plains	North and Central	Northeast and East	West	Upper Rio Grande	Hill Country/ Central Coast	Southeast	Rio Grande Valley
			A	B	C	D	E	F	G	H
Afghan pine <i>Pinus eldarica</i>	35–45 ft (60 ft) x 15–20 ft (25 ft)	9.00	x	x		x	x			
Agarito <i>Berberis trifoliolata</i>	3–5 ft (8 ft) x 3–6 ft	10.00	x	x	9	x	x	x		x
Aleppo pine <i>Pinus halepensis</i>	30–50 ft x 15–25 ft	10.00	x			x	x	8		
American beautyberry <i>Callicarpa americana</i>	4–6 ft (10 ft) x 4–6 ft	9.00	x	x	10		x		10	
American beech <i>Fagus grandifolia</i>	60–70 ft (120 ft) x 50–70 ft (100 ft)	8.00			x					
American elderberry <i>Sambucus canadensis</i>	3–10 ft x 5–12 ft	8.00		10	x	x	x		10	
American elm <i>Ulmus americana</i>	60–80 ft (120 ft) x 50–90 ft	9.00		x	x				10	

Crapemyrtles

Chicksaw, Catawba, Osage, Biloxi

20'

15'

10'

5'



Crapemyrtles (short)

- 3'-5'

- 'Chickasaw'
- 'Pocomoke'
- 'Centennial'
- 'Hope'
- 'Victor'
- 'Ozark Spring'

- 5'-10'

- 'Cherokee'
- 'Catawba'
- 'Conestoga'
- 'Hopi'

Crapemyrtles (tall)

- 10'-20'

- 'Potomac'
- 'Osage'
- 'Sioux'
- 'Tuskagee'
- 'Apalachee'

- >20'

- 'Wichita'
- 'Muskogee'
- 'Natchez'
- 'Biloxi'
- 'Choctaw'

Google "Crapemyrtle Guide" --Crapemyrtle Quick Guide Chart



Wednesday, December 17, 2008

Arboretum Information	Events & Education	Gardens & Horticulture	Research Activities	Support the Arboretum	Search Our Site
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Arboretum Plant Photo Gallery

Crapemyrtle Quick Guide Chart

The chart below is a quick guide to differences between our 29 released crapemyrtles: including descriptions of flower color, bark color, fall color, plant size, and growth habit. Click on the variety name to go to that specific individual gallery to see images featuring flowers, fall foliage, and bark.

Variety	Flower Color	Bark	Fall Color	Height	Growth Habit
‘Acoma’	white	light gray	red purple	10+	semipendulous spreading shrub
‘Apalachee’	light lavender	cinnamon to chestnut brown	orange russet	15-18'	small, upright tree
‘Biloxi’	pale pink	dark brown	orange red	to 25'	tall, upright, vase-shaped tree

“Crape Murder”





“Crape Murder”

- **Excuses**
 - “All doing it”
 - “Too big”
 - “No heading, no flower “
 - “Like to shape it”

- Remove all suckers
- No cuts on finger size limbs



Trees and shrubs are important!



Reduce transpiration by shading and blocking wind



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- **5 Efficient irrigation**



Why Water?

1. Severe drought
2. Facilitate nutrient uptake



Drought stress

1. Entire plant die/Dieback
2. Wilt
3. Decreased/ no growth
4. Heavy seed production
5. Thin tree canopy
6. Wood or bark cracks.
6. Suckers
7. Chlorotic
8. Leaf brown
9. Leaf drop



Application :

1. “Side watering”—from lawn irrigation
2. “Slow release”



5. Efficient irrigation

- Zonal irrigation
- Drip irrigation
- Calibrate and adjust irrigation system
- Irrigation frequency
- Rainwater and greywater
- Rain garden

Irrigation Efficiency

- Water only when plants require water
- Visually only judge water requirements in the morning
- Water deeply to promote deep and healthy roots
- One inch of water will generally penetrate the soil to a depth of six inches (soak and cycle)
- Water slowly for better absorption. Use drip irrigation wherever possible
- Water after 6:00 pm and before 10:00 am to reduce wasteful evaporation-----Wind displaces and evaporates water
- Water newly planted flowers, shrubs and trees individually
- Water without creating runoff
- Check irrigation system monthly

Benefits of rainwater

- Plants respond better to a rain than the equal amount of irrigation water.
- Low sodium
- Replenish groundwater
- Reduce water runoff and non-point source water pollution
- Reduce use of potable water
- FREE

Grey water use

- Avoid human contact
- No surface irrigation on food crops except citrus and nuts
- Label grey water pipes to avoid confusion
- No grey water runoff
- Restrict access to grey water storage
- Minimal surface accumulation of grey water
- Grey water must be disposed to normal wastewater system, should a backup occur

Rain Garden





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6. Use of mulches



Benefits of mulches

- Maintain soil surface permeability
- Reduce soil erosion
- Reduce water evaporation and conserve water
- Reduce soil and root zone temperature fluctuation
- Increase organic matter (organic mulch)
- Reduce weed competition

Mulching Materials?

- ✓ Bark
- ✓ Wood chips
- ✓ Sawdust
- ✓ Straw
- ✓ Pine straw
- ✓ Shredded leaves
- ✓ Newspaper

Mulching Materials?

- ✓ Crushed stone, gravel, volcanic rock
- ✓ Plastics
- ✓ Geotextiles



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7. Appropriate maintenance

7. Appropriate maintenance

- Water deep/wide/infrequently
- Enjoy your plants and observe----detect early and intervene as needed
- Fertilizing (are you doing your math correctly?)
- Chemical application
- Pruning



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Xeriscape

Xeriscape

≠

"Zero-scapes"





Why can't we just whack em back?!?!?



Problem: spiny holly



Solution?!?!?



Boxwood and azalea near a downspout!?!?!?





Loropetalum TREE near a wall?!?!?





“Staking is
NOT always
necessary”

Good

- 2 ties
- Stakes outside rootball
- White trunk wrap
- Flexible tie materials





Need I say anything



2 tie points - NO





**3 tie points,
should we go for 4 !!!**







Tie point is too low as indicated by bend ABOVE tie.



Tie point is too high as indicated by bend BELOW tie.







Creative idea by homeowner



Rigid is NOT good !



RigidGuy™



Now that looks professional



A+

Tree Staple™







Ouch !







Guying a light pole ?.





NEVER, EVER use black trunk wrap!!!!!!



Cooked bark under black tree wrap!





I see 2 problems?

Why Mulching?

- ✓ conserve soil moisture
- ✓ keep down weeds
- ✓ reduce erosion
- ✓ keep plant roots cool in summer









“volcano mulching”





“Just a pinch and no more”









Poured rubber chips!







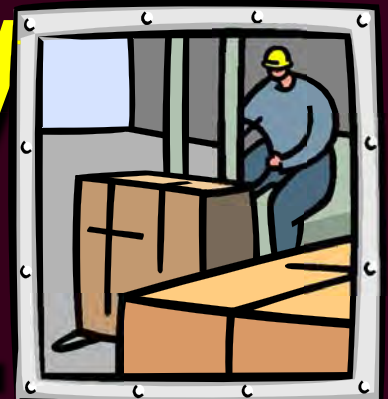
WHAT is the purpose?!?!?!





**Why work this
hard?**

**Make it easy
yourself.**





?









Hey Joe, bring me the triplex mower.

Challenging Sites













Slip sliding away





