MARYLAND COOPERATIVE EXTENSION
UNIVERSITY OF MARYLAND
COLLEGE PARK•EASTERN SHORE

Fact Sheet

Fact Sheet 726

RIPARIAN BUFFER MANAGEMENT

TREES FOR RIPARIAN FOREST BUFFERS

Tree selection for a riparian forest buffer requires consideration of several factors:

- region,
- wildlife value,
- light preference,
- flood tolerance,
- growth rate,
- height, and
- rooting.

Trees closest to the waterway are most likely to be flooded, and need a greater tolerance to high water tables. If the area has recently been disturbed, trees with a fast growth rate will quickly establish root systems to hold the soil. Fast-growing trees are not necessarily long-lived, therefore interplanting fast- and slow-growing trees is a wise practice.

Eventual tree height is an important factor to consider. Ask the following questions when you choose your buffer:

1. At its maximum height, will the tree provide adequate shade for the stream?

2. Are there any aesthetic considerations (the trees will screen or frame a view or provide a windbreak)?

3. Are there any safety considerations (avoiding power and telephone lines or ensuring that the view of vehicles on a road is not obstructed)?

Trees with shallow rooting systems hold surface soils well, but do not provide as much stability to high banks and steep slopes as trees with deeper root systems. Also, deeper root systems anchor trees better where there are repeated flooding/drying cycles.

Below is a table of trees recommended for Maryland riparian forest buffers, compiled from several references. Information on the trees' ecological and growing characteristics should help the landowner determine suitable species for a specific riparian forest buffer site.

REFERENCES

Brown, R.G. and M.L. Brown. 1972. *Woody Plants of Maryland.*

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U.S. Department of Agriculture Forest Service. 1997. *Chesapeake Bay Riparian Handbook.*

Riparian Buffer Management: Trees for Riparian Forest Buffers
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Trees for Riparian Forest Buffers

	Region	Wildlife Value	Light Preference	Flood Tolerance	Growth Rate	Height (feet)	Rooting
	Coastal plain (CP) Piedmont (P) Mountains (M)	V. high High Medium Low	❍ ◗ ●	High Medium Low	V. fast Fast Medium Slow	>75’ 50-75’ <50’	
American basswood	P, M	Low	◗	Low	Medium	>75’	Deep lateral
American beech	CP, P	High	◗/●	Low	Slow	>75’	Shallow
American holly	CP, P	High	◗	Medium-Low	Slow	30-40’	Taproot
American hornbeam	P, M	Medium-High	◗/●	Medium-Low	Slow	30-40’	Deep lateral
Bald cypress	CP, P	Low	❍/◗	High	Medium	>75’	Shallow
Bitternut hickory	CP, P	Medium	❍/◗	Medium	Medium-Slow	>75’	Deep taproot
Black cherry	P, M	High	◗/●	Low	Medium	40-60’	Deep taproot
Blackgum	CP, P, M	Medium	❍/◗	Medium-High	Slow	<50’	Taproot
Black locust	P, M	Low	❍	Low	Medium-Fast	40-60’	Shallow
Black walnut	P, M	Medium-Low	❍/◗	Medium	Medium	>75’	Taproot
Black willow	P, M	High	❍	High	Very fast	50-75’	Shallow
Boxelder	P, M	Medium	❍	High	Very fast	>50’	Deep lateral
Cherrybark oak	CP	High	◗	Low	Medium	>75’	Taproot
Chestnut oak	P, M	High	◗/●	Low	Slow	50-75’	Taproot Deep lateral
Choke cherry	CP, P, M	High	❍/◗	Low	Fast	<50’	Deep taproot
Crabapple	CP, P, M	High	❍/◗	Low	Medium	<30’	Shallow
Dogwood	CP, P, M	Medium	❍/◗/●	Low	Slow	30-40’	Shallow
Eastern cottonwood	CP, P, M	Low	❍	High	Fast	>75’	Shallow

Wildlife Value = food source for wildlife

Light Preference: ❍ = full sunlight
◗ = partial shade
●= shade

Flood Tolerance: High = tolerates flooding/high water
Low = does not tolerate flooding/high water

	Region	Wildlife Value	Light Preference	Flood Tolerance	Growth Rate	Height (feet)	Rooting
	Coastal plain (CP) Piedmont (P) Mountains (M)	V. high High Medium Low	❍◗●	High Medium Low	V. fast Fast Medium Slow	>75’ 50-75’ <50’	
Eastern red cedar	CP, P	Medium	❍/◗	Low	Slow	<50’	Shallow
Green ash	CP, P, M	Low-Medium	❍	Medium-High	V. fast	50-75’	Shallow
Grey birch	CP, P, M	Medium	❍/◗	Low-Medium	Medium-Slow	60-70’	Shallow
Hackberry	CP, P, M	High-V. high	❍/◗	Medium	Fast-Medium	>75’	Deep lateral
Hawthorn	CP, P, M	High	❍	Low-Medium	Medium	<30’	Shallow
Hemlock	P, M	Medium	◗/●	High-Medium	Slow-Medium	>60’	Shallow lateral
Hophornbeam	CP, P, M	Medium	❍/◗/●	Low	Slow	<30’	Shallow
Loblolly pine	CP, P	Low-Medium	❍	Low	Fast	>75’	Shallow
Mulberry	CP, P	High-Medium	◗/●	Medium	Fast	30-40’	Taproot
Northern red oak	CP, P, M	Medium-High	◗	Low	Medium-Fast	>75’	Deep lateral
Overcup oak	CP	High	◗/●	Medium	Slow	50-75’	Deep taproot
Pawpaw	P	V. high	◗/●	Low-Med.	Slow	30-40’	Deep lateral
Persimmon	CP, P	V. high-High	❍	Medium	Slow	<50’	Deep taproot
Pin oak	CP, P	High	❍/◗	Medium-High	Fast-Medium	>75’	Shallow
Pitch pine	CP	Low	❍	Medium	Medium-Slow	<50’	Shallow
Redbud	CP	Medium	◗	High	Slow	<50’	Shallow

	Region	Wildlife Value	Light Preference	Flood Tolerance	Growth Rate	Height (feet)	Rooting
	Coastal plain (CP) Piedmont (P) Mountains (M)	V. high High Medium Low	❍◗●	High Medium Low	V. fast Fast Medium Slow	>75’ 50-75’ <50’	
Red maple	CP, P, M	Medium-High	❍/◗	High	Fast Medium	50-75’	-Very shallow
River birch	CP, P, M	Medium-High	❍/◗	High	Fast	50’+	Shallow
Sassafras	CP, P, M	High	❍	Low	Fast	<50’	Shallow
Scarlet oak	CP, P, M	Medium-High	◗	Low	Medium	50-75’	Deep lateral
Shagbark hickory	CP, P, M	Medium	◗	Med.-Low	Medium	50-75’	Deep taproot
Silver maple	CP, P, M	Low-Medium	❍/◗	High	Medium	>75’	V. shallow
Southern red oak	CP, P	Medium	◗	Medium	Medium	50-75’	Deep lateral
Sugar maple	M	Medium	●/◗	Med.-Low	Slow	<75’	Shallow
Swamp chestnut oak	CP, P	High	❍/◗	High	Medium	50-75’	Shallow
Swamp white cedar	CP	Medium	❍	Medium-High	Medium Slow	50-75’	Shallow
Swamp white oak	CP, P	High	❍/◗	High	Fast-Medium	>75’	Shallow
Sweet bay magnolia	CP, P	V. low-Low	◗	Medium	Medium	<30’	Deep lateral
Sweet birch	M	Medium	◗/●	Medium	Slow	50-75’	Shallow
Sweetgum	CP, P	Medium-Low	❍/◗	Medium-High	Medium	50-75’	Deep taproot
Sycamore	CP, P	Low	❍/◗	Medium	V. fast	50-75’	Shallow
Water oak	CP	Medium	◗	Medium-High	Fast	50-75’	Deep lateral
White ash	P, M	Medium-Low	❍/◗	Medium	Medium	>75’	Shallow
White oak	CP, P, M	V. high	❍/◗	Low-Medium	Slow	>75’	Deep taproot
Willow oak	CP, P	High	❍/◗	Medium-High	Fast-Medium	>75’	Shallow
Yellow poplar	CP, P, M	Low	❍/◗	Low	Fast	>75’	Shallow/deep