

## Tree Spacing for Riparian Forest Buffers

### INTRODUCTION

The purpose of this technical note is to provide guidance to field office staff when evaluating potential sites for Riparian Forest Buffers.

### BACKGROUND

The tables contained within this technical note are intended for use in evaluating sites that have existing woody vegetation and will assist the planner in evaluating the given site for the need of additional planting. The tables apply specifically to areas that are being considered for a Riparian Forest Buffer and are not intended for any other application.

### APPLICATION AND PROCEDURE

To determine existing tree densities, zig-zag transects or seedling counts on sample plots may need to be performed. For existing vegetation with average diameter at breast height (dbh-4.5' above ground) less than the table values, a minimum of 600 trees/acre is required. The exceptions to this are areas that are to be managed for Oak Savanna Restoration or Spring Cold Water Stream Management. For existing vegetation with average dbh greater than the table values, contact the local WDNR Forester or the NRCS State Staff Forester. Sites with tree densities at the minimum level (B) or above are considered adequately stocked for the Riparian Forest Buffer to function properly. Resource concerns in the contributing watershed must be addressed to maximize the benefits of the Riparian Forest Buffer.

#### Bottomland Hardwood

Major Species; *Eastern Cottonwood, Green Ash, River Birch, Swamp White Oak, Silver Maple and American Elm*  
Secondary Species; *Hackberry, Bur Oak, Black Willow, Basswood, Black Ash, Red Maple, and Northern Red Oak*

DBH (av.)	A (trees/ac. max.) <sup>1</sup>	B (trees/ac. min.) <sup>2</sup>	Average Spacing
< 6 in.	800	200 <sup>3</sup>	7ft - 15ft
6 in.	475	202	9.5ft - 15ft
10 in.	202	112	15ft - 20ft
14 in.	112	71	20ft - 25ft
18 in.	71	49	25ft - 30ft
22in.	49	36	30ft - 35ft
26 in.	36	27	35ft - 40ft

<sup>1</sup>A = Desired maximum number of trees per acre for most sites.

<sup>2</sup>B = Desired minimum number of trees per acre for most sites except for trees < 6 in. dbh.

<sup>3</sup>Tree Density of less than 600 trees per acre is only desirable for Savanna and Spring Creek Cold Water Stream management.

The previous table only applies to mixed hardwood stands and should not be applied to areas dominated by a single species. For sites dominated by a single species, consult local WDNR Foresters or contact the NRCS State Staff Forester.

The following tables are to be applied to sites dominated by the species identified.

### Eastern White Pine

DBH (av.)	A (trees/ac. max.) <sup>1</sup>	B (trees/ac. min.) <sup>2</sup>	Average Spacing
4 in.	1500	600	5.4ft - 8.5ft
8 in.	600	280	8.5ft - 12.5ft
13 in.	280	150	12.5ft - 17ft
18 in.	150	90	17ft - 22ft

### Spruce-Fir

Major Species; *Balsam Fir, White Spruce*

Secondary Species; *Paper Birch, Trembling Aspen, Red Maple, Northern White Cedar, Black Spruce, Hemlock, Red Pine, Eastern White Pine, Jack Pine.*

DBH (av.)	A (trees/ac. max.) <sup>1</sup>	B (trees/ac. min.) <sup>2</sup>	Average Spacing
5 in.	1025	450	6.5ft - 9.8ft
10 in.	450	250	9.8ft - 13.2ft
13 in.	290	160	12.25ft - 16.5ft

<sup>1</sup>A = Desired maximum number of trees per acre for most sites.

<sup>2</sup>B = Desired minimum number of trees per acre for most sites.

For all species not identified in this technical note, consult the local WDNR Forester or the NRCS State Staff Forester.