



RIPARIAN SETBACKS: WHY THAT WIDTH?

Riparian areas are naturally vegetated lands along rivers and streams. When appropriately sized, these areas can limit streambank erosion, reduce flood size flows, filter and settle out pollutants, and protect aquatic and terrestrial habitat. Riparian setbacks are a tool local governments can use to maintain riparian area functions. Communities can establish riparian setbacks through a combination of landowner education, land acquisition, and land use controls on new development. County soil and water conservation districts, land trusts, and other organizations are skilled in assisting communities and landowners with education and acquisition efforts. To assist interested members in minimizing the impacts of new development on riparian areas, CRWP has developed a model regulation for riparian setbacks. **This model recommends that Riparian Setbacks:**

- ◆ Range from **25 feet to 300 feet** depending on watercourse drainage area.
- ◆ Are **minimum distances** and apply to **both sides** of designated watercourses.
- ◆ **Conform to community** land development patterns and natural resource management goals.

- ◆ Include provisions for communities to **examine the combined impact of all setbacks** - side yard, rear yard, riparian, etc. - on a subdivision or a parcel and **make reasonable adjustments** to ensure existing **lots remain buildable** and to **maintain lot yields** from new subdivisions to the extent possible.

This document summarizes research on riparian area functions and relates these to each purpose in CRWP's model riparian setback regulation.

Riparian Areas Limit Streambank Erosion

- ◆ A riparian forest strip needs to be wider than **66 feet** to be windfirm and reduce the effects of high winds on streamside trees. (U.S. Forest Service in Divelbiss, 1994.)
- ◆ A riparian setback of at least 2 tree lengths is necessary to accommodate the natural meandering of streams. This is approximately **150 feet** for the Great Lakes States Region. (Verry, 1992 in Divelbiss, 1994.)

Riparian Areas Reduce Flood Size Flows.

- ◆ Adjacent forest vegetation and litter lowered stream flood elevations from 32 feet to 17 feet for a 100-year flood. (Bertulli, 1981 in Castelle et al., 1994.)
- ◆ The combined effect of vegetated floodplains is to reduce flow velocity, increase the storage of water, and minimize downstream flood impacts. (Smardon & Felleman, 1996.)

Riparian Areas Filter and Settle Out Pollutants

- ◆ Computer modeling of riparian systems shows that a **150 foot** riparian setback on a 3% slope reduced **sediment** transport by 90%. (Wong & McCuen, 1981 in Divelbiss, 1994.)



- ◆ Riparian setback strips greater than **52 feet** wide remove **nitrate** from agricultural drainage waters. (Jacobs & Gilliam, 1985.)
- ◆ A **150 foot** riparian setback is necessary to protect water quality from sedimentation and pollutants. In developing this number, 34 pollutant specific studies were reviewed. These studies showed an **82 foot** setback necessary to remove 80% of **sediments**; a **197 foot** setback necessary to remove 80% of **suspended solids** and **nitrogen**; and a **279 foot** setback necessary to remove 80% of **phosphorus**. (Desbonnet et al., 1994.)

Riparian Areas Protect Aquatic and Terrestrial Habitat

- ◆ A **100 foot** forested riparian setback on both sides of a perennial stream minimized the increase and fluctuation in river temperature following timber harvesting. (Lynch & Corbett, 1990.)
 - ◆ A healthy forest community along Ohio's rivers and streams is essential to the stability of these aquatic systems. To maintain a forest community along a stream or river, a minimum distance of **120 feet** (or two 60 foot crown diameters for Ohio trees) on either side of rivers and streams is necessary. (Lewis, 1998.)
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Sources

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