

Identifying Benefits and Barriers Associated with Reforesting Riparian Corridors

Benefits of Riparian Forest Buffers

There are numerous benefits associated with RFBs. These benefits can be economic, social, spiritual, recreational, and environmental. These benefits are not limited only to the private landowner who installs the buffer, but to the larger public community.

Many of the environmental benefits are also social as well because the public is benefited by the improved environmental quality that RFB's can provide. Forest buffers have been shown to remove up to 100% of sediment and pesticides from runoff. RFB's are also documented as removing up to 90% of nitrogen and phosphorus from runoff. Forest buffers stabilize stream banks, shade streams, and provide food and cover for terrestrial and aquatic life. Buffers also reduce flooding, flood damage, and increase groundwater storage. Trees also reduce air pollution and sequester carbon during evapotranspiration.

Improved habitat due to RFB's will lead to increased biological diversity and richness. Fisheries improve and thus recreational fishing opportunities. Terrestrial wildlife become more diverse and abundant and thus will lead to hunting opportunities. Riparian buffers also connect habitats and allow travel corridors for wildlife species. This could become an economic benefit for the landowner as they could lease the land for hunting. Landowners can also benefit spiritually by watching wildlife. Other recreational benefits could include increased ecotourism for fishing, canoeing, hiking and birding opportunities.

The installation of RFB's can greatly reduce sediment to surface waters and thus lessen the need for dredging of streams, ditches, ponds and lakes. Dredging is a very costly activity that usually economically impacts a large number of people.

Landowners can benefit from buffers by the harvest of timber from the buffer. They can also harvest other forest products such as nuts, berries, roots, as well as fish and wildlife resources. Landowners also benefit from increased aesthetic value of their property which could also increase the land value.

Costs of Riparian Forest Buffers

The landowner is generally responsible for the cost of installation and maintenance of RFB's. However there are many local, state, and federal programs available to cost share with the landowner these costs as well as the cost in taking the land out of row crop production.

The below table estimates the costs of installation and maintenance of forested buffers. This table was developed by the Maryland Cooperative Extension Service (Lynch & Tjaden 2000).

Table 1: The cost of installing and maintaining forest buffers as calculated by the Maryland Cooperative Extension (Lynch & Tjaden).

Forest Buffer Costs (436-550 trees)	
Activity	Cost per acre \$
Plant by machine	75-130
Plant by hand	60-174
Plant material	60-275
Site prep. band	30-50
Site prep. broadcast	80-120
Replanting	56-100
Maintenance herbicides	30-60
Maintenance mowing	12-60
Total	218-729

There is also a cost in taking the land out of row crop production, whether the landowner or a renter is farming the land. Land in a corn – soybean rotation in conventional tillage could have production levels ranging from \$85-\$179.50 per acre (Nakao et al 1999) There are many programs available to landowners interested in establishing these buffers, but do not have the economic means. In Indiana these programs include; CRP, CREP, EQIP, WHIP, WRP, FLEP, and LARE.

Challenges of Riparian Forest Buffers

Landowners have many concerns about installing RFB's. Cost is always a concern for landowners. Many do not like the permanent nature of a forested buffer, which could reduce their options on the land. They also fear the effect future and existing legislation could have on their ability to change the land use of the area. Many producers think that buffers next to their crops could reduce yield due to shading of the crop. Many of these concerns can be addressed by proper planning of buffers. Other concerns include time for maintenance, introduction of weeds to crop field, and machinery mobility. Farmers also worry about the establishment of forest buffers will increase the numbers of undesirable or destructive wildlife species and thus cause crop damage and loss.

Weed competition was found to be the primary barrier to young tree survival and growth (Pannill et al 2001). Wildlife damage can also be a challenge when establishing forested buffers. Deer will eat the tender new shoots and buds of young trees and rub the bark of young trees with antlers. Rabbits and other small mammals will eat the bark at the base of the tree in the winter. Other factors that can negatively affect growth and survival rates include drought, insects, machinery, and vines.

In riparian areas with a high incidence of flooding and scouring new tree plantings can be destroyed by flood debris or ice flows.



Bear Creek, Iowa 1990, before riparian buffer installation



Same site as above on Bear Creek, six years after riparian buffer establishment.

http://www.buffer.forestry.iastate.edu/Photogallery/before_after/before_after.htm

Indiana Forestry Assistance for Watershed Groups

Below are the links to Indiana consulting and industrial foresters. These folks are self or industry employed and are available to assist with a number of forest management activities including; riparian buffer installation, reforestation, wildlife habitat, timber management, timber harvesting and others. District foresters are employed by the DNR Division of Forestry. District foresters are also available to assist with various forest management activities. District foresters administer both state and federal programs that provide technical assistance, property tax incentives, and cost-sharing incentives for applying practices that accomplish sustainable forest management. Consult the lists below to get in touch with a forester in your area.

Link to consulting foresters list:

<http://www.fnr.purdue.edu/extension/foresters/consult/cfi.htm>

Link to industrial foresters list:

<http://www.fnr.purdue.edu/extension/foresters/industrial/ifi.htm>

Link to district foresters list:

<http://www.in.gov/dnr/forestry/index.html?http://www.state.in.us/dnr/forestry/privateland/disfor.htm&2>

Duane McCoy and / or Jennifer Sobecki can be contacted for assistance by watershed groups state wide. They can provide information regarding watershed conservation as it relates to forestry and forestry BMPs. Duane and Jennifer are also available to help you connect with professionals to assist you with your watershed projects.

Duane A. McCoy
Watershed Conservation Forester
402 W. Washington St., Rm W296
Indianapolis, IN 46204
Phone: (317) 234-4386 or (765) 342-4122
Fax: (317) 233-3863
dmccoy@dnr.in.gov

Jennifer Sobecki
Morgan-Monroe State Forest
6220 Forest Road
Martinsville IN 46151
(765)342-4122
Jesobecki@dnr.in.gov

References

- Klapproth, Julia, and James Johnson. 2001. Understanding the science behind riparian forest buffers: benefits to communities and landowners. Virginia Cooperative Extension. VCE Pub # 420-153.
- Lynch, Lori, and Robert Tjaden. 2000. When a landowner adopts a riparian buffer – benefits and costs. Maryland Cooperative Extension. Fact sheet 774.
- Nakao, Megumi, Larry Brown and Rob Leeds. 1999. The economics of vegetative filter strips. Ohio State University Extension. AE-0006-99.
- Pannill, Phillip, Anne Hairston-Strang, Charles Bare, and David Robbins. 2001. Riparian forest buffer survival and success in Maryland. Maryland Department of Natural Resources – Forest Service. Research report DNR/FS-01-01.