

The Pennsylvania Riparian Forest Buffer Handbook

For the CREP Participant



Acknowledgements

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Dear

This personalized handbook provides handy reference material to aid in your success in planting and maintaining your riparian forest buffer pursuant to your CREP contract.

Your new contract will play an important role in protecting our nation's natural resources. Riparian buffers are one of the most important practices to improve wildlife habitat and water quality in Pennsylvania streams and the Chesapeake Bay. By signing this contract, you took an important first step in developing habitat for wildlife and protecting soil and water resources. We appreciate your stewardship efforts.

This handbook is designed to assist you as you go forward in implementing the conservation practices that you have selected for your farm. USDA Farm Service Agency (FSA), USDA Natural Resource Conservation Service (NRCS), the state of Pennsylvania, local soil and water conservation districts, and others are here to assist you as you implement your plan. This handbook provides helpful general information as well as your CREP contract and conservation plan. If you have any questions or concerns, we encourage you to call, visit or e-mail us and we will be happy to work with you. We have provided a list of phone numbers and email addresses for you.

We wish you success in implementing your plan and look forward to working with you over the course of the next 10 to 15 years.

Sincerely,

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***Insert Key Contacts ***

***Insert Vendor List ***

Financial Issues Related to Your CREP Riparian Forest Buffer

1 ANNUAL RENTAL PAYMENT

What is the annual rental payment?

The Farm Service Agency (FSA) will provide you with annual rental payments for the duration of your contract (typically 10 or 15 years) to compensate you for devoting this portion of your field to a CREP riparian forest buffer.

How is the CREP annual rental payment for riparian forest buffers (CP22) calculated?

This answer provides a general overview of roughly how your annual rental payment is calculated by the FSA county office. This description is very general and is **not** intended to be a substitute for, or to contradict, the detailed, binding rental rate determined by your local FSA county office. The PA CREP provides higher incentives for certain practices, such as riparian forest buffers, in light of the exceptional water quality and wildlife habitat benefits they provide. The annual PA CREP rental payment for riparian forest buffers is calculated at 200% of the average annual rental payment for the three predominant soils in your CREP enrollment. For example, if your average soil rental rate is \$100 per acre, your annual rental payment for your riparian forest buffer equals \$200 per acre, plus the annual maintenance rate (\$10 per acre).

What do I need to do each year to receive my annual rental payment?

In addition to maintaining your riparian forest buffer, you need to initially certify your acreage by July 15th during the first year of your CREP contract. You do not need to re-certify acreage every year. However, whenever there is a change in acreage during the life of your CREP contract, you must report that change in acreage by re-certifying your acreage by July 15th of that year.

When do I receive the annual rental payment and how will it be issued?

Annual rental payments are issued in October. Payments are issued electronically but you will receive a statement after the payment has been issued.

How much will be my portion of the payment be?

Your CRP contract (form CRP-1) will show the total annual payment issued for the contract. As described above, it is based off of the annual payment rate:

$$\begin{aligned} \text{Annual Rental Rate} \\ &= ((\text{Average Soil Rental Rate} \times \text{Incentives}) + \text{Annual Maintenance Rate}) \\ &\times \text{Acres Under Contract} \end{aligned}$$

In some cases, the annual payment is divided among two or three people. The contract will also state the percentage share of the payment amount each of these parties will receive. Your payment may also be lowered if there are other monies you owe USDA, however this scenario is rare.

2 ANNUAL MAINTENANCE PAYMENT

What is an annual maintenance payment?

FSA provides an annual maintenance payment for certain CREP and continuous CRP enrollments. The annual maintenance payment amount varies depending upon the type of conservation practice and the components (fencing, water development, stock tanks, etc.) selected. CP22s get the highest annual maintenance payment.

How is the annual maintenance payment calculated? How much will it be?

In light of the importance of maintenance, FSA recently doubled the amount of annual maintenance payments from \$5 to \$10 per acre for riparian forest buffers. Fencing and water development could increase the payment.

When do I receive my annual maintenance payment?

Your annual maintenance payment is included within the annual rental payment. You will not receive a separate check for the annual maintenance payment.

Are there any records of maintenance I need to provide in order to receive my annual maintenance payment?

No. You do not need to provide any documentation or receipts. Your annual maintenance payment will be automatically provided.

3 SIGNING INCENTIVE PAYMENT (SIP)

What is a SIP?

A SIP is a special, up-front, one-time incentive payment that is paid for certain CREP and continuous CRP enrollments, such as riparian forest buffers, in light of the important environmental benefits these enrollments provide.

How much is the SIP?

The one-time payment equals \$100 per acre enrolled under your CREP contract. For example, if you enrolled 10 acres in the CP22 riparian forest buffer in the CREP, you would receive a SIP for \$1,000.

When will I receive the SIP payment?

The SIP is generally issued within 30 days after all parties sign the contract.

How will the SIP be issued?

FSA typically issues the SIP in a separate electronic payment within 30 days of signing the CREP contract.

4 FEDERAL COST-SHARE (C/S) PAYMENTS

What is a C/S payment?

FSA will reimburse CREP participants for up to 50% of the eligible cost of preparing the site and installing (planting) their riparian forest buffer.

How much will it be? How is it calculated?

This answer provides a general and approximate overview of how your C/S payment is calculated by the FSA county office. The actual numbers and calculation may vary in your county. If you have questions, please contact your county FSA office. FSA pays up to 50% of allowable C/S. Sometimes the actual costs to do site preparation and riparian forest buffer installation might be higher than allowable costs. FSA sets the maximum total costs eligible for reimbursement for each conservation component in your county based upon past records.

What do I need to do to get my C/S payments?

You must submit to your county FSA office the *itemized* receipts for your costs (e.g., the paid receipt for your contractor) in conducting site preparation and riparian forest buffer planting. For C/S payments, you may receive a payment after a component (fencing, pipeline, stock-water tank, site prep, tree planting, etc.) of the practice is completed.

When will I receive my C/S payments?

Generally within 30 days after submitting the *itemized* receipt and certifying the practice meets specifications, FSA will issue your payment. FSA and NRCS may require a site inspection to ensure that the practice meets specification and to gauge satisfactory completion of the practice (adequate fencing, feet of pipeline, etc.). It is best to talk to the local FSA staff to get an understanding of how long it will take to issue a payment.

How will they be issued?

The payments will be issued electronically.

5 STATE COST-SHARE PAYMENTS

What is a State C/S payment?

Pennsylvania Department of Environmental Protection (DEP) provides funding to Pennsylvania Association of Conservation Districts (PACD) to reimburse CREP participants for up to 50% of the cost of site preparation and installing (planting) their riparian forest buffer.

How do I become eligible for this payment?

The State C/S payment process begins after you receive your Federal C/S payment.

You will receive paperwork – the Riparian Forest Buffer Protection Land Owner Assurances agreement – that you must complete and submit in order to become eligible for the state C/S payment.

To be eligible for the state C/S payment, you must also agree to buffer all eligible areas to at least 50 feet in width along the stream (riparian corridor) on the FSA tract of land with the existing CREP contract. These areas may either enroll under CP22 (riparian forest buffer) or CP29 (marginal pastureland wildlife habitat buffer).

How much will it be? How is it calculated?

DEP/PACD pay up to 50% of allowable C/S for riparian forest buffers in PA CREP that are 50 feet or wider. In addition to federal cost share, DEP/PACD pay up to \$850 per acre for riparian forest buffer C/S without fencing and up to \$1250 per acre for riparian forest buffer C/S with fencing.

State C/S also includes certain post planting applications (please see Sec. 7 PPA below). Participation requires a signed post-planting maintenance agreement with DEP.

When will I receive my State C/S payments?

The state C/S payment process begins after you receive your federal C/S payment. Payment will be issued after submitting the *itemized* receipt and certifying the practice meets specifications. You will receive paperwork to complete and submit to become eligible for a PA state C/S payment.

How will payments be issued?

The payments will be issued as a check.

6 PRACTICE INCENTIVE PAYMENT (PIP)

What is a Practice Incentive Payment?

The PIP is a special payment intended to partially reimburse you for out-of-pocket expenses incurred in the installation of your riparian forest buffer. The PIP is not to be confused with C/S. It is really a special incentive payment that rewards CREP participants for successfully installing their riparian forest buffers.

How much is a PIP payment? How is it calculated?

Like C/S, the amount of your PIP payment varies depending upon the costs you pay for site preparation and planting your riparian forest buffer. The PIP is equal to 40% of total eligible C/S.

What do I need to do to receive a PIP?

Payment will be issued after submitting the *itemized* receipt for your expenses in site preparation and planting our riparian forest buffer and certifying the practice meets specifications.

When will I receive my PIP?

You can only receive your PIP after **all** the work to install all of the components of your riparian forest buffer is completed and certified according to the conservation plan in your CREP

contract. You cannot, for example, submit the *itemized* receipts for site preparation you conduct in the first year of your contract and receive a partial PIP payment at that time. You can only receive the PIP payment after all of the work has been completed.

How will the PIP be issued?

After the practice has been completed and certified the payment is electronically issued.

7 POST PLANTING APPLICATION PAYMENTS AND EXTENDED ESTABLISHMENT

What is it?

On a case-by-case basis, after a field visit by NRCS, Chesapeake Bay Foundation (CBF) or other technical service provider, the FSA County Committee can approve to extend the establishment period for your riparian forest buffer – typically three to four years – and post-planting weed/pest control measures.

Post planting application (PPA) payments are C/S provided by FSA and the state as approved on a case-by-case basis for weed and pest control measures for CP22 riparian forest buffers. PPAs must include glyphosate plus a pre-emergent herbicide. PPA may be conducted in spring (April-June) and/or fall (after an August mow and from Sept.1-Oct.30 north of I-80 or Oct.1-Nov.20 south of I-80). Any necessary tree tube maintenance must be conducted together with PPA.

Am I eligible? What must I do?

To be eligible, you must:

1. Buffer all eligible areas to at least 50 feet in width along the stream (riparian corridor) on the FSA tract of land with the existing CREP contract. These areas may either enroll under CP22 or CP29.
2. Have a field visit (as discussed above) and obtain FSA County Committee approval; and
3. Sign a PPA agreement.

How much are post planting application payments?

FSA provides up to 50% PPA C/S, and DEP provides up to 50% PPA C/S. Total PPA C/S payments do not exceed \$165 per acre over the course of the three payments.

When will I receive post planting application payments?

You will receive PPA payments after submittal of itemized receipts and after a follow up field visit by FSA, NRCS, CBF or other qualified person.

How are these payments issued?

You will receive payment from FSA through electronic transfer and by check for the state payment.

8 SUCCESSION OF CONTRACT

Unexpected things can happen in life. It is important to know that if you lose ownership or control of your land, there is flexibility to revise your CRP contract. If you sell your land, get a new tenant/operator, die, or lose your land through foreclosure, the new owner or operator, if willing, can assume your obligations (ex., maintaining the riparian forest buffer) and rights (ex., receiving future annual rental payments) under the contract. In other words, that person can become your successor-in-interest, replacing you as a party to the contract.

As soon as a change occurs, you should notify FSA to avoid risk of a contract violation. If you can no longer meet your contract obligations and there is no successor-in-interest who takes over the benefits and obligations under the CRP contract, there may be financial implications for you or your estate, including possible back payments and penalties. Please contact your county FSA office for further information.

The purpose of this section is to provide some basic information about how this successor-in-interest process works. You should contact your county FSA office with any specific questions.

9 SUCCESSOR-IN-INTEREST

The person to whom you pass ownership or control of your land to (such as your heir(s), your new tenant/operator, or the person who you sold your land to) may become a successor-in-interest to your CRP contract (Note: This is a matter of choice for your potential successor-in-interest; FSA cannot compel the new landowner to become a successor-in-interest to your contract). This means that that person would become responsible for the care and maintenance of the riparian forest buffer, and he/she would become entitled to receive any remaining payments under your contract, such as annual rental payments.

To do this, the person must provide information to FSA to show that they have a valid right to replace you as the CRP participant under this contract (the successor-in-interest) by showing that

they have a valid legal right to ownership or control of you land enrolled in CRP under this contract. Proof of ownership or control includes a valid deed to the land in their name, a ruling from probate court, a valid lease agreement, etc.

FSA revises the CRP contract to replace your name with the new participant's name (your successor-in-interest) after the person provides proof of their ownership or control and after FSA county staff is sure that this person understands their rights and responsibilities under the contract (e.g., to maintain the riparian forest buffer). *To become a successor-in-interest, the person must sign the CRP-1 within 60 days of the FSA County Committee notification.*

10 REENROLLMENT

You should start considering whether you want to reenroll your riparian forest buffer in CRP during the last few years of your existing CRP contract.

Why would you want to reenroll?

You have already done the hard work of site preparation, tree planting and the early years of maintenance of your riparian forest buffer. If you reenroll your riparian forest buffer in CREP, you will continue to receive annual CRP rental payments for 10 or 15 years, depending upon the length of CRP contract you select. Your obligations to maintain the buffer will likely be easier because you already have a mature, established riparian forest buffer.

Is my riparian forest buffer eligible to reenroll?

Your riparian forest buffer is eligible to reenroll in CRP if it is in compliance with your conservation plan in your CRP contract. Your riparian forest buffer should have 60% canopy cover (or 70% of the number of trees originally planted) of native trees and shrubs present at the end of the current contract. Canopy cover or number of stems of woody vegetation can include volunteer native trees or shrubs.

Who determines if my riparian forest buffer is eligible to reenroll and when do I need to contact them?

Be sure to contact your FSA or NRCS office before your CRP contract expires. Ideally, you want to contact them a few years before your contract expires in case there are some issues with the condition of your riparian forest buffer that would otherwise prevent you from reenrolling your buffer. Knowing about any problems a few years ahead of expiration of your CRP contract could provide you with enough time to fix these problems before it's time to reenroll.

Can I reenroll my riparian forest buffer after my CRP contract expires?

No, unfortunately, due to the language of the Farm Bill, FSA can't allow you to reenroll your forested riparian buffer after your CRP contract has already expired.

11 CONTRACT VIOLATIONS

What should I do if I think I may have a violation of my CRP contract?

The best course of action is to avoid violating the terms of your CRP contract by carefully complying with the requirements of your CRP contract and conservation plan. But if you suspect you may have violated the terms of your contract, contact your county FSA office immediately.

CRP contract violations can have serious ramifications. Depending upon the circumstances, the violation could result in your contract being terminated and penalties (including back payments and interest) being assessed. Your county FSA office understands these policies and requirements. If you contact your FSA office promptly, you increase the chances that they can help you work through this violation with as few negative consequences for you and your buffer as possible.

Finally, it is in your best interest to consult with your county FSA office if you suspect you have a contract violation because your CRP contract and conservation plan are written to ensure the success of your buffer. Violations may jeopardize the success of your riparian forest buffer and undermine the aesthetic, recreational, water quality, wildlife habitat and other benefits that led you to sign up to restore a stream side forest buffer on your property.

In summary, if you know, or suspect, that you may have a violation of your CRP contract, contact your county FSA office *immediately*.

12CREP PAYMENT EXAMPLE

Riparian Buffer with Fencing (CP22):

A Pennsylvania farmer has 1/2 mile of stream that runs through pasture and row crop fields.

- He is considering establishing a riparian forested buffer and installing fencing to keep livestock out of the creek.
- 12 acres of marginal pastureland within 180 feet of the stream will be planted with native trees and shrubs (CP22).
- The contract will cover 15 years.
- Total cost to establish the conservation practices, including the fence, are \$2,500/acre.

Signing Incentive Payment (SIP): One-time payment

$$12 \text{ Acres} \times \$100/\text{acre} = \$1,200$$

Payment to Establish Conservation Practice (State and Federal Cost-share): 100% of eligible cost for buffer planting and fencing.* One-time payment.

$$12 \text{ Acres} \times \$2,500 = \$30,000$$

Practice Incentive Payment: 40% of installation costs, paid after installation. One-time payment.

$$\$30,000 \times 0.40 = \$12,000$$

Annual Rental Payment and Maintenance Rate Payment: Contact your local FSA office.

Total Amount Paid: For this example the Pennsylvania farmer would be paid a total of **\$43,200** for the riparian forested buffer with fencing that the farmer implemented. This total includes the money for the reimbursement of the cost for establishing the conservation practice. This does not include the annual rental payment and maintenance rate payment.

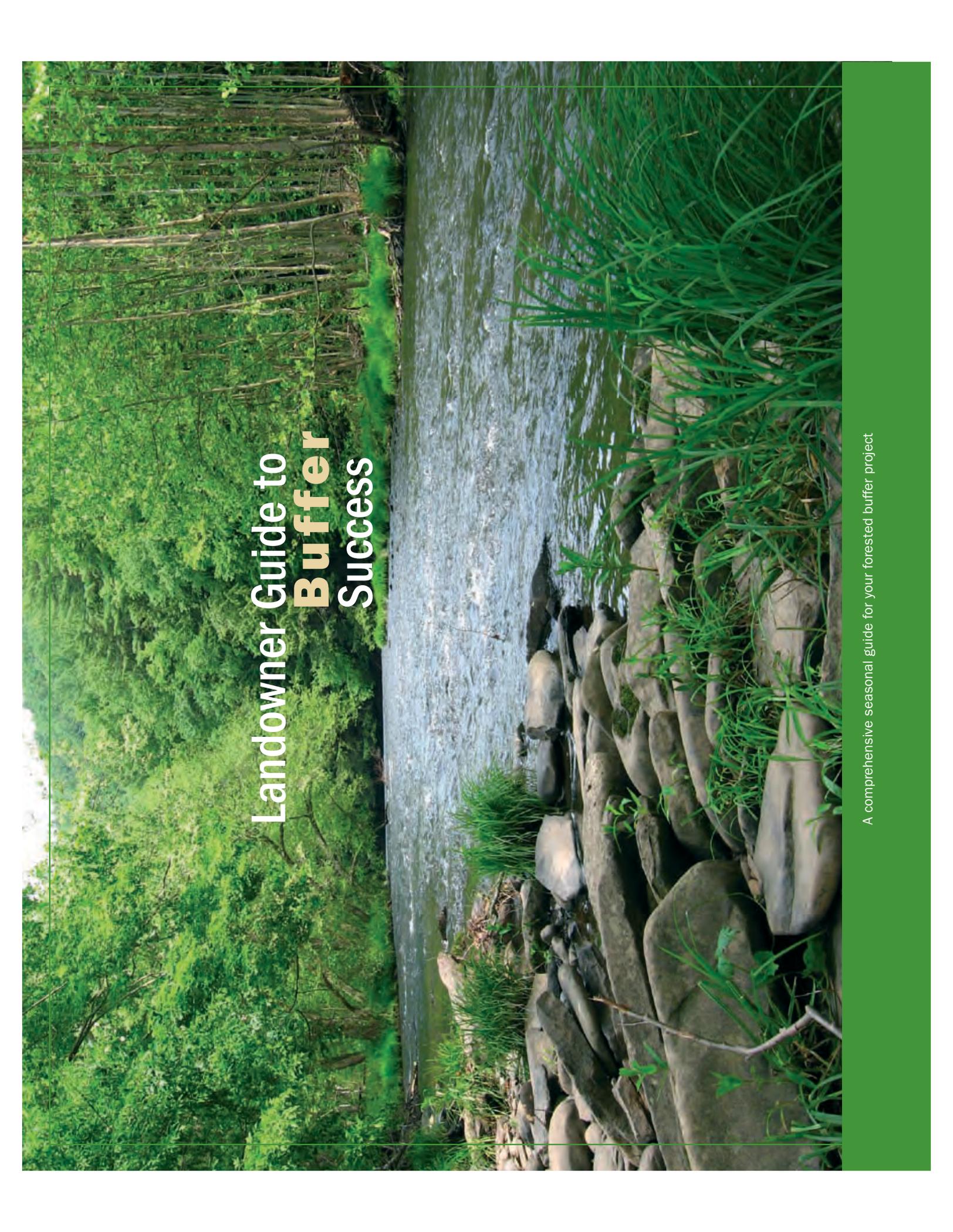
**Note: Up to 50% paid by the FSA; up to 50% of establishment/installation only is paid by PA. Payment paid after practice is installed and certified.*

Contract Management: Care of the Conservation Practice

1 ANNUAL MAINTENANCE CALENDAR

Continual upkeep of your riparian forest buffer is required. Here is a quick glance at what needs to be done at different points of the year. For a more in depth explanation of what is specifically required on your property, please consult your conservation plan. This is critical because the conservation plan spells out the requirements upon which compliance of your buffer with your CRP contract is based. In addition, the landowner guide to buffer success on the following pages may be a helpful reference as well as the Penn State fact sheets provided below. It is very important to control all noxious weeds and plants on your buffer.

| | | | |
|--|-------------------------------|------------------------------|----------|
| January | February | March | April |
| | Check tree shelter and stakes | | |
| May | June | July | August |
| Apply herbicide around base of trees | | Manage vegetation near trees | |
| September | October | November | December |
| Consider another herbicide application | | | |



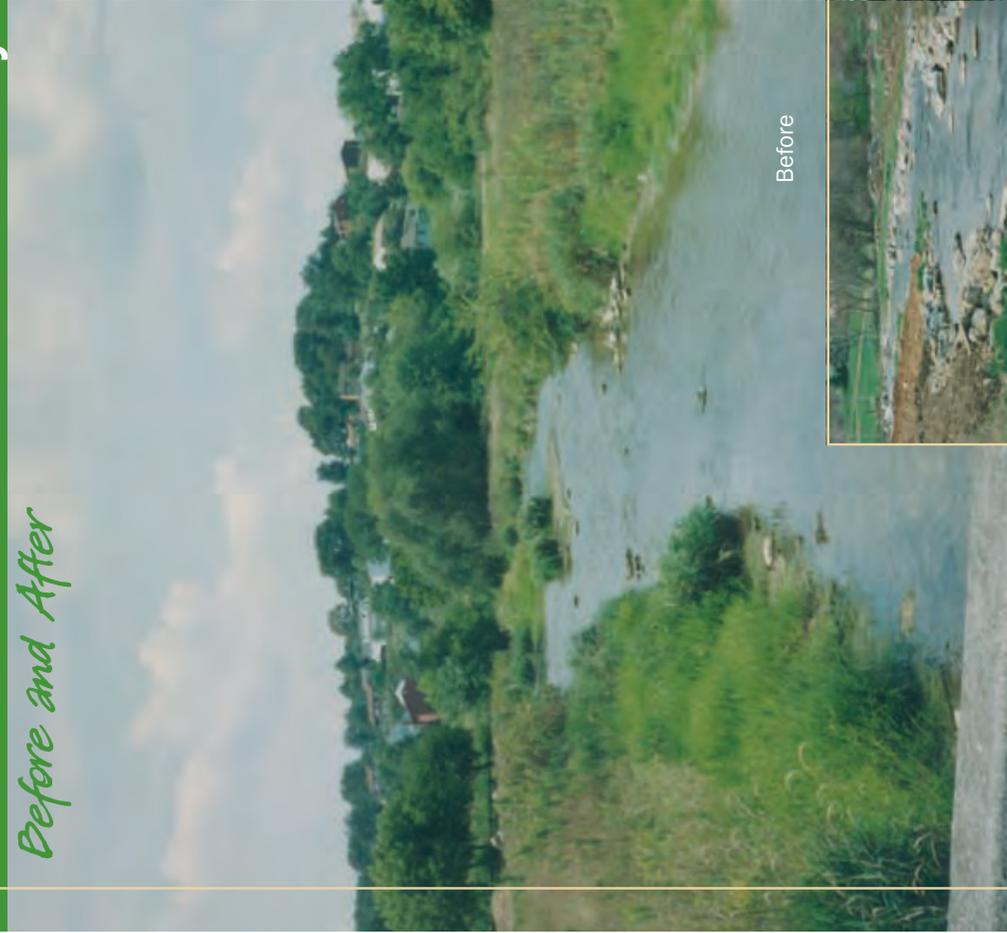
Landowner Guide to **Buffer** Success

A comprehensive seasonal guide for your forested buffer project

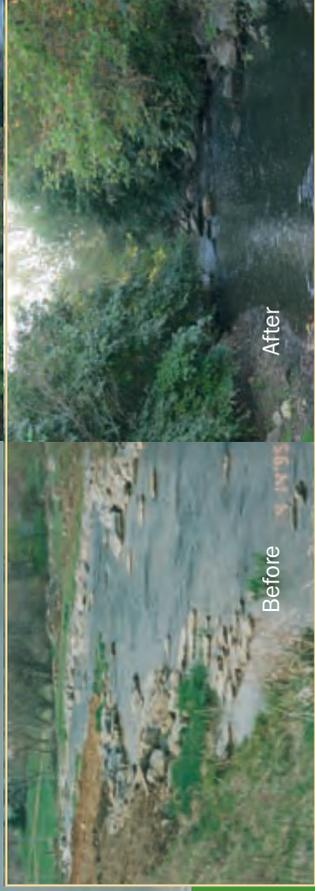
A Forested Buffer Success Story

Before and After

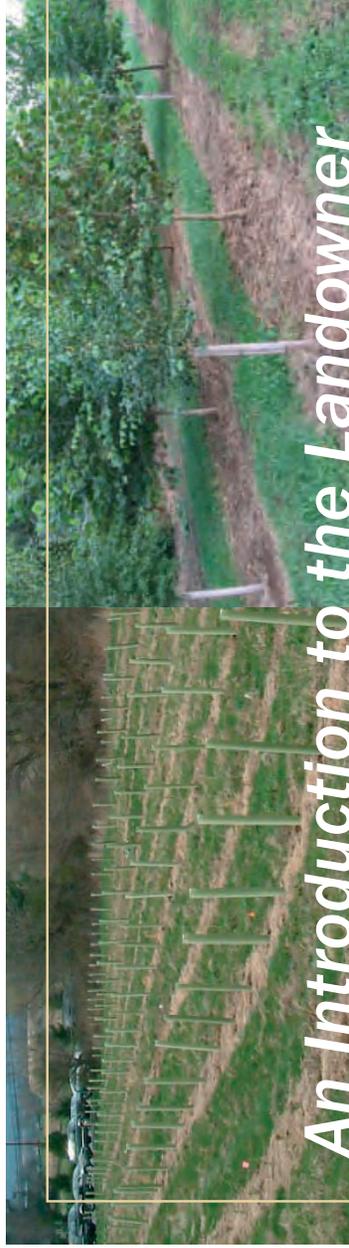
These photos show the recovery possible in 12 years. On the left is the “before shot” from a small bridge, prior to buffer planting in 1995. On the right, is the same view 12 years later. Trout have now spawned here after being unable to for many decades. Forested buffers are an important part of a bigger effort on the whole stream.



A young brown trout born in the stream.



The photos on the left show before and after shots 40 yards upstream from the photos above. Success like this requires active care.



An Introduction to the Landowner

Guide to Buffer Success

Dear Landowner:

You have decided to restore a forested buffer that will provide benefits to you, wildlife, your stream and in countless ways downstream.

The purpose of this guide is to help you succeed in your goal. This guide includes insights from dozens of conservation professionals with hands-on experience with hundreds of sites. Probably the single most important task is to apply herbicide around tree shelters in spring and late summer.

Herbicides boost the survival rate and growth rate to get your trees quickly past their most vulnerable stage. Good work at key tasks in the first three years will give major payoffs in the long run. This guide is written especially for participants in the USDA's Conservation Reserve Enhancement Program (CREP), but the insights are highly relevant to forested buffer restoration via many other efforts.

We suggest hanging this guide on a wall where it can be a convenient reminder for the next few years.

We also hope the attractive photos inspire and remind you of the end goal of this work. Many resources and many efforts, public and private, ours and yours, are going into buffer restoration efforts. We wish you much success and believe this guide can help.

Yours in Conservation,

USDA Farm Service Agency, USDA Natural Resources Conservation Service, PA Department of Environmental Protection, PA Game Commission, Chesapeake Bay Foundation, Western Pennsylvania Conservancy, Center for Rural Pennsylvania, Ducks Unlimited, PA Association of Conservation Districts, PA Department of Agriculture, PA Department of Conservation and Natural Resources, PA Fish and Boat Commission, Partners for Fish and Wildlife, and the State Conservation Commission.

We suggest hanging this guide on a wall where it can be a convenient reminder for the next few years. We also hope the attractive photos inspire and remind you of the end goal of this work.



CHESAPEAKE BAY FOUNDATION
Saving a National Treasure



In this guide you'll find:

- Activities by season that are key to success
- Tips to save time and improve outcomes
- Blank areas for making notes for future use (how many ounces of product for your sprayer, etc.)
- Attractive photos with informative captions
- A summary of how trees help streams
- Complete details and additional references

The following have contributed to this publication:

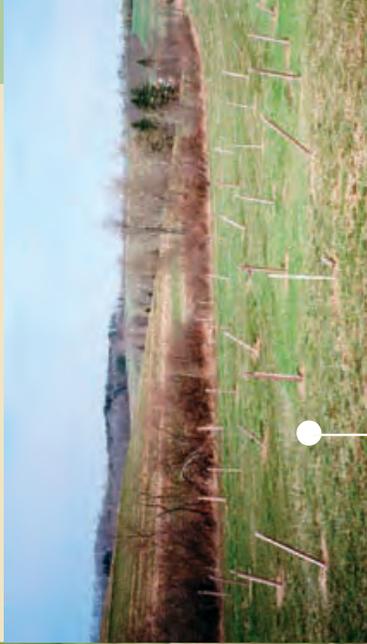
- David Wise, Chesapeake Bay Foundation
- Dr. Judy Okdy, VA Dept. of Forestry and Chesapeake Bay Program
- Dr. Anne Hairston-Strang, MD DNR Forest Service
- Art Gover, Pennsylvania State University
- Dr. Gary San Julian, Pennsylvania State University
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- Mike Pruss, PA Game Commission
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- Matt Korroth, Lancaster County Conservation District
- Marti Betz Design: Guide Design and Layout



Avoid damage from nets. Fast growing trees can add 12-18" or more in spring. Remove nets on any tree likely to reach nets this season. Clip off any twisted trees below the twist to reduce long-term damage.



February—March *Check Your Tree Shelters*



Leaning shelters allow rodents easy entry and could allow herbicide to reach and harm trees. Downed shelters will kill trees. A few seconds can correct leaning or downed shelters.

Steps for Success *Late Winter*

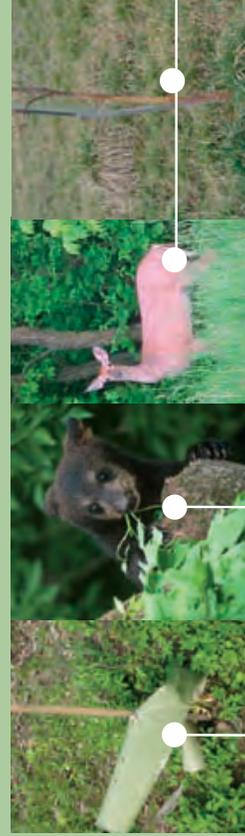


Keys to Success in February & March

Check tree shelters and stakes

1. Fix any downed, damaged, or leaning shelters
2. Re-drive any loose stakes, replace any broken or rotten stakes
3. Remove nets from trees that will reach nets this season
4. Remove any wasp nests
5. Mark any missing or obviously dead trees. Replant when appropriate.
6. At the proper time, remove shelter if needed (see the following pages)

Tips: Do tree shelter checks after the year's frost heaving is ended, but before the spring rush of other work, and before the wasps become active. Carry some extra shelter ties or wire, a few stakes, and a hammer to re-drive loose or replacement stakes.



Wasp nests can plug shelters, preventing tree emergence. Nests also attract bears and other hungry mammals, leading to tube damage like this.

Deer can browse and rub trees. Protecting young trees for a few years is critical if reforestation is to provide key benefits for many years to come.

Work Records for tree shelter checks:

| Years Checks are needed | Date Done: | Notes: |
|-------------------------|------------|--------|
| 1* | | |
| 2* | | |
| 3* | | |
| 4* | | |
| 5* | | |

* Please note that a few slow-growing trees, like oaks, may still be in shelters in years four, five, or later and may require continued shelter checks.

February—March

Check Your Tree Shelters

Brief Summary On Tree Shelter Removal:

If your tree shelters have a vertical perforated line (designed to split as the tree grows), they can be left in place unless specifically causing damage. On sites planted through 2007, only Tubex™ brand shelters had this feature. If your shelters lack a vertical perforated line, remove shelters from trees that are 1.5 to 2 inches in diameter at top of shelter. On sites with real worries about voles and buck rub, perhaps wait longer, but monitor closely to avoid damage/dis-ease caused by shelters.

If removing shelters, leave any wooden stakes in place to deter buck rub and to mark tree locations. Remove all non-biodegradable stakes before entrapment by trunk for tree health and human safety.

Steps for Success

Late Winter

Shelters provide huge boost to survival and growth by allowing easy application of herbicide to keep voles from damaging trees, but most types will need to be removed manually.

Tubex™ shelters installed on CREP sites through 2007 were either green or white. Both colors have the vertical perforated line that should allow most of these shelters to come off by themselves. Numerous contractors used green Tubex™. Williams Forestry used white Tubex™ on many sites. All other types of shelters will need to be removed manually. Don't confuse white Tubex™ shelters (which can be left on trees) with other white shelters that lack perforated lines and will need to be removed.

Damage from a shelter left on too long. Serious disease and death can occur even before trees fill and touch shelters.



Shelters help deter voles and buck rub. If you must remove the tube, balance the overall risks.



Details on

Tree Shelter Removal:

Q: Why must most types of tree shelters be removed at 1.5 to 2 inches tree diameter?

A: As trees grow, shelters can injure or kill trees. Even before trees reach shelter diameter at the top of the shelter, trapped water and debris can cause disease and rot. Actual girdling of trunks can also occur. The trunk's wide flare at ground level is the first likely point of damage. Despite many claims by manufacturers, most types of tubes do not degrade or split adequately to prevent this damage.

Q: What else should I consider?

A: Consider the risks of removing shelters for your specific site (from voles, buck rub, herbicide, mowers). Balance this with the risk of leaving the shelters in place a bit longer. For example, if your site has lots of voles (common), the benefit of being able to easily spray herbicide around trees may outweigh the risk of leaving tubes in place a bit longer. Regular checks will give you key information to help make decisions. Agency staff in Maryland are testing the idea of cutting the shelter's full length, but leaving it in place a bit longer. Results are not clear at present.

Tight shelters can cause water and debris to become trapped. Disease and rot can follow.



Q: Where can I get more information?

A: The detailed text at the end of this document (p.24) has more information. You can also ask the conservation professional that assisted you with project design.

Buffers and Livestock:

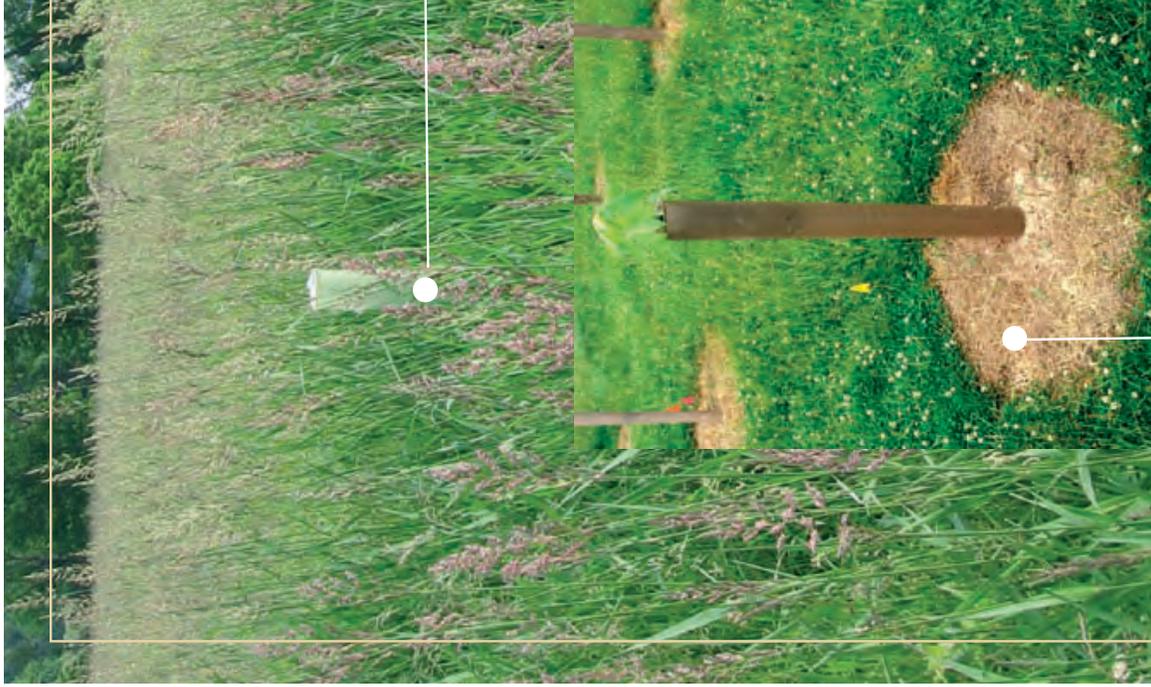
Before

Buffers that also get cows out-of creeks are doubly beneficial. Shown here are contours before and after a buffer project in a pasture. Fences limit cattle access to just a few locations to drink or cross.



After

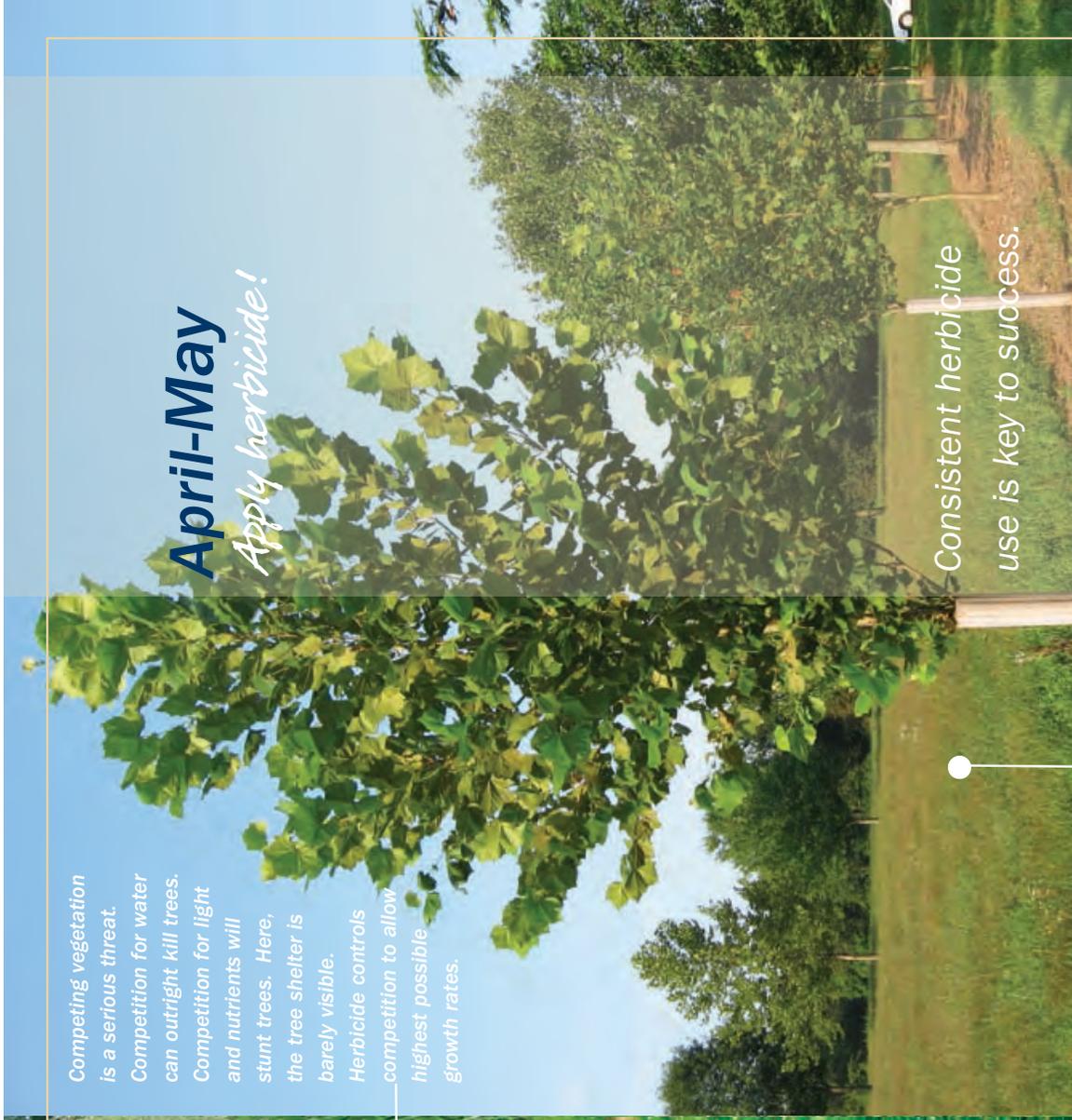




While spraying in continuous strips is best, spot spraying can also be effective. These rings should be larger to prevent unsprayed plants from overtaking the area later in the season.

Competing vegetation is a serious threat. Competition for water can outright kill trees. Competition for light and nutrients will stunt trees. Here, the tree shelter is barely visible. Herbicide controls competition to allow highest possible growth rates.

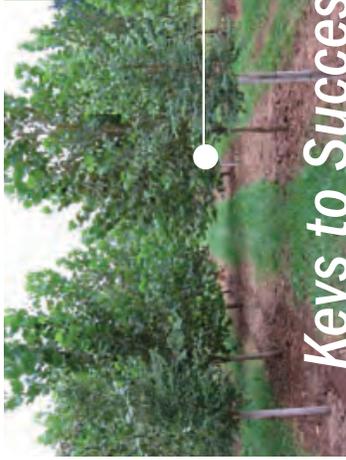
April-May *Apply herbicide!*



Consistent herbicide use is key to success.

Steps for Success Spring

Consistent herbicide use is key to success. Probably no other step is so vital to project success. Spraying continuous strips is best.



Herbicide use combined with mowing produces robust growth. Be sure not to spray herbicide on trunks after shelters are removed since injury or death will result. Mowing is allowed in the first 2-3 years after planting. Mowing on this site should stop unless there is a severe problem with voles.

Keys to Success in April-May Herbicide Application Around Tree Shelters

Apply broad-spectrum herbicide (such as Roundup Pro™) around sheltered seedlings to protect them from rodents and to reduce competing vegetation. **Regular herbicide use is probably the single most critical step for overall success.** Adding a pre-emergent herbicide is advisable during this spring application.

1. Ideally, spray 6-foot wide strips centered on shelters (particularly if mowing is part of plan) but 4-6 foot diameter spots are OK.

2. Always follow label instructions. Most herbicides are highly toxic to desirable trees, shrubs, and stream life.

3. In general, apply herbicide in April in southern Pennsylvania, and in May in northern Pennsylvania. If unsure, consult your CREP staff.

4. For more information, see detailed text on page 25. Check the next pages for more spring buffer success activities.

Tips: Adding a pre-emergent herbicide to your spray mix will extend the benefits of your spraying by suppressing regrowth. See page 25 for details. While out in the buffer, also remove any nets as needed. Watch for any noxious or invasive plants. Early detection and treatment is key.

Work Records:

| Years Spray is Needed:* | Date Done: | Products, rates, amounts used, and other notes for future reference: |
|-------------------------|------------|--|
| 1* | | |
| 2* | | |
| 3* | | |
| 4 | | |
| 5 | | |

* Spray is critical in years 1-3. In years 4 and 5, there may still be a few trees in shelters that would benefit.

April-May

Use Herbicide to Reduce Vole Damage



Nurseries and orchards rely on “clean culture” via herbicides to control vole damage by eliminating their food and cover. To date, voles are a lead cause of reforestation project failures.

Voles are small, mouse-like mammals that have been known to give birth to over 70 young in a year. Population surges are common.



Voles can damage and kill trees until they reach 4-5” diameter. Herbicide use is key to getting trees quickly past this vulnerable stage via vigorous growth.



Voles can tunnel beneath tree shelters, even those installed to depths of 3” or more. Gnawing on roots and stems is often fatal, and always stunts and always slows growth. Here, over 90% of roots have been eaten by voles.

Steps for Success

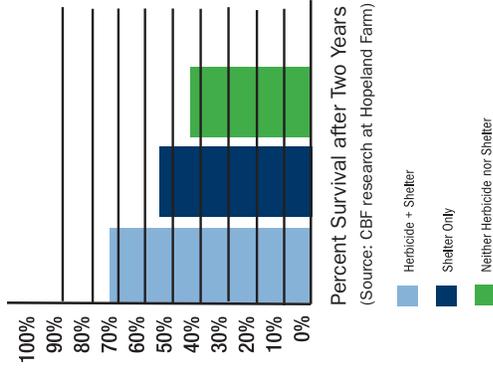
Spring

Severe vole problems may require use of a rodenticide containing zinc phosphide which is economical and effective. Consult your project advisor. Measures in fall are even more important. See pages 17, 25, and 27 for more information. The above landscape-view photo shows a site with the barest minimum protection. Herbicide kill spots should be wider. Continuous strip application would be better.

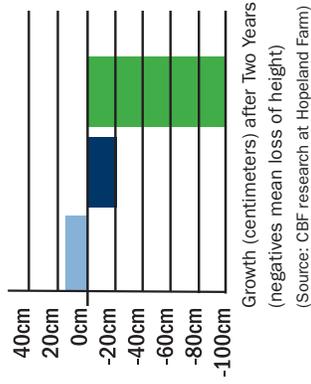
Keys to Success in April-May Herbicide Application Around Shelters

The graphs below show the key benefits of herbicide use around sheltered plants. Note that mere survival is not the goal – the goal is reforestation. In the second graph, only those plants protected by both shelters and herbicide were gaining size. Declines in height in the second graph were due largely to voles killing the main leader, followed by resprouting of shorter side leaders. Robust growth is the goal and routine herbicide use is probably the single most cost-effective step to aid this.

Tree SURVIVAL after two years:
Herbicide Helps



Tree GROWTH after two years:
Herbicide Is Key To Growth

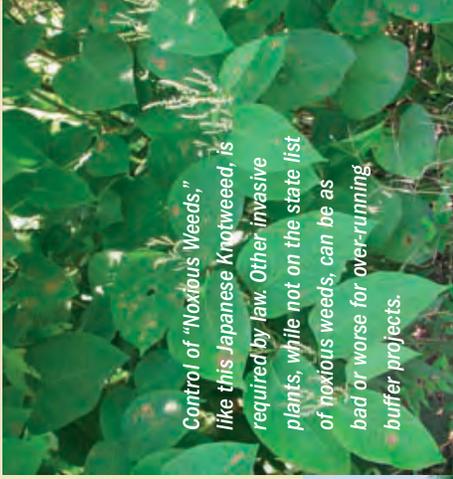


Growth possible in 8 years.
Active care in years 1-4 is key
to growing trees quickly past
the risks from voles, deer and
competing vegetation.



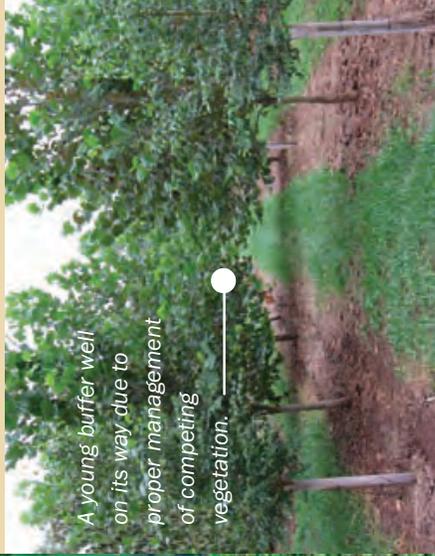


Control problem weeds before they set seed.

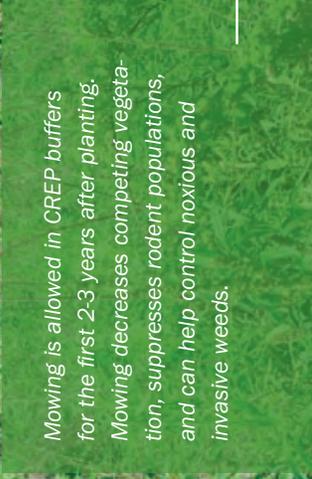


Control of "Noxious Weeds," like this Japanese Knotweed, is required by law. Other invasive plants, while not on the state list of noxious weeds, can be as bad or worse for over-running buffer projects.

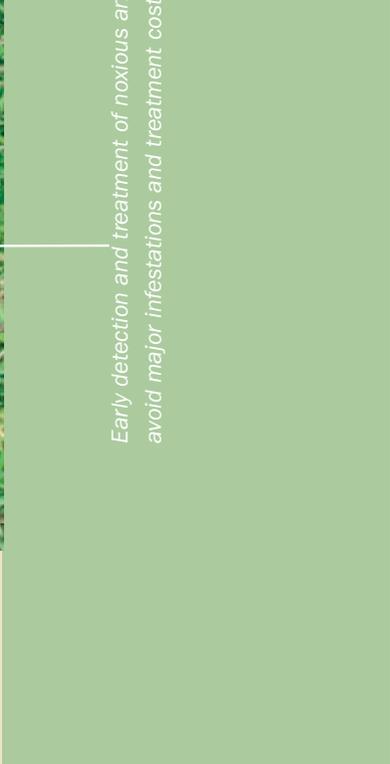
June-August Managing Vegetation



A young buffer well on its way due to proper management of competing vegetation.



Mowing is allowed in CREP buffers for the first 2-3 years after planting. Mowing decreases competing vegetation, suppresses rodent populations, and can help control noxious and invasive weeds.



Early detection and treatment of noxious and invasive plants can avoid major infestations and treatment costs.



Steps for Success Summer

