

NATURAL RESOURCES CONSERVATION SERVICE

Conservation Choices for Wildlife

Golden-winged Warbler and Other Forest-dependent Species







Your Guide to NRCS-Recommended Sustainable Forestry Practices WORKING LANDS * FOR WILDLIFF.

About This Guide

This guide outlines seven key conservation practices recommended to forest landowners who want to sustainably manage forests to benefit wildlife and forest health. USDA's Natural Resources Conservation Service (NRCS) and conservation partners work with forest landowners to plan and implement these practices that benefit a variety of species, including the golden-winged warbler. This assistance includes the development of a custom forest management plan as well as financial support to help cover part of the costs of implementing the practices. Technical and financial assistance are available through the Farm Bill, the largest source of federal funding for private lands conservation.

NRCS has worked side-by-side with agricultural producers to implement conservation practices that clean and conserve water, boost soil health, and improve the quality of habitat and air, all while helping producers increase the productivity and resiliency on their working lands.

About the Golden-winged Warbler

The golden-winged warbler (Vermivora chrysoptera) is a neotropical migratory songbird that breeds in young forests and shrubland habitats of the Appalachian Mountains and upper Great Lakes. Because young golden-winged warblers leave young forests for more mature forests, the bird is a great flagship species for demonstrating the value of diverse age-class forest management.

During the past 50 years, this vibrant songbird has experienced significant population declines throughout much of its breeding range including its entire Appalachian Mountain range. This decline is, in large part, because of the loss of young forest habitat needed for nesting. Because much of the bird's habitat falls on private lands, forest landowners are playing an important role in helping the bird recover.

The golden-winged warbler travels from its wintering grounds in Central America and northern South America in April to the higher elevations of the Appalachia and



Great Lakes to breed. Once in a young forest, the males establish territories, and the females build their nests. Nests are built on the ground in patches of dense vegetation.

Many game and non-game species also use different ages of forests at different life stages and different times of year. Good forest stewardship that encourages a distribution of forest stages across large landscapes, from young tree stands to older growth, is critical to supporting diverse and abundant wildlife.

Other Young Forest Species





American Woodcock

Whitetailed Deer



Grouse

Ruffed

🖉 Wild Turkey

Managing for Healthy, Diverse Forests

Forest landowners can use sustainable forestry practices to improve the overall health of their forests, featuring forest patches of different ages and types. Healthy forests, just like healthy human populations, are sustained by a diversity of ages. Each group has a role to play in maintaining the whole community over the long term. But the nation's mature forests, especially in the East, are about the same age - 80-120 years old. The loss of different age classes across forests negatively impacts many different wildlife species that use different types and ages of forests for different parts of their life cycle.

Historically, natural disturbances like wildfires created patches of young forests and other early successional habitats, such as old fields and pastures. Nowadays, people largely control these natural processes to protect life and property, which has led to a decline in young forests and other disturbance-dependent forested landscapes. Through the use of conservation practices, forest landowners are able to compensate for lack of natural disturbance and improve the heterogeneity of forests.

Good forest stewardship encourages a distribution of forest age classes across large landscapes, from young forest to old growth forests; it's critical to supporting diverse and abundant wildlife. To maximize golden-winged warbler nesting habitat, scientists have estimated that about 15 percent of the forest landscape should be in a young forest condition.



Each stage of a forest, or age class, provides critical habitat for wildlife. Young forests have more seeds, berries, and beneficial insects.

Benefits to You and Wildlife

Managing for healthy, diverse forests benefits native wildlife. An array of wildlife, including game and non-game species, benefit from forests with vigorous plant communities, including grasses, forbs, trees, and shrubs. NRCS works closely with scientists to measure the response of species to conservation practices, and they're noticing positive responses from wildlife in managed forests. Families, hunting clubs, and other private forest landowners managing for timber production can benefit from sustainably managed forests. People have even found they can receive assistance from NRCS to "reset the clock" on low-value forests, regenerating a healthier and more valuable stand of trees, and contributing to a landscape of healthy forests and diverse age classes.

Systems to Manage for Young Forests

Put simply, forestry is managing for desirable plants within a forest stand. Many of the conservation practices in this guide focus on reducing undesirable species and helping desirable species succeed. Undesirable species are often called invasive for their ability to spread. Many invasives are non-native species, which are plants that were introduced either accidentally or on purpose in places they do not normally occur. Invasive plants often pose major economic and forest health concerns.

Depending on the land and a forest landowner's goals, a variety of techniques can be used to create and enhance breeding habitat for the golden-winged warbler. The most common way to create breeding habitat for the species is to create young forest habitat through timber harvesting. In order to successfully regenerate a forest stand, preparatory work is often needed to encourage the germination, accumulation and growth of desirable tree seedlings. This preparatory work includes applying herbicides to the understory vegetation to control undesirable species such as ferns, certain sapling species and non-native shrubs.

This work can also include cutting saplings or suppressed, smaller trees in the understory and midstory to provide appropriate light conditions for desirable seedlings to grow. Once desirable seedlings are abundant and are large enough to outcompete undesirable seedlings, then the overstory can be removed, releasing the seedlings and resulting in healthy, young forest habitat.



During harvest, residual trees are left behind, either in groups (bottom) or evenly spaced (top). Different strategies are used depending on topography and other factors.

A few large and healthy deciduous trees are retained to serve as song perches and foraging locations for golden-winged warblers and other songbirds. Whenever possible, standing dead trees, called snags, are also retained because they serve as song perches for the golden-winged warbler and benefit many other wildlife species that may nest or forage in the decaying wood.

Forest landowners can also use prescribed burning, brush management, and other practices to set back the succession of shrubs in old fields, which also creates golden-winged warbler nesting habitat. And in some places, such as the high-elevation pastures in West Virginia, landowners can also use low-intensity grazing with domestic livestock to slow vegetative succession (generally during May through October) and maintain quality brushy habitat.

Assistance through the Farm Bill

The Farm Bill enables NRCS to help landowners plan and carry out these actions, providing free technical assistance and financial help with implementation of projects. The Environmental Quality Incentives Program (EQIP) is one of several conservation programs available to help landowners improve the health of their forests. Through these programs, NRCS helps landowners select and implement conservation practices, including those highlighted in this guide.

This assistance often includes the development of a property-wide or site-specific forest management plan. An NRCS staff member or conservation partner works with landowners to develop a plan that meets their goals for the land. The forest management plan includes an overview of potential project areas and management activities. The development of a plan involves site visits.

Financial assistance through Farm Bill programs help landowners cover the cost of implementing sustainable forestry practices. The program can cover up to 75 percent of the implementation cost. Applications for assistance are reviewed, ranked and funded several times per year. See *Get Started with NRCS* on page 19 for more information on this process.

Contracts take multiple years to complete, often beginning with preparatory work and then followed by a harvest. Keep reading to learn more about the different sustainable forestry practices available to improve the health of privately owned or managed forests.



NRCS staff members and partners work one-on-one with forest landowners to plan and implement sustainable forestry practices.

Targeted Efforts for the Goldenwinged Warbler

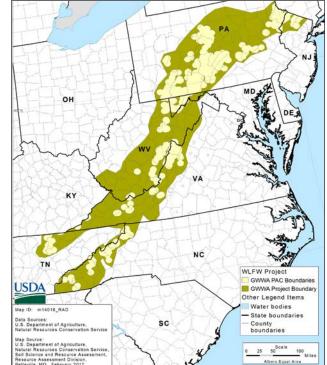
Sustainable forestry practices are available to forest landowners across the country. In certain places, NRCS coordinates additional targeted efforts to restore and create habitat for the golden-winged warbler. The agency's Working Lands for Wildlife (WLFW) partnership and Regional Conservation Partnership Program (RCPP) bring together conservation partners, including the American Bird Conservancy, National Wild Turkey Federation, Pheasants Forever, and others, to accelerate conservation for the golden-winged warbler, which serves as an indicator of forest health.

Targeted Effort in Appalachia

The golden-winged warbler is one of eight nationally identified WLFW target species. NRCS and its partners work closely with the public to design conservation approaches for at-risk species that allow working forests, farms and ranches to continue to be profitable while precluding the need to list those species under the Endangered Species Act (ESA). Since WLFW was launched in 2012, NRCS, its partners and participating landowners have worked together to restore more than 13,000 acres of golden-winged warbler habitat.

This map shows where NRCS is targeting conservation for the golden-winged warbler through Working Lands for Wildlife in the Appalachian Mountains.

Inside of the project boundaries, NRCS further targets resources to priority areas for conservation, or PACs. For more information on PACs, see the agency's implementation strategy.



Target Effort in Great Lakes Region

An RCPP project led by American Bird Conservancy provides additional assistance for forest landowners in priority areas of Minnesota, Michigan and Wisconsin. Funding through this project is available through 2019. Contact Kevin Sheppard at *ksheppard@ abcbirds.org* if interested in learning more about this program.

This map shows where American Bird Conservancy is targeting conservation for the golden-winged warbler in three states in the Great Lakes region.





NRCS conservation practices for establishing young forests aim to benefit game and non-game species as well as the forestry operation.

Measuring Outcomes of Conservation Practices

NRCS and its conservation partners use science to measure the biological benefits of habitat improvements. By assessing the response of a species and vegetation to conservation practices, NRCS is able to fine-tune practices to maximize beneficial outcomes. Indiana University of Pennsylvania, Cornell University and their partners are conducting the largest assessment ever on the golden-winged warbler's response to conservation practices aimed to create and enhance nesting habitat.

These assessments measure the bird's use of the managed land as well as the survival and habitat use of their young, and this research is leading to recommendations for better habitat management. Similar assessments are underway for other species including the American woodcock and New England cottontail.



Students and technicians of Indiana University of Pennsylvania catch and collect data on golden-winged warbler males.

Conservation Choices

The conservation practices below are the main activities that forest landowners can use to manage for young forest habitat. Additional practices are available to complement the core practices, resulting in a working conservation system. Use this booklet to identify the practices that could help improve the health and productivity of your forest for the golden-winged warbler, woodcock, and many other wildlife species.

HERBACEOUS WEED Control Forest stand Improvement

BRUSH MANAGEMENT

EARLY SUCCESSIONAL HABITAT DEVELOPMENT AND MANAGEMENT

UPLAND WILDLIFE HABITAT MANAGEMENT TREE/SHRUB ESTABLISHMENT PRESCRIBED BURNING

BRUSH MANAGEMENT



The Basics

Brush management is the removal, reduction, or manipulation of woody saplings, trees, and shrubs. In a forest, brush management can be used to manage undesirable woody species in the understory of the stand. Control of seedlings, saplings, and shrubs can be done mechanically by a forestry mower or chainsaw or chemically with an herbicide. The herbicide treatment can be broadcasted or targeted. In an old field setting, brush management may include mowing or the use of herbicide to control non-native shrub species.

Benefits

- » Encourages the growth of desirable plant communities.
- » Enhances wildlife habitat and plant species diversity.
- » Benefits pollinators that preferentially forage on native woody species.

Considerations

- » Are there undesirable seedlings, saplings, or shrubs in the understory of your forest stand?
- » Are there undesirable seedlings, saplings, or shrubs in an old reverting farm field?
- » Do you have the ability (time, equipment, labor) to control the woody vegetation or will you need to hire a contractor?

Notes

Brush management can be accomplished by using one or both of the following methods:

- » Mechanical Control: In an old field setting this would include mowing with a rotary mower or forestry mower, cutting shrubs, or undesirable trees or saplings with a chainsaw, or even pulling out non-native shrubs with a tractor and a chain. In a forest, mechanical control is typically conducted with a forestry mower or a chainsaw.
- » Chemical Control Herbicides: This includes broadcast, foliar, cut-stem, hack and squirt, or basal bark treatments of herbicides. This is often the most cost-effective way to manage undesirable and non-native woody species and in some cases, it is the only method that is recommended to successfully kill certain species. Consult your local extension office or a certified herbicide applicator.

Maintenance

- Mechanical control alone often does not kill woody vegetation. Monitor cut stems of trees and shrubs for re-sprouting.
- » Even the best herbicide applications aren't 100 percent effective all the time. Treated areas should be monitored and re-treated.

2 HERBACEOUS WEED CONTROL



The Basics

Herbaceous weed control is the removal or control of herbaceous or non-woody plants. Some herbaceous plants are undesirable, such as invasives and aggressively growing natives. These plants often pose major economic and forest health concerns.

Benefits

- » Restores or releases native plant communities or creates desired plant communities and wildlife habitat consistent with the ecological site.
- Improves growing conditions for native and desirable seedlings, saplings, shrubs, forbs, and grasses.
- » Improves herbaceous plant communities to benefit pollinators that preferentially forage on native herbaceous species.

Considerations

- » Is there undesirable herbaceous vegetation in the understory of your forest stand?
- » Is there undesirable herbaceous vegetation in an old farm field?
- » Do you have the ability (time, equipment and labor) to control the herbaceous vegetation or will you need to hire a contractor?

Notes

In most cases, undesirable herbaceous vegetation must be treated with herbicide to achieve good control and is often the most cost effective method, especially if woody plant species must also be treated at the same time in the same area. In some cases, herbicide is the only method that is recommended to successfully kill certain species. Consult vour local extension office or a certified herbicide applicator to ensure the most effective and economic herbicide and concentration of herbicide are being used.

Manage invasive species in a manner that will prevent the spread of the species to a new area. If needed, additional treatments and practices will be applied to protect soils and prevent erosion.

Maintenance

- » Following initial application, some regrowth, resprouting, or reoccurrence of herbaceous weeds may be expected.
- » Vegetation treated with herbicide should be monitored and re-treated if any new growth is observed.
- » Some species, like Japanese stiltgrass, may require follow-up spot treatments.

3 FOREST STAND IMPROVEMENT



The Basics

Forest stand improvement is manipulating the species composition, structure, and stocking of trees in a forest stand. Like many forestry practices, they're best implemented at a certain point in a forest's rotation. A rotation is the period of time between the establishment of a forest stand and when it's ready for harvest.

Benefits

- » Improves forest health and tree productivity.
- » Reduces susceptibility to pests.
- » Improves wildlife habitat.
- » Removes or reduces undesirable plants.

Considerations

- » What is the goal in a particular forest stand?
 - » Is the goal to improve the quality of the stand (which typically happens during the first third of the stand's rotation)?
 - » Or is the goal to regenerate the forest stand in the near future?

Notes

Some forest stand improvement activities are implemented early on or in the middle of a forest stand's rotation to influence the **quality of the stand**. These actions include:

Crop tree release —

- » A qualified forester chooses 20-100 "crop trees" per acre. The crown of each crop tree is released from competition on three or preferably four sides. Trees competing with crop trees are cut or killed.
- » This method is very effective at improving the quality of the forest stand because the cutting is targeted and the best trees in the stand are given more room to grow.
- » A crop tree release increases a tree's probability of survival for many decades.
- » Typically conducted during the first third of the rotation, when the stand is 10- to 60-years-old.
- » The best trees in the stand are selected as crop trees.
- » Released crop trees increase in diameter growth and crown size, resulting in increased mast production, which benefits wildlife that depend on hard mast like as acorns.
- » Canopy gaps are created where seedlings can germinate and grow, providing a complex understory that's beneficial to many songbirds and other wildlife.

Thinning —

- » Designed to increase the quality of the stand, often by removing poor-quality trees or through a general harvest prescription targeting trees of a certain species or diameter range.
 - "Notes" continued on next page.



- » Various methods are used.
- » Consult a qualified forester.
 » Harvest may not specify the best trees; a cutting prescription is applied to the entire stand to improve stand quality.

Some forest stand improvement activities are conducted later in the stand's rotation and have the **goal of regenerating the forest stand** in the near future. Examples of these activities include:

Low shade removal -

- » Typically conducted in oak forests where no desirable seedlings (regeneration) are present in the understory.
- » Often involves treating competing small seedlings, saplings, and shrubs in the understory that are creating dense shade low to the forest floor.
- » Treatment can be mechanical (hand felling with a chainsaw), chemical (foliar, broadcast, hack and squirt, or basal bark herbicide applications), or both.
- » Usually non-commercial.

Preparatory harvest -

- » Reduction of stand density to about 80 to 85 percent by cutting trees from intermediate and co-dominant crown classes.
- » Desirable regeneration is present but small.
- » Few if any canopy gaps are created.

Shelterwood harvest -

- » Used to provide more light to existing seedlings in the case of oak forests. May be used as first cut in other forest types where vigorous seed origin regeneration is expected.
- » Reduction of stand density to about 60 percent by cutting trees from all crown classes.
- » Goal is to leave best mature trees for potential future harvests once seedlings have matured.

Maintenance

- » After treatment, assess the stand to ensure that objectives have been met.
- » Roads, skid trails, and log landings should be reshaped if necessary to prevent erosion and seeded and mulched where necessary. The seed mix should not contain invasive species or chemicals.

4 EARLY SUCCESSIONAL HABITAT DEVELOPMENT AND MANAGEMENT



The Basics

Early successional habitat development and management is the creation or maintenance of young forests, old fields, and pastures for golden-winged warblers and other species that depend on that type of habitat. Golden-winged warbler nesting habitat consists of scattered mature trees (residual trees), regenerating seedlings and saplings, native shrubs as well as small, scattered openings with native grasses, forbs, and wildflowers that border a mature forest.

Benefits

- » Provides habitat for a variety of wildlife species that rely on young forests. Some wildlife live almost exclusively in young forest habitat while others use it for one or more phases of their lives.
- » Is compatible with silviculturally-sound forest management activities.
- » Can be compatible with commercial timber harvests as long as good forestry practices for harvesting are used.
- » Can improve the composition of tree species in degraded stands by favoring and encouraging the regeneration of oaks, hickories, and other desirable species.
- » Tree species that benefit wildlife are often commercially-viable species as well.

Considerations

- » A property-wide forest management plan is always recommended. If there isn't one for the property, NRCS and conservation partners can help landowners develop one.
- Old fields and pastures with limited economic opportunity can be successfully managed for wildlife.
- » Consult a qualified forester.

Notes

These habitats, by nature, are ephemeral. That means they're present on the landscape for a short period of time. In the case of regenerating a forest stand, it's perfectly acceptable and natural to allow the young forest to mature into older forest.

In some cases, such as an abandoned farm field, a landowner may wish to maintain the area in permanent early successional habitat. In these areas, it will be necessary to be vigilant to prevent invasives from invading and crowding out native woody and herbaceous species.

Maintenance

» Roads, skid trails and log landings should be reshaped if necessary to prevent erosion and seeded and mulched where necessary. The seed mix should not contain invasive species nor species that will inhibit tree seedling establishment.

5 UPLAND WILDLIFE HABITAT MANAGEMENT



The Basics

Upland wildlife habitat management is the monitoring of the understory of a forest stand for seedling germination and development.

Benefits

- » Quantifies abundance and size of seedlings, saplings, shrubs, and herbaceous vegetation in the understory of the forest stand.
- » Helps determine if there are undesirable woody and herbaceous species that are competing with desirable plants.
- » Helps determine if there are enough desirable tree seedlings of competitive size to move to the next step in the regeneration process, such as a shelterwood harvest or an overstory removal.
- » Monitoring and controlling undesirable plants improves forest health by providing more sunlight, water, and nutrients to increase value and biodiversity in the stand.

Considerations

- » What are the desirable tree seedling species that are likely to be present?
- » What are the undesirable species that are likely to be present? Are they non-native?
- » If undesirable species are present, are they competing with desirable species?
- » Is a qualified forester needed to collect or help collect this data?

Notes This practice

This practice helps a landowner assess the understory of their forest stand. Site-specific data is systematically collected to assess the status of desirable and undesirable plant growth and determine if a forest has enough desirable species or too many undesirable species.

Decisions can then be made about whether additional practices are needed before the next step in the regeneration process. Competing, undesirable species may need to be controlled via Brush Management or Herbaceous Weed Control to encourage the growth and accumulation of desirable plants.

It is sometimes necessary to consult with or hire a qualified forester if seedlings and other plant species are difficult to identify.

Undesirable or non-native plants may need to be controlled with herbicide if they are competing with desirable species.

Maintenance

Site-specific data should be reported to a qualified forester and local NRCS office to determine whether:

- » Treatment or re-treatment of undesirable herbaceous and woody vegetation is necessary.
- » The forest stand is ready for the next step in the regeneration process.

6 TREE/ SHRUB ESTABLISHMENT



The Basics

Tree/ shrub establishment is the planting of woody plants by planting seedlings, container/ potted plants, cuttings, or by direct seeding.

Benefits

- » Improves plant species composition in a degraded forest stand.
- » Reintroduces native shrub species.
- » Hard (e.g. oak) and soft (e.g. serviceberry) mast producing tree and shrub species benefit wildlife.
- » Trees can be established for forest products.
- » Provides erosion control.
- » Improves water quality through uptake of soil- and water-borne chemicals and nutrients.
- » Improves air quality.» Provides wildlife habitat.
- » Stores carbon in biomass.

Considerations

- » What are the tree and shrub species that are well-suited for the site?
- » What is the goal of the tree/ shrub planting?
 - » Interplanting to improve species composition of an existing forest stand?
 - » Establishing a new forest on abandoned farmland or reclaimed surface mine?
 - » Improving an old field by removing non-native shrubs and replacing them with native shrubs?

- » Plantings must be protected from deer, either by tree tubes or 8-foot deer exclusion fencing.
- » Is there existing vegetation that must be controlled before trees and shrubs can be established?

Notes

Follow state and local regulations for locating plants adjacent to roadways. Planting date and care in handling should ensure an acceptable rate of survival. NRCS requires a survival rate of 70 percent. Only use viable, high quality, and adapted planting stock. Prepare planting site to establish and grow selected species. Timing and equipment should be appropriate for the site and soil conditions.

Maintenance

- » Control competing vegetation until the seedlings and shrubs are established.
- » Check for insect and disease damage regularly.
- » Replant as needed.

7 PRESCRIBED BURNING



The Basics

Prescribed burning is applying fire to forestland within a recommended set of conditions, dates and with appropriate safety precautions to achieve a specific purpose.

Benefits

- » Controls undesirable vegetation.
- » Prepares sites for planting, seeding or natural regeneration.
- » Controls plant disease.
- » Reduces wildfire hazard by consuming accumulated fuel.
- Improves wildlife habitat through increased browse and low cover.
- » Enhances seed and fruit production of native plants and shrubs.
- » Restores fire-adapted ecosystems and plant communities.

Considerations

- » Will prescribed burning help meet your objectives? For example, are your problem plant species well controlled by fire?
- » Is fire a safe, practical option for your site?
- » Are you managing an ecosystem that historically experienced fire?
- » Are qualified professionals available to assist with planning and implementation?

Notes

Burn only to meet a specific management objective, generally once every 3 to 30 years. It may be necessary to burn woody vegetation two or more consecutive years to control undesirable sprouting.

Use existing barriers, such as lakes, streams, wetlands, roads as well as constructed firebreaks when planning the burn. Consider any known cultural resources and threatened or endangered plants and animals that may be sensitive to burning or firebreak construction.

Smoke could have an impact on the surrounding area during and after the burn; carefully plan how smoke impacts will be managed.

Successful prescribed burning depends on many environmental factors, such as current and past weather, recent precipitation, temperature, humidity, and wind speed.

In many states, an official burn plan and highly skilled personnel **are required** to carry out a prescribed burn.

Maintenance

» Monitor the burned site and adjacent areas until ash, debris, and other consumed material is at pre-burn temperatures.

Why Work with NRCS

Here's what a few people have said:



We recommend working with NRCS because unbiased, professional foresters provided assistance to create a young, healthy forest from one that was declining.

Mike and Laura Jackson, Bedford County, Pennsylvania



By working side-by-side with NRCS, landowners can receive technical and financial assistance to improve their forest operation and create optimal habitat for wildlife. Terron Hillsman, State Conservationist, Maryland



Sustainable forestry is benefitting our personal lives as well as wildlife.

Natalie Love, Huntingdon County, Pennsylvania



I am completely convinced that our work with NRCS and other partners will create a healthy, productive, sustainable forest that will be our gift to future generations.

Bob Hartmann, Cradle of Liberty Boy Scout Council, Pennsylvania

Get Started with NRCS

With two-thirds of the continental United States under private ownership, the management decisions of forest landowners are critical to our nation's natural resources, including the health of forests. Forest landowners interested in NRCS assistance are encouraged to contact their local NRCS field office. You'll work with your local NRCS district conservationist and its partners through this five-step process:



Develop a forest management plan that meets your goals and vision for the land. NRCS may be able to help cover the cost of this plan.

APPLY

Complete an application for financial assistance programs.

ELIGIBILITY

Provide identification and ownership information. As part of this process, NRCS will connect you with USDA's Farm Service Agency to obtain a farm and a tract number if you do not have one for your land. NRCS and FSA will need some additional eligibility forms, which you can find at **nrcs.usda.gov/GetStarted**.

RANKING

Applications are screened and ranked according to local resource concerns, the amount of conservation benefits the work will provide, and the needs of applicants.

IMPLEMENTATION

If your application is selected, you will decide whether to sign the contract and move forward with implementation. You will have a certain time period to implement the practices in accordance with the NRCS contract. In many places, a network of conservation partners are available to provide guidance on implementation.

YOUR LOCAL CONTACT:

NRCS or Partner Conservationist: Staple business card here.

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