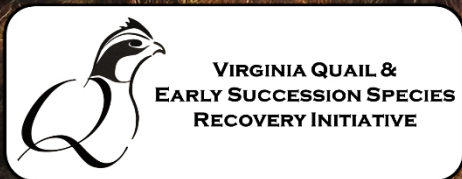


Bargain Basement Bobwhites

An Affordable DIY Approach to Managing Land for Wild Bobwhite Quail



VIRGINIA QUAIL &
EARLY SUCCESSION SPECIES
RECOVERY INITIATIVE

a partnership...



FOREWORD

In the winter of 2014, I wrote a blog for Virginia's page on the NBCI website entitled, "Quail on the Cheap; Or, A Tightwad's Guide to Quail Management." In the article, I simply outlined a few cheap and easy ways to make your land more attractive to quail. I was prompted to write such an article because I often meet with landowners who think they *have to plant something* or have the idea that *this is going to cost a lot*, and many times, this isn't the case.

More often than not, a landowner has a property with a lot of potential, a great native seedbank, and just needs a couple habitat management practices to get things going in the right direction. Other times, a landowner may be active in trying to manage for quail, but needs a tweak here and there on how they've been doing things. In other words: *Chances are, it may not take much to make your property suitable for quail, and you won't have to take out a second mortgage to do so.* That is the point of this E-book.

But what is a publication about quail habitat management without some info about the quail themselves? The backbone of all wildlife management is to have a good understanding of the biology and habitat requirements of the species of interest before you hop on the tractor, fire up a chainsaw, or fill up a backpack sprayer. Much of the content on bobwhite biology and habitat requirements in this E-book was taken or adapted from *National Bobwhite Conservation Initiative: A Range-wide Plan for Recovering Bobwhites* ("NBCI 2.0") and *Beyond the Food Patch: A Guide to Providing Bobwhite Quail Habitat* (written by Irv Kenyon and published by the VA Dept. of Game and Inland Fisheries). If you really want to know what we're doing to bring back quail nationwide, be sure to look up "NBCI 2.0" on the NBCI website (www.bringbackbobwhites.org). Irv Kenyon's *Beyond the Foodpatch*, published in 2000, has been a timeless booklet on bobwhite management that we continue to distribute to landowners to this day.

FOREWORD

I wanted to take it a step further with this publication and give the reader some examples of what they can do on their land to help quail and other wildlife. There have been many site visits where I know the landowner has a pretty good idea of what quail need, but they may not be the best at reading the land and seeing its opportunities. The examples in the “Designing Your Quail Project” chapter are ones that we commonly deal with in Virginia, but can certainly be applied elsewhere.

I hope that you enjoy this publication and that it inspires you to actively manage your land for quail. When you do decide to join the fight to bring back the bobwhite, there are links and contacts toward the end of the E-book that will help you get started. I know many of you readers are do-it-yourselfers (like me) and will take the information in this publication and get after it, but I want everyone to know that there are a lot of great professionals across the U.S. who want to (and have been hired to) help private landowners bring quail back. Don’t hesitate to use them for technical assistance—it’s free, and they may see something that you don’t.

FOREWORD

Good luck with your habitat endeavors, STAY SAFE, and be *patient*. We'll bring 'em back... but not without your help.



Justin Folks
Private Lands Wildlife Biologist
Virginia Quail & Early Succession Species
Recovery Initiative

ACKNOWLEDGEMENTS

I want to thank John Doty for the idea of creating this E-book, along with his help with the title and providing me with some great photos.

Thanks to Irv Kenyon and his *Beyond the Foodpatch*, and all those who worked on *NBCI 2.0*, from which a fair amount of the information in this E-book is adapted.

I'd also like to thank all of those who provided photos for this publication. Thanks to Marc Puckett and David Bryan for their edits and suggestions along the way.

Finally, a big “thank you” to Marc Puckett and the rest of the Virginia Quail Team for their vast knowledge, expertise, and experience that has helped turn me into a halfway decent quail biologist.

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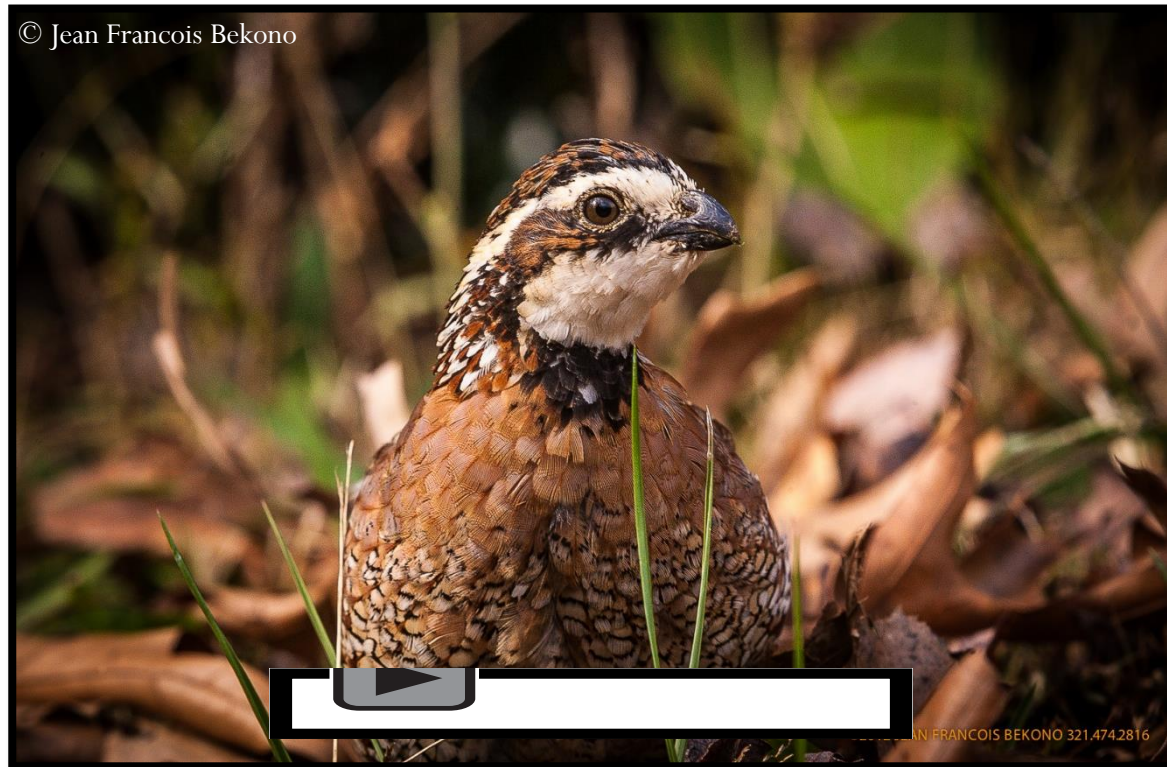


INTRODUCTION



INTRODUCTION

The bobwhite quail (*Colinus virginianus*), widely known as the “Prince of Game Birds,” was once a familiar face in rural landscapes throughout much of North America. Its beautiful plumage is a sight to behold, and the male’s easily recognizable, three-syllable “bob-BOB-WHITE!” whistle is truly a heartwarming sound. Habitat loss and fragmentation over the last 60 years have turned this once-familiar sound into a rare reminder of days-gone-by.



INTRODUCTION

The importance of bobwhite quail and its habitat is well understood. The habitat requirements for quail overlap with many other game and non-game wildlife species. Vegetation communities used by quail provide many ecosystem services (improving water quality, habitat for pollinators, etc.), and often harbor unique and rare plants and animals.



© Craig Harper

Ticktrefoil or "beggar's lice" (above) is an outstanding quail plant. It attracts insects, provides cover, and its nutritious seeds are frequently eaten in fall and winter. The missing leaves and stems of this plant prove that deer don't mind it, either.

One-third of our crops depend on pollinating insects—primarily bees. Tell this bumblebee (right) that this is "quail habitat."



© Bridget Collins



© Amy Venclik

The loggerhead shrike (listed as threatened in VA) requires shrublands similar to bobwhite quail.



INTRODUCTION

In addition to ecological value, quail can provide economic value. A portion of the revenue generated by hunting license sales and equipment purchases for bird hunting goes back into conservation. More hunters = more \$\$\$ for conservation. Hunters visit stores and restaurants in rural areas and benefit local economies.

Year	No. of Quail Hunters	Avg. Expenditures per Hunter	Total Expenditures	Total Economic Impact
1991	30,621	\$847.98	\$25,956,996	\$50,374,031
1999	18,174	\$1,037.08	\$18,847,892	\$36,564,910
2004	10,761	\$1,290.63	\$13,888,422	\$26,943,538

Data from "Northern Bobwhite Quail Action Plan for Virginia," 2009.



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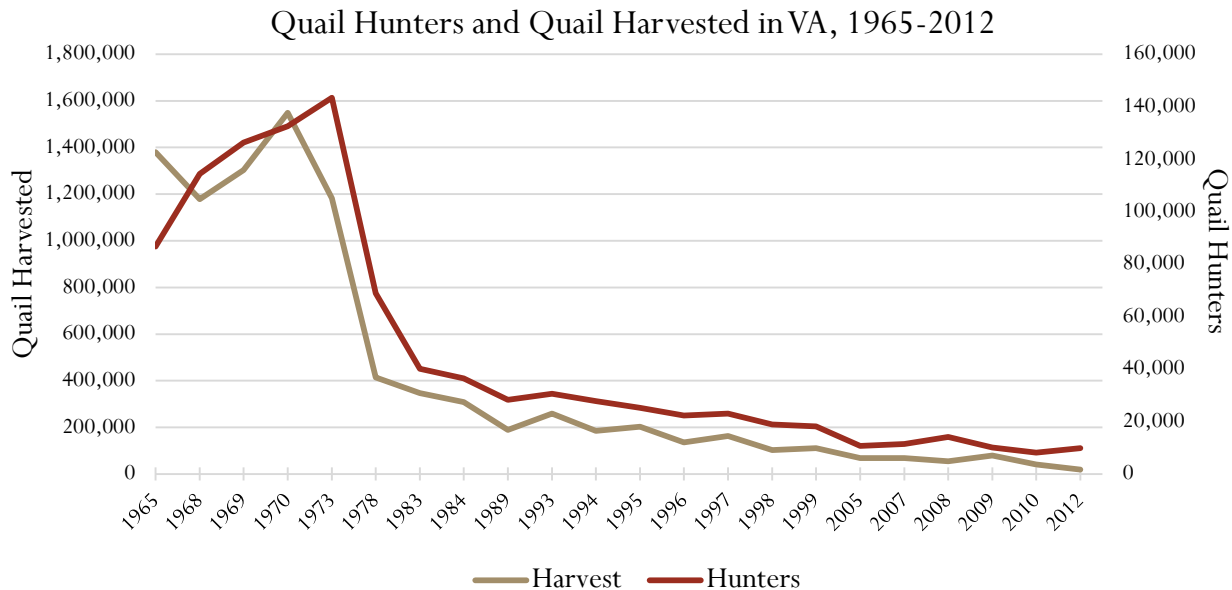


INTRODUCTION

The tradition of bird hunting runs deep. The value of fellowship and camaraderie during a quail hunt with friends and family is second to none. Often, more pleasure is gained from watching a good bird dog work than filling a bag limit. Training bird dogs is an art form, in and of itself.



INTRODUCTION



It is estimated that bobwhite populations have declined 80% over the last 60 years. As bobwhite numbers have declined, so, too, have the number of bird hunters and hunting licenses sold annually.

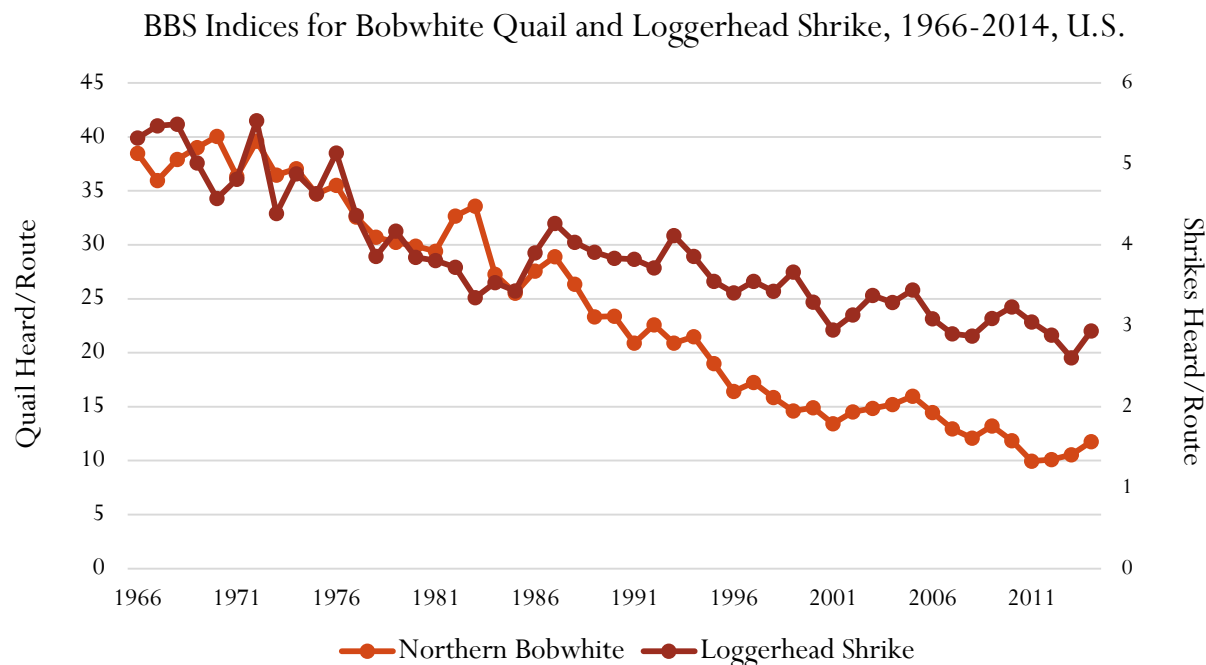


INTRODUCTION

Bobwhites aren't the only ones in decline. Many songbirds, small mammals, pollinating insects, and other wildlife species that use similar habitats as bobwhites are also declining. Many plants that once thrived from disturbances that maintained bobwhite habitat are becoming more and more rare.



© Jean Francois
Bekono

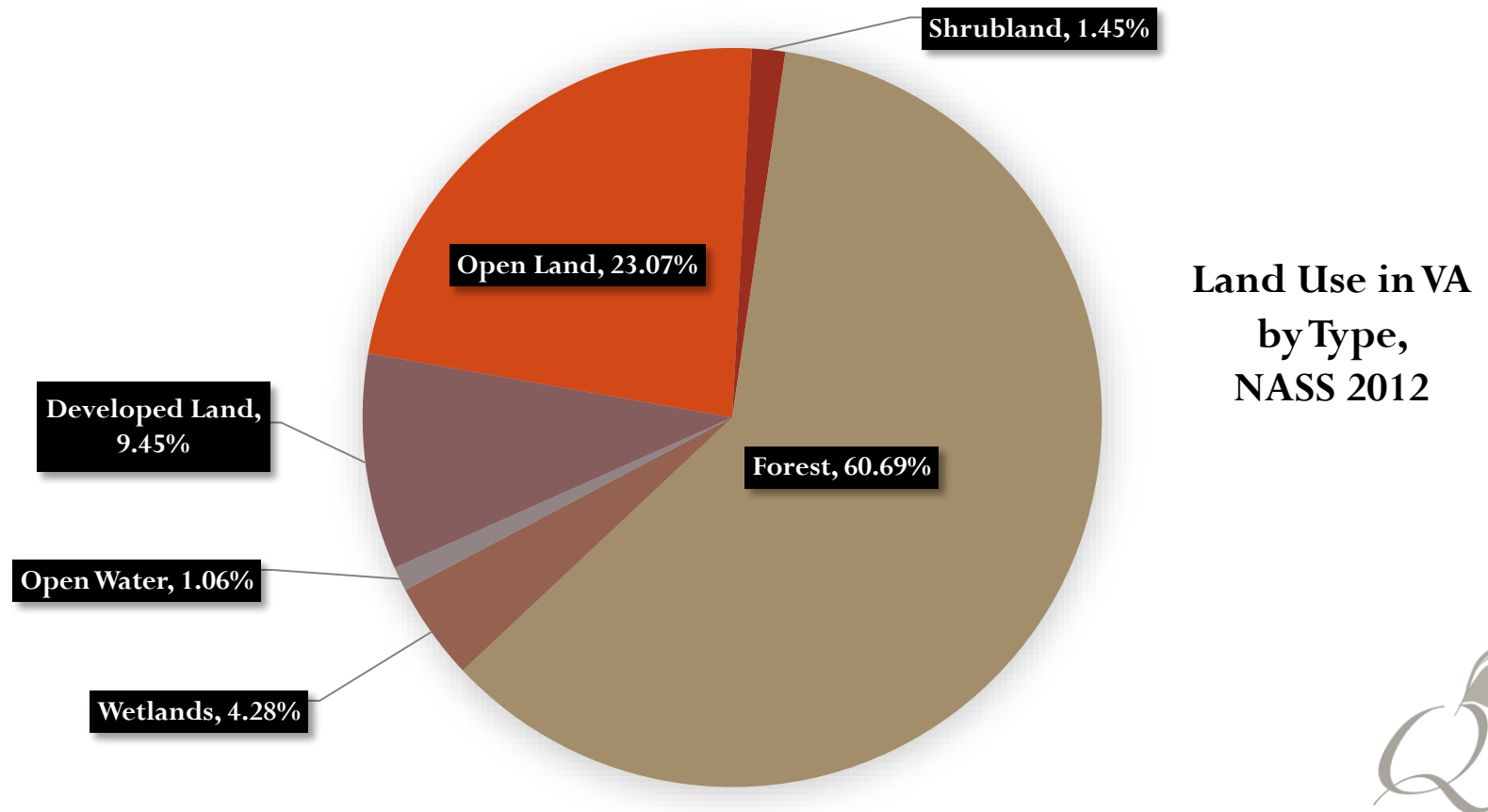


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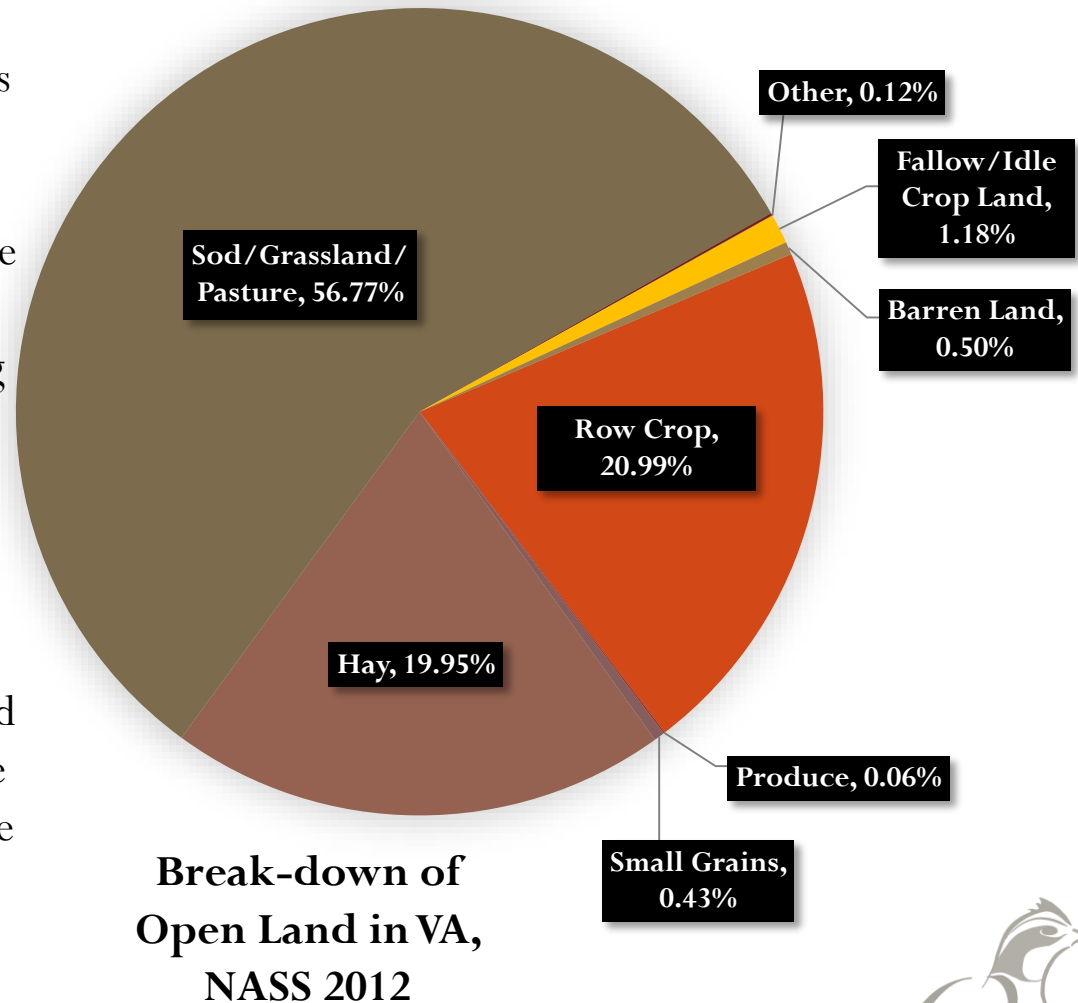
INTRODUCTION

According to 2012 National Agricultural Statistics Service data, this is what Virginia looks like. Majority of our state is forested, with few forests managed in a way that is conducive to quail.



INTRODUCTION

While 23% of our state land use is Open Land, very little of it is suitable for quail. Advancements in agricultural technology over the last several decades and meeting the demands of an ever-increasing human population has led to an increase in the intensity of agricultural practices. Continuously grazed “improved pastures,” clean crop fields, hay land, and an absence of fallow land have all contributed to the decline of quail. But YOU can help reverse the trend!



INTRODUCTION

The fate of quail lies in the hands of the private landowner. Don't wait on the government to save the quail—with shrinking budgets, fewer staff having more responsibilities, and the overall small proportion of public land that is manageable, the gov'ment ain't gonna restore 'em for ya.

The time to act is NOW...

...and it doesn't have to cost an arm and a leg to do it. The goal of this publication is to inform you, the reader, on what bobwhite quail need to thrive and how to provide it without having to take out another mortgage.





SOME BOBWHITE BIOLOGY

© Jean Francois Bekono



SOME BOBWHITE BIOLOGY

Bobwhite Stats:



Height: 9-10 inches
Weight: 6 ounces
Habitat: Brushy old fields, field edges, savannah
Diet: Insects, seeds, hard and soft mast, plant leaves
Nesting Season: April 15 - September
Clutch Size: 10-15 eggs
Covey Size: 12-15 birds

Let's learn a little more about this Prince of Gamebirds, shall we? After all, the foundation of sound wildlife management is knowing a little something about the wildlife we're managing for.

Read on to learn more about some of the bobwhite's seasonal habits.



SOME BOBWHITE BIOLOGY

• Winter

- Bobwhites spend the winter in groups of 7-15 birds called *coveys*. This grouping behavior is an adaptation for survival, enabling them to keep each other warm and there are more eyes to find food and detect predators.
- When roosting, coveys will form a tight ring (called a *covey ring*) to stay warm. Fewer than 7 birds in a covey and they don't create enough body heat to stay warm. More than 15 birds in a covey, and they're spread too far apart to keep each other warm.
- Coveys roost in open areas like low-growing broom straw fields, and avoid roosting too close to or within thickets. Each bird faces outward so they can flush in 1 of 7-15 directions unobstructed if a predator approaches, confusing the enemy and facilitating escape.



SOME BOBWHITE BIOLOGY

- **Winter** *continued*

- Bobwhites feed on seeds from forbs, shrubs, and various grasses, and will utilize bits of hard mast left behind by larger animals.



Partridge pea seeds are a great source of energy for quail in the fall and winter.



Winged sumac (left), beautyberry (right), and winterberry holly (below) are among the many shrubs which have seeds that persist well into winter, giving bobwhites a late-season food source.



SOME BOBWHITE BIOLOGY

- **Spring - Summer**

- Coveys begin to break apart and pair-bonds form in April
- Quail begin foraging on green vegetation and insects as they emerge.



SOME BOBWHITE BIOLOGY

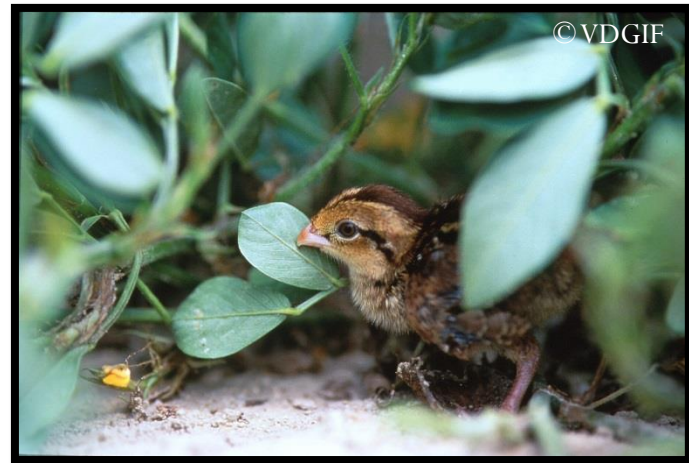
- **Spring – Summer** *continued*

- Nesting occurs from mid-April through September.
- A hen may attempt multiple nests if previous nests are unsuccessful. Typically, about 1/3 of quail nests survive to hatch—but by re-nesting, over 90% of hens ultimately hatch a brood.
- Nesting activities are shared by both the male and female.
- A single nesting cycle requires 47-55 days, beginning with nest site selection and nest construction.
- Clutch size typically ranges from 12-16 eggs, but may be as high as 20. Clutch size declines with successive nesting attempts (~7-9 eggs in September).
- Incubation requires 23 days.



SOME BOBWHITE BIOLOGY

- **Spring - Summer** *continued*
 - Quail chicks are about the size of a bumble bee when they hatch, but reach flight-stage in about 2 weeks. A strict diet of protein-rich insects helps them achieve this rapid growth.
 - Broods leave their parents at about 3 weeks of age, and will often join other broods in “super broods.”



Quail chicks are voracious insect predators. In proper habitat, they can catch insects only hours after hatching. They need insect-rich cover that is open enough for them to capture insects successfully.



SOME BOBWHITE BIOLOGY

- **Autumn**

- In October, groups of quail will congregate at a single location (sometimes 50 or more birds can be seen at once!). These groups will break apart and individuals will mix-and-match with one another to form coveys. This behavior is what is referred to as the *Fall Shuffle*.
- The Fall Shuffle is an adaptation that ensures genetic diversity of quail and enables them to form optimal covey sizes before heading into winter.

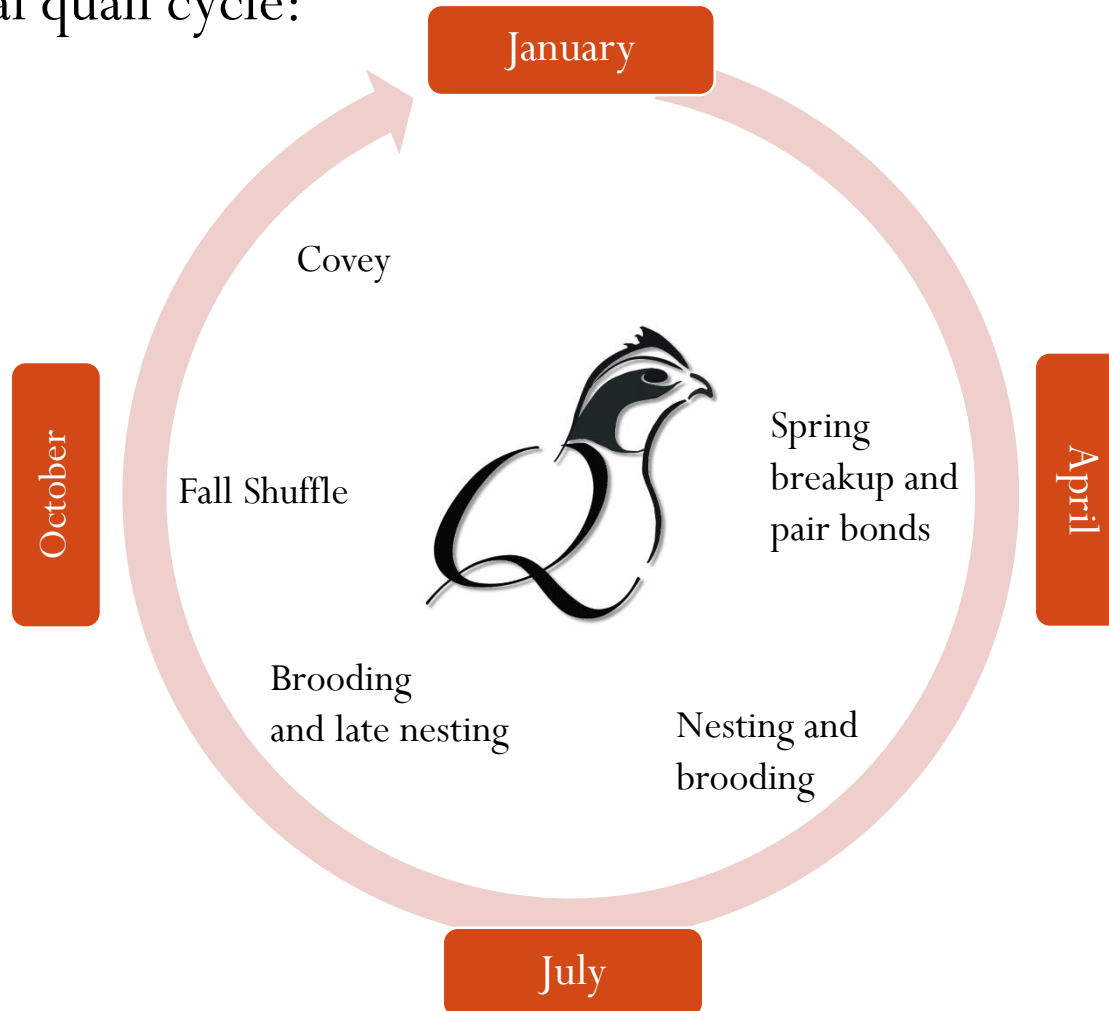
Pine savannah in winter.

© Lorien Huemoeller



SOME BOBWHITE BIOLOGY

The annual quail cycle:





HABITAT REQUIREMENTS



HABITAT REQUIREMENTS

- There are 3 key components to bobwhite quail habitat:
 - **Nesting cover**
 - **Brood rearing cover (typically doubles as winter feeding cover)**
 - **Escape/loafing cover**

If just one of these components is missing or inadequate, *quail will not persist*. It is also crucial that these habitat components be connected.



HABITAT REQUIREMENTS

- **Nesting Cover- mix of erect grasses, forbs, and scattered shrubs/brambles at a moderate height**

Bobwhites prefer to nest in basketball-sized clumps of bunchgrasses, using the previous-year's growth to construct the nest.

Nests are frequently located within 50 feet of an edge or opening having bare ground where the nesting bird can easily reach to forage or join its mate when off the nest.

The optimal density of bunchgrasses for nesting is about 600-700 clumps/acre. Areas become too thick for nesting when clumps reach about 1,200 clumps/acre.

If adequate nesting habitat is available, roosting habitat is also usually adequate.



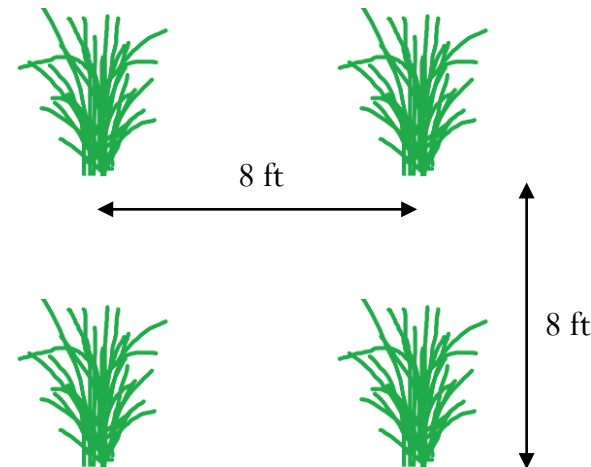
HABITAT REQUIREMENTS

- **Nesting Cover- grass density illustrated**

The preferred density of grasses by quail is much thinner than what most people think. As stated earlier, quail prefer to nest in fields where grasses are distributed at about 700 clumps per acre, and begin avoiding areas when they reach about 1200 clumps per acre. Here's a way to visualize these densities:

There are 43,560 square feet in an acre. Divide this by 700 clumps, and that's 1 clump for every 62 square feet—about 8 feet between clumps. At 1200 clumps per acre, it's about 6 feet between clumps. If you're stomping on grass every 2 steps across a field, you might want to thin things out a bit!

700 grass clumps/acre:



The space between clumps should be filled with forbs and bare ground underneath.



HABITAT REQUIREMENTS

- **Nesting Cover**



HABITAT REQUIREMENTS

- **Brood Rearing Cover-** recently-disturbed ground, bare ground under a canopy of annual forbs.

Bare ground is defined as areas where no vegetative material exists at ground level, but a vegetated canopy is present above. This canopy is what shields the chicks and their parents from aerial predators. Bare ground composition within brood rearing cover should be around 50%.

Ideal brood rearing cover is dominated by annual, high seed-producing plants that attract a lot of insects (the primary food for chicks). Often, great brood cover serves as great winter feeding cover, especially if there is a high proportion of legumes present.



HABITAT REQUIREMENTS

- **Brood Rearing Cover**

Ideal brood rearing cover. Notice the great screening cover (right) with open structure and bare ground (below). Ragweed stands are another example of excellent brood rearing cover.



HABITAT REQUIREMENTS

- **Escape/loafing cover- woody thickets (shrubs, small trees, vines, and brambles)**

Possibly the most often overlooked aspects of quail management on private land are the availability and arrangement of woody thickets! Thickets are places where coveys congregate in the middle of the day after a morning feeding (why they're sometimes referred to as *covey headquarters*), and also areas where quail can escape all sorts of predators.

Ideal thicket cover consists of densely-branched shrubs, low-growing trees, vines, and brambles in clumps or hedgerows. Ground cover within thickets should be sparse.

Thickets in clumps should be at least 50 feet in diameter, and hedgerows should be at least 50 feet wide. Escape/loafing cover should be arranged so that thickets are no farther than 200-300 feet apart, because quail typically flush about 150 feet before they need to land in woody cover. Arranging thickets in this manner ensures escape cover is always within reach of a quail, and encourages quail to use an entire field rather than just the edges.

The true measure of a thicket's value for quail comes in winter after the leaves have fallen!



HABITAT REQUIREMENTS

- **Escape/loafing cover**



Left: Grown-up fencerows with downed trees and limbs provide excellent escape cover.

Right: A blackberry thicket is hard to beat when it comes to escape cover. No way a hawk can find a quail here—even in winter!



HABITAT REQUIREMENTS

- **Connectivity- ensure that patches of quail habitat are connected in some way**

Quail aren't built for long-distance flights like songbirds. They travel by foot from one area to another, and only fly when threatened (and they'd still prefer to run to cover if it's within easy reach).

Think of it this way: You find yourself in Jurassic Park after the scat hit the fan. You need protection from the pterodactyls. Do you run across the wide open fields to get somewhere, or stick to the woods where you have cover above? Now scale everything down to where you're 9 inches tall and the pterodactyls are now hawks. Get the picture?

You may have the best brood rearing, nesting, and escape cover in the world on your property, but if they aren't all connected, they likely won't do diddly-squat for quail.



HABITAT REQUIREMENTS

- **Connectivity**



Hedgerows provide travel corridors for quail and other wildlife to travel from one patch of habitat to another. While crop fields and hay fields may not be suitable habitat year-round, corridors keep quail connected to habitat that is suitable. Connect the cover, connect the quail!





QUAIL ON THE CHEAP



QUAIL ON THE CHEAP

You don't have to be made of money to create quail habitat. A little bit can go a long way for species like quail, and even a relatively large project doesn't have to break the bank. Here are some tips on ways to help quail that won't hurt your wallet.



© Mike Budd



QUAIL ON THE CHEAP

- **PARK THE MOWER!**

People blame hawks, foxes, cats, and coyotes for the decline of quail, but the mower has had perhaps the most detrimental impact of all. Simply put, quail need old field-type habitat (free of fescue or other sod grass) with bare ground, wildflowers and woody thickets scattered throughout to thrive. Mowing gives you about the exact opposite!

If you're what we refer to as a "recreational mower" and you want quail, the first thing you should do is find another hobby. Think of all the money you spend on a mower, the fuel, maintenance and the amount of time you spend on that mower every year. By letting areas grow up (without fescue, of course), you can actually *save* money by creating quail habitat!

To keep the old field from becoming forest, you'll need to mow it every 3-5 years. To ensure cover is standing at all times and to add diversity to the property, mow 1/3rd of the fields once every year around March. By mowing in late winter/early spring, you leave cover standing all winter which is *crucial* for bobwhite survival. Taking this approach, you've cut down on 2/3rd of the fields you mow every year and you only have to mow it once!



QUAIL ON THE CHEAP

If erosion isn't too much of a concern, consider using a tractor and disc as opposed to a mower. The disc promotes bare ground and broadleaf plants while still keeping trees out.

Half of this field is disced every other year on rotation. Discing gives the quail bare ground to travel and forage on and promotes annual forbs like ragweed that offer excellent brooding cover. The other half has more grass for quail to nest in and offers some escape cover as well. Combine this with a soft edge around the perimeter, and you have a recipe for success. No wonder a pair of quail were seen here just prior to this photo being taken!



© Justin Folks



QUAIL ON THE CHEAP

If you really want to increase your property's value for quail and save yourself some dough, you'll want to seriously consider some controlled burning. You can impact a lot more acres with fire for less money (and time) than you could on a tractor. A field that may take all day to mow or disc can be burned in a few hours with greater effect for quail. Contracting a burn may run around \$40-50/acre, and installing firebreaks yourself can save money.



Prescribed fire increases bare ground, promotes legumes, and limits hardwood encroachment—it's no wonder Herbert Stoddard referred to quail as "the firebird!"

The pine stand on the right side of the road was burned June 2nd, 2014 and the stand on the left was not. This photo was taken in April 2015.



QUAIL ON THE CHEAP

Teaching you how to burn is beyond the scope of this publication... just be sure to reach out to the Virginia Department of Forestry (THE burning authority for Virginia) or other natural resource professionals for guidance on burning on your land, and follow all state and local laws!

Prescribed fire and discing are two excellent quail management tools, and incorporating or combining both techniques over time may be best.



Burning at Featherfin WMA March 24th (video, left), and the same area 1 month later (above).



QUAIL ON THE CHEAP

- **Grazing for Quail**

Where discing or burning is problematic for managing quail areas, try using cattle. A steer can do things a drip torch can't. If you already have fence and water, managing your quail areas with cattle can be free or even put money in your pocket (if you rent it out for grazing).

Some of the native warm season grasses (NWSG) recommended for quail (such as big bluestem, switchgrass, and indiangrass) evolved with grazing by bison and other ruminants. When left unchecked, they become dominant and choke out other beneficial plants. No matter how many times you burn it, it will always be rank. Put some cattle in there and let them do the management for you. If you want to include big bluestem or switchgrass in a new planting, use very low seeding rates for these species unless you plan to graze it!



NWSG grazed with wildlife in mind.

© Al Bourgeois

QUAIL ON THE CHEAP

- **Grazing for Quail**

Whether it's rangeland, prairie, or planted native warm season grasses (NWSG), grazing can be good for quail. The trick is to avoid over-grazing and provide structure. Don't forget to keep those forbs and shrubs!



South Texas rangeland. Including forbs with NWSG plantings and using grazing as a management tool can re-create rangeland or prairie in the east.



QUAIL ON THE CHEAP

- **Grazing for Quail**

Even when maximizing beef production on NWSG, quail cover can be achieved—it won't be perfect, but it can be *suitable*. In managed NWSG pastures, avoid grazing lower than 15" to keep the grasses in a palatable, vigorous state while providing cover for quail. Incorporating NWSG into a rotational grazing system can put more pounds on cattle, decrease or eliminate the need for hay, and could help bring quail back to your property.



QUAIL ON THE CHEAP

- **Kill Fescue Then Fallow**

A common misconception among many of the landowners with whom we speak is that you have to plant something to bring quail back. This isn't necessarily the case.

In many instances, there are a lot of great native “quail plants” in an old field that has a lot of fescue. Fescue is a cool season grass, meaning it actively grows in the fall and spring months. A systemic herbicide like glyphosate (active chemical in Roundup, Gly-4 and others) only kills what is actively growing, so by timing the herbicide application to when the fescue is actively growing and the native warm season plants are dormant, you can kill the bad stuff while leaving the good stuff. *FOLLOW ALL HERBICIDE LABELS!*

To spray with glyphosate yourself (with the right equipment), you're looking at a cost of around \$10/acre (excluding fuel and equipment costs). Many farm cooperatives and other contractors may run you \$30-\$50/acre to have them spray it instead. Once the fescue is dead, let the field go fallow and allow the natives to dominate. Mow, disc or burn every 3-5 years, spot treat any fescue that might pop up, and that's it!



QUAIL ON THE CHEAP



1) Jun 2013- A fescue field that has just been managed with mowing and many desirable plants present. 2) Nov 2013- After a spray in October, the fescue is DEAD. 3) Mar 2014- Burning off the thatch to increase bare ground and jumpstart the seedbank response. 4) Mar 2014- Day after the burn. Good and black. 5) Jun 2014- Could never tell it was sprayed or burned. 6) Jun 2014- By spraying in Oct., we saved many good plants, including this butterfly milkweed and partridge pea! (Photos © Justin Folks)



QUAIL ON THE CHEAP

- **Fallow Cover Crops**

Field borders around crop fields provide enormous benefit to quail in just a small area. If you're interested in quail and are already planting wheat, oats, rye, or barley for a fall/winter cover crop, leave strips of the cover crop at least 35 feet wide around the perimeter of your fields when you plant your commodity the following year. The cover crop will provide cover and seed for birds in the first year, and letting it go fallow will allow native plants to volunteer, which will be beneficial for quail for years to come. All you did was plant the cover crop that you would have planted anyway—Mother Nature did the rest.



QUAIL ON THE CHEAP



© Justin Folks

This landowner was planting cover crops, anyway, so we just encouraged him to leave 35 ft at the edge of the field fallow to create some cheap brooding cover. In its second year of growth, there are still plenty of annual plants and bare ground to make the little quail chicks happy. Next spring, it may be time to disc this site to keep it that way. Notice how this border is arranged next to woody cover!



QUAIL ON THE CHEAP

- **Free Shrubs**

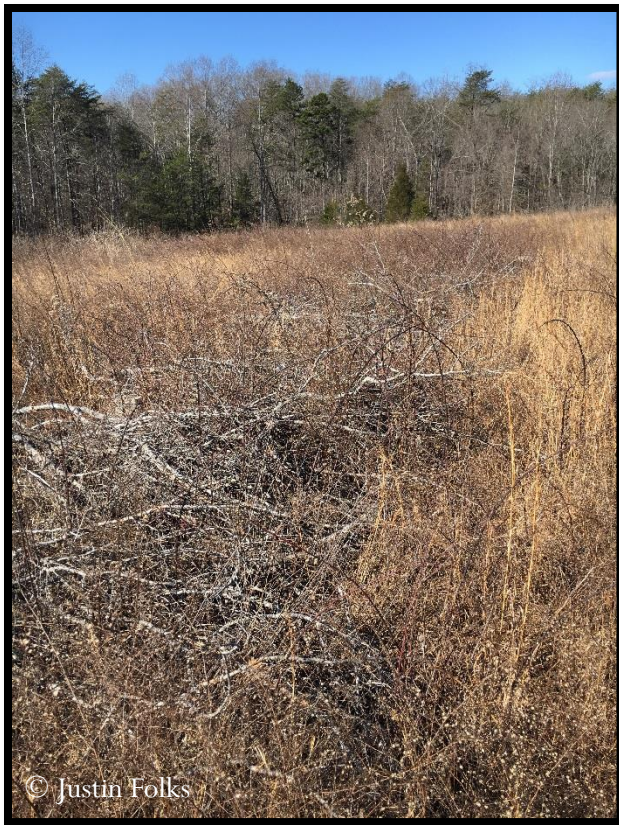
Woody thickets are more important to quail than what most folks realize. Shrubby thickets should comprise 15-30% of an area to provide essential escape and thermal cover for bobwhites, but shrubs are expensive and can be difficult to establish. Why bother when songbirds provide this service for free?

If you leave areas undisturbed for long enough, shrubs and trees will ultimately emerge, but to jumpstart this process, drag a cut cedar or the top out of a tree harvested for firewood out into a field. This creates a little bit of cover immediately, but it provides more of a perch for songbirds to land on and deposit shrub seeds.

Don't mow or disc within 50 feet of the tree, and watch as blackberries, sumac, dogwoods, and other shrubs emerge on their own. You may also create a cheap perch by running some wire between two posts. Shrub thickets should be no more than 200-300 feet apart.



QUAIL ON THE CHEAP



Above: This windrow of logging slash exemplifies what can happen if you leave a treetop in a field. This is only a few years old, but blackberry and pokeberry have taken it over.

Left: A landowner-cooperator spread brush linearly through an open field to jump-start the succession of a hedgerow. In just 2 growing seasons, blackberries are already emerging within the brush piles. Great quail cover is on the way.

The best part? It's all FREE!

QUAIL ON THE CHEAP

If there is a standing tree in the field you want to remove eventually, try hinge cutting the tree to get the same effect. A hinge cut is cutting through one side of a tree just far enough to where it will fall but it will remain attached to the stump. The tree will act as a living brush pile for a year or two until it dies, but by then, birds will have landed in the branches and deposited shrub seeds for you. You may then cut the tree up for firewood and your shrub thicket has been started. Hinge cutting is another great way to “soften” field edges where hayfields meet mature forest.



Hinge cuts work best with smaller trees—say less than 6 inches in diameter. For larger trees, remove the entire tree for firewood but leave the tree top as your brush pile and substrate for birds to land and “plant” shrubs for you. All it costs is a little chainsaw fuel and some “sweat equity.”



QUAIL ON THE CHEAP

- **Timber Management**

With some effort, you can create quail habitat in forest. The main goal is to get sunlight to the ground to create an herbaceous understory to suit the needs of quail (shoot for $\geq 50\%$ sunlight on forest floor at noon). Frequent burning will be required to maintain that herbaceous understory. Harvesting timber can bring in money that can be put towards other quail management activities. With 60% of Virginia being covered by forest, there are plenty of opportunities.



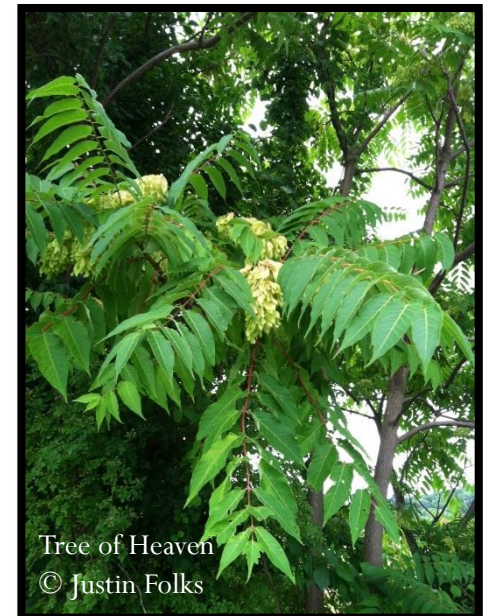
QUAIL ON THE CHEAP

These are just a few ways in which you can help create habitat for bobwhite quail, rabbits, songbirds, and other wildlife without forking out a lot of cash. Of course, planting a native seed mixture is always an option, but it's usually worth seeing what comes up out of the seed bank before you plant. You'd be amazed at what may emerge, and we often see plants that money can't buy.





A NOTE ON NON-NATIVE, INVASIVE PLANTS



A NOTE ON NON-NATIVE, INVASIVE PLANTS

An invasive plant is one that spreads out of control. Although some native plants have invasive tendencies, most invasive plants are introduced. Common characteristics of invasive plants include quick establishment, rapid growth, and high seed production. Because of these characteristics and a lack of natural controls, invasive plants can quickly dominate an area and outcompete native plants that are beneficial to quail and other wildlife.



© Marc Puckett

Autumn olive is starting to encroach in this field. It's best to control these plants when they are small and few. Spot treating a few plants each year is much easier and much more cost-effective than trying to deal with an invasive takeover.



A NOTE ON NON-NATIVE, INVASIVE PLANTS

The disturbances required to create/maintain quail habitat often open the door for invasives to pop up. It is very important to scout for and manage against invasive plants as they emerge in habitat areas. A little spot treatment on an annual basis is much easier and cheaper than waiting until a small infestation becomes a huge problem! Work with wildlife professionals in your area to help identify invasive plants on your property and offer advice on treatment.



If using herbicides, “use the least toxic, least environmentally persistent, lowest volume, most selective herbicide that will get the job done.” Select the proper method, chemical, and timing of application to limit collateral damage to desirable plants. Hack-and-squirt (left) and cut stump (right) methods are excellent techniques to control unwanted woody plants. FOLLOW ALL HERBICIDE LABEL INSTRUCTIONS!





A NOTE ON FOOD PLOTS



A NOTE ON FOOD PLOTS

Food plots are not a cure-all for any wildlife management issue. Quail recovery is no different.

If you provide the 3 essential habitat components for quail (nesting, brood rearing, and escape cover), the food will be there. Traditional food plots should only be added to a management scheme once all habitat requirements are met. That's not to say that food plots cannot be used—the trick is to manage them in a way so that you can meet multiple objectives at once.

A great way to incorporate food plot plantings into quail management is to plant annual “crops” into firebreaks, such as sorghum, millet, sunflowers, buckwheat, partridge pea, soybeans, annual lespedeza, and others. These plants will all create great brood rearing areas in addition to feeding areas, and these annual plants will make it easier to prepare the firebreaks prior to burning in the future. Make sure to use species that provide *cover* as well as food, and sow them at rates that leave plenty of bare ground.

While continuously planting food plots can be costly, a great way to save money is to let food plot areas go fallow for a year or 2 after being planted, and rotate your plantings across the property; this way, you're not re-planting everything every year, and the fallow areas are still great places for quail to feed and raise broods. Weedy food plots are good!!





DESIGNING YOUR HABITAT PROJECT



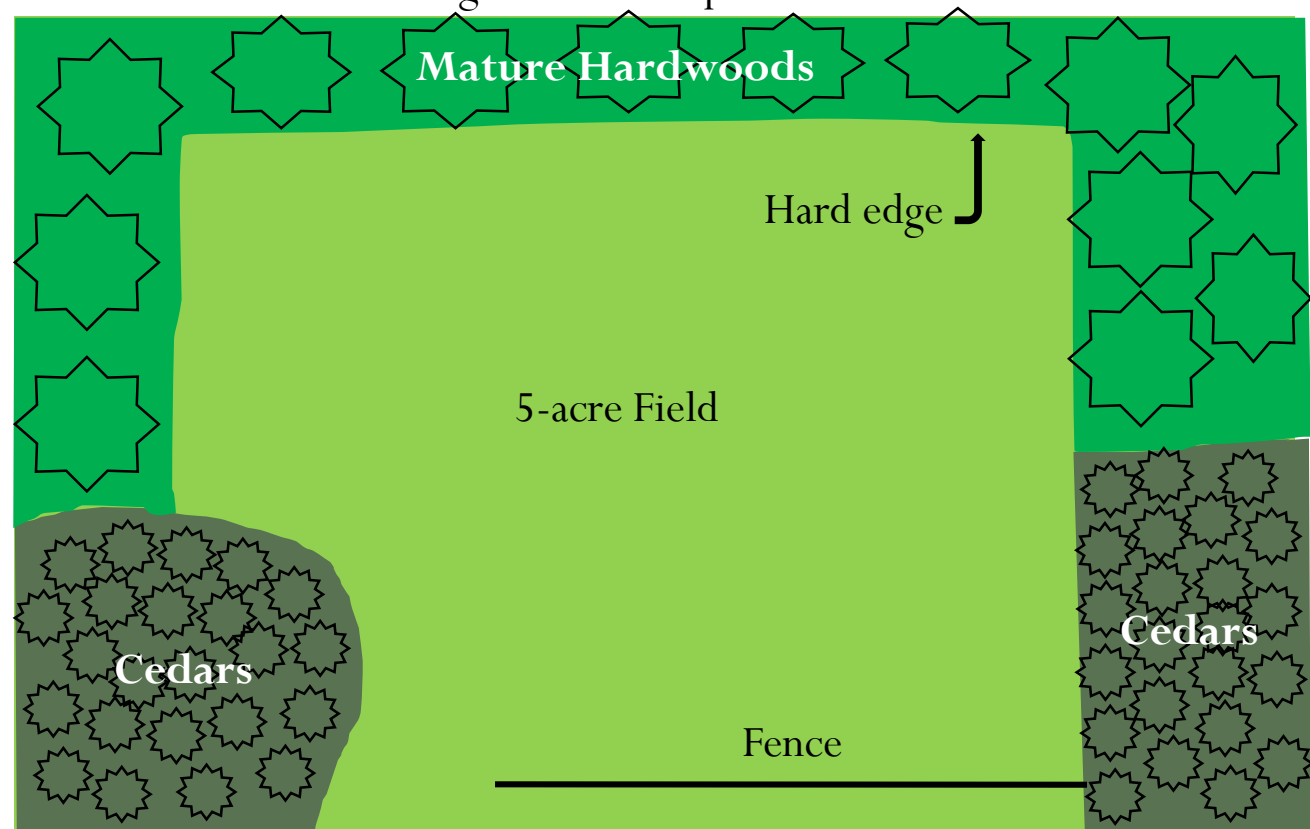
DESIGNING YOUR HABITAT PROJECT

• Example 1: The Fescue Conversion

Say you have an old fescue field that doesn't produce much hay or you just mow to "keep it down," and you want to convert it to something suitable for quail.

Before:

- Hay field or just an open area that's managed via mowing
- Plenty of native plants are present within the field, but potential is limited by non-native sod
- Mature hardwoods and a hard edge offer little in terms of protective cover

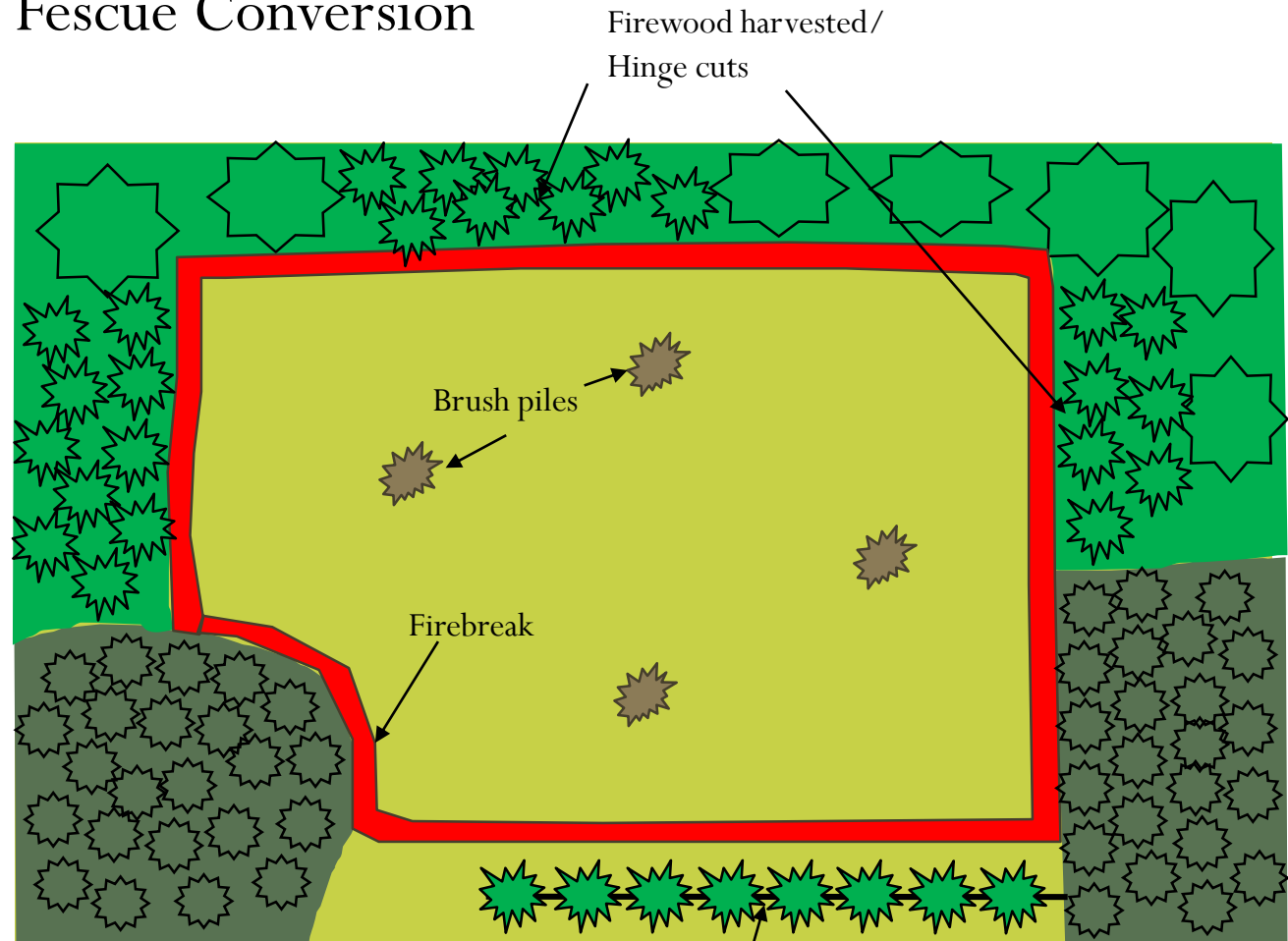


DESIGNING YOUR HABITAT PROJECT

Example 1: The Fescue Conversion

After:

- Fescue was killed, then burned.
- Brush piles and cut cedars scattered every 200-300 ft.
- Forest edges “softened” in patches.
- Fencerow allowed to develop
- Firebreak planted in legumes for brood cover.
- Cedar thickets are great thermal cover!



Allow hedgerow to develop on fence

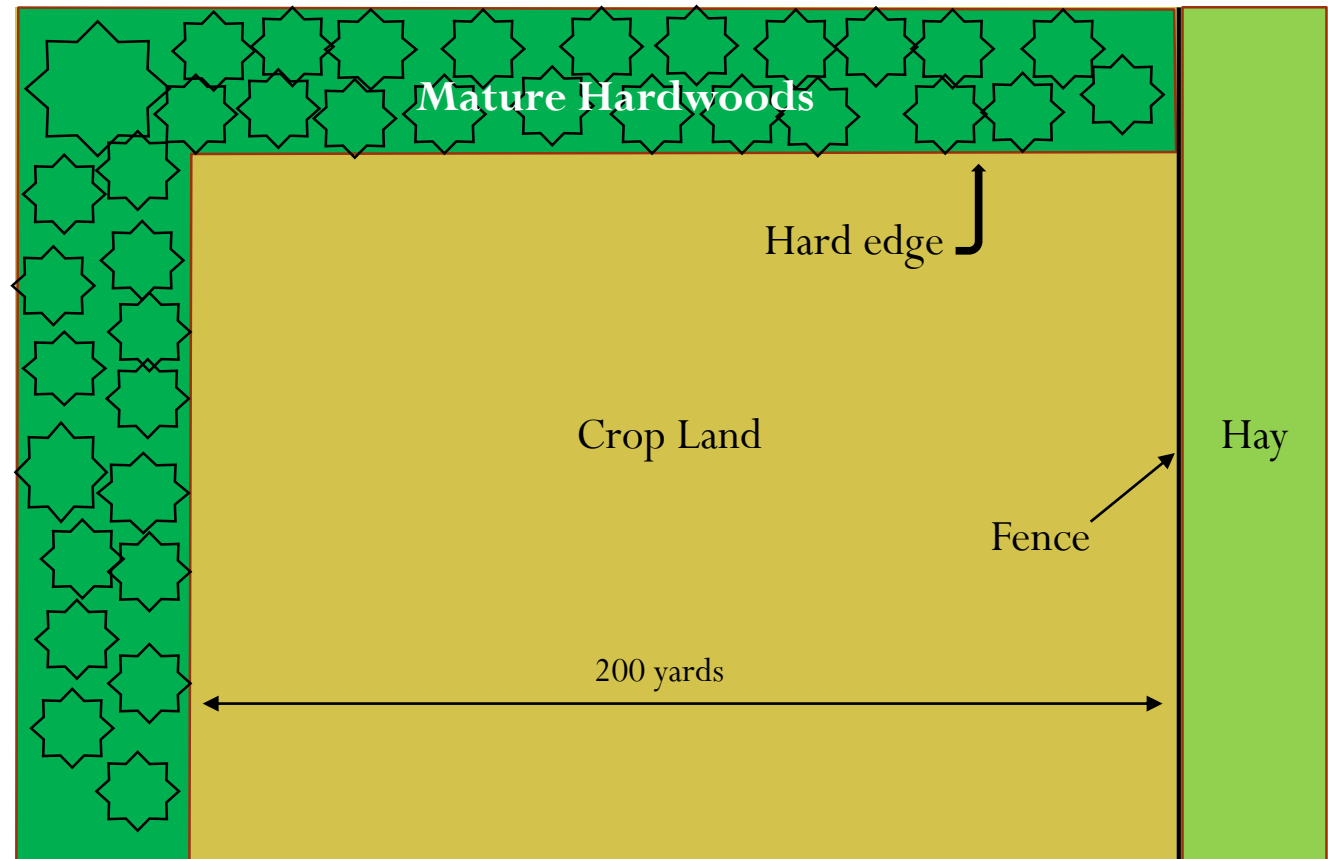
DESIGNING YOUR HABITAT PROJECT

• Example 2: Crop Field

A little bit at the edges can make a lot of useable space for quail on crop ground.

Before:

- A large field that's cropped from edge to edge
- Mature hardwoods and hard edge offer little protective cover
- A "clean" fenceline exists

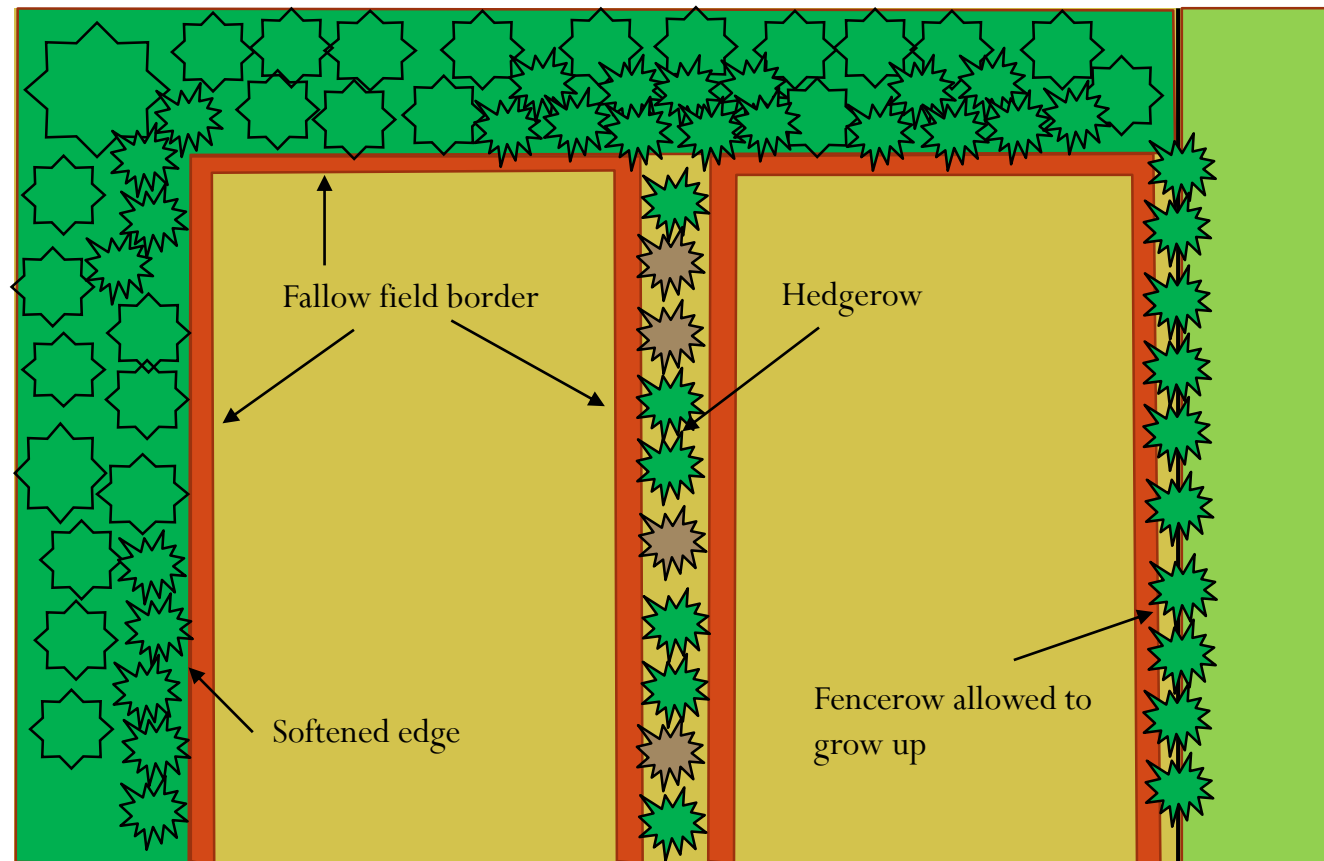


DESIGNING YOUR HABITAT PROJECT

• Example 2: Crop Field

After:

- A hedgerow was started with brush piles; breaks the field up and adds security cover.
- Softened edge adds security cover and nesting cover.
- Fallow field border provides brooding cover adjacent to hedgerows and softened edge.
- Breaking up the field dramatically increases useable space for quail, and hedgerows connect to patches of habitat elsewhere



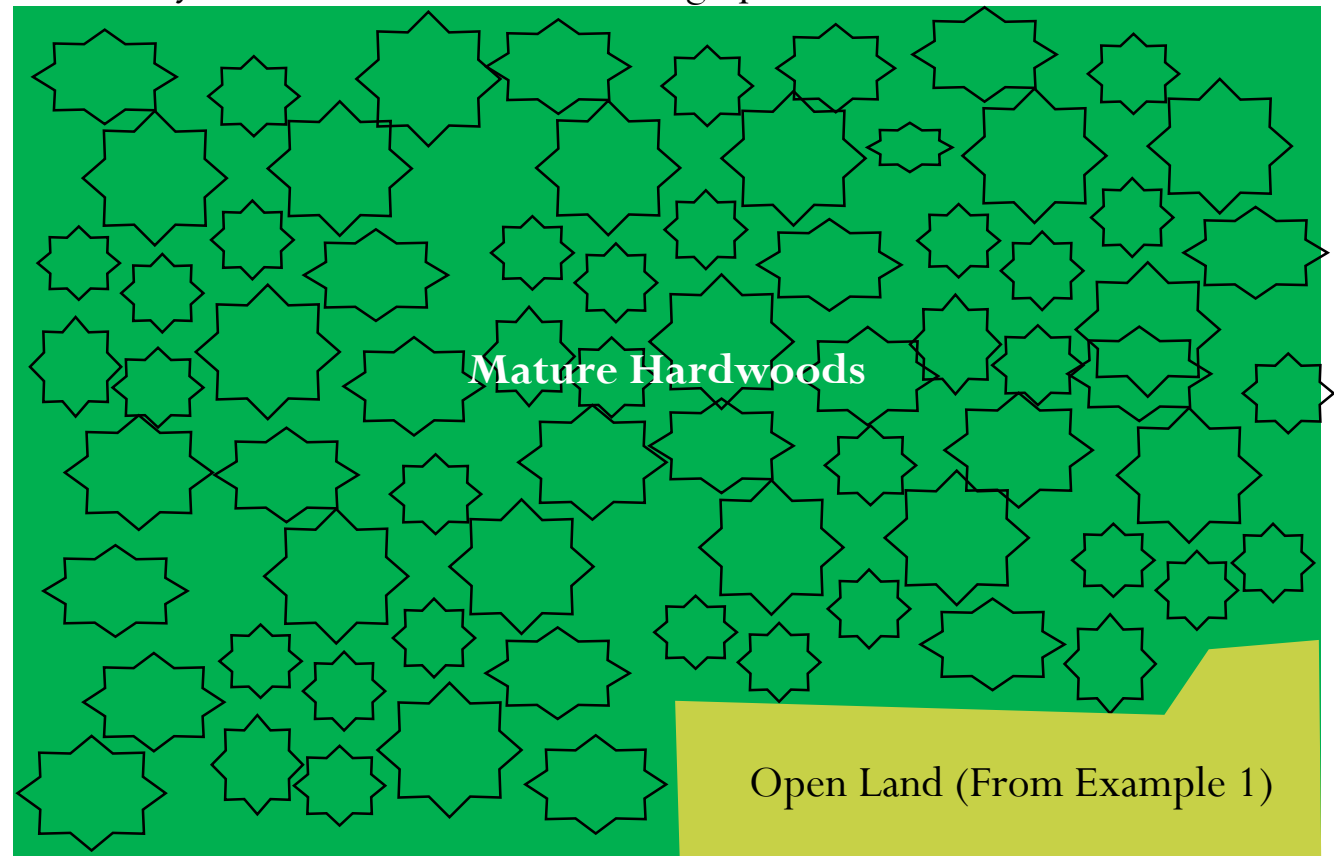
DESIGNING YOUR HABITAT PROJECT

- Example 3: Timber Land – Oak forest

A timber sale can bring in some income. Plan the future of the harvest unit to balance quail habitat and forest productivity. Connect the unit to existing open areas that are suitable for quail.

Before:

- The closed canopy of this mature hardwood stand shades out the understory, prohibiting the growth of grasses, forbs, and shrubs that quail and other wildlife depend on.

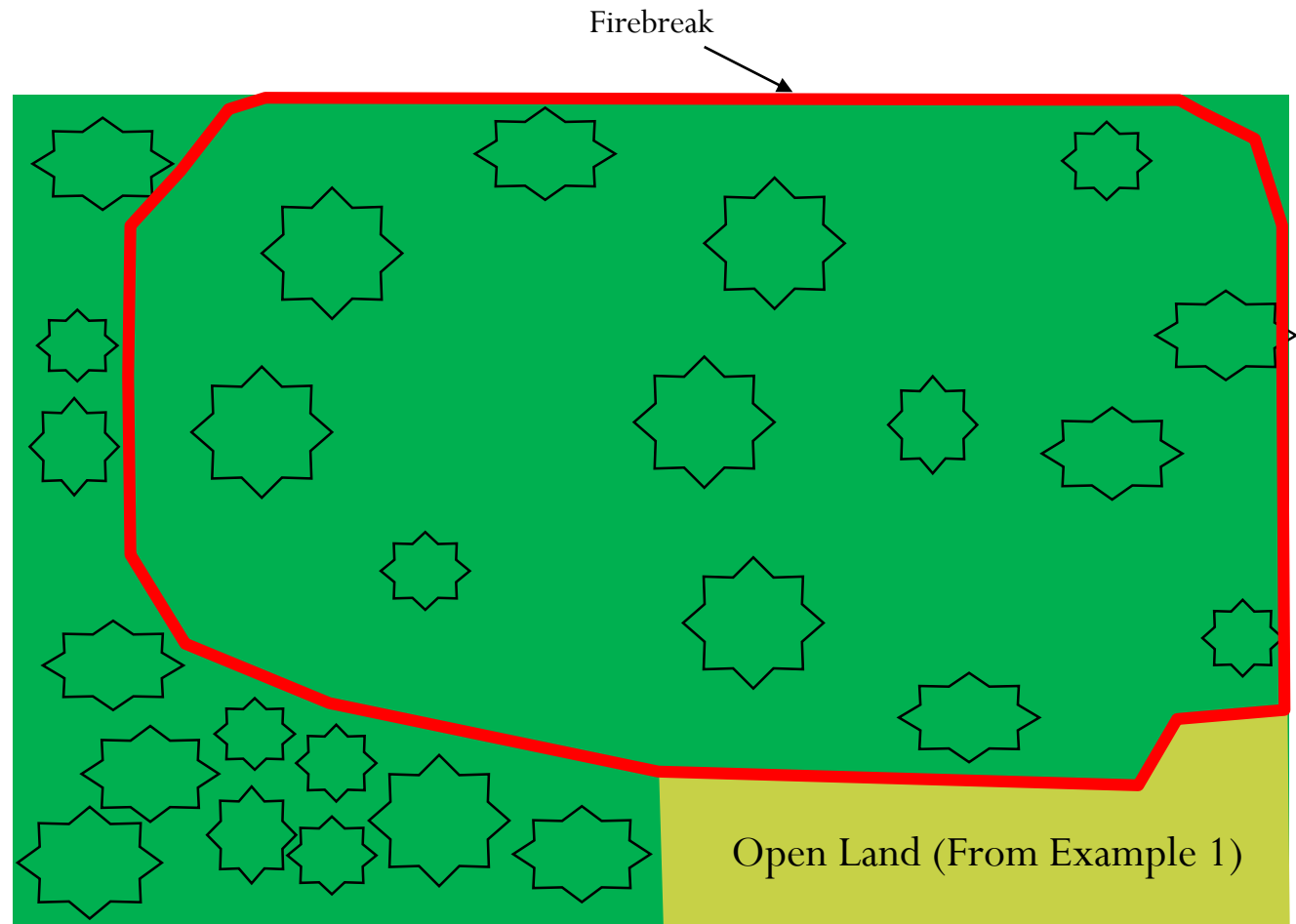


DESIGNING YOUR HABITAT PROJECT

• Example 3: Timber Land – Oak Forest

After:

- Thinned oaks promote herbaceous understory, hard mast still available
- Firebreak established around unit during timber harvest, planted into legume mixture.
- Site expands upon existing open area.
- Thinned stand is managed with fire every 2-5 years. Oaks, particularly white oaks, are fire-adapted and fire can improve regeneration
- Herbicide treatments may be necessary to control unwanted trees



DESIGNING YOUR HABITAT PROJECT

- Example 3: Timber Land – Oak Forest



*Oak savannah project
at the Amelia Wildlife
Management Area in
Amelia, VA.*

© Marc Puckett



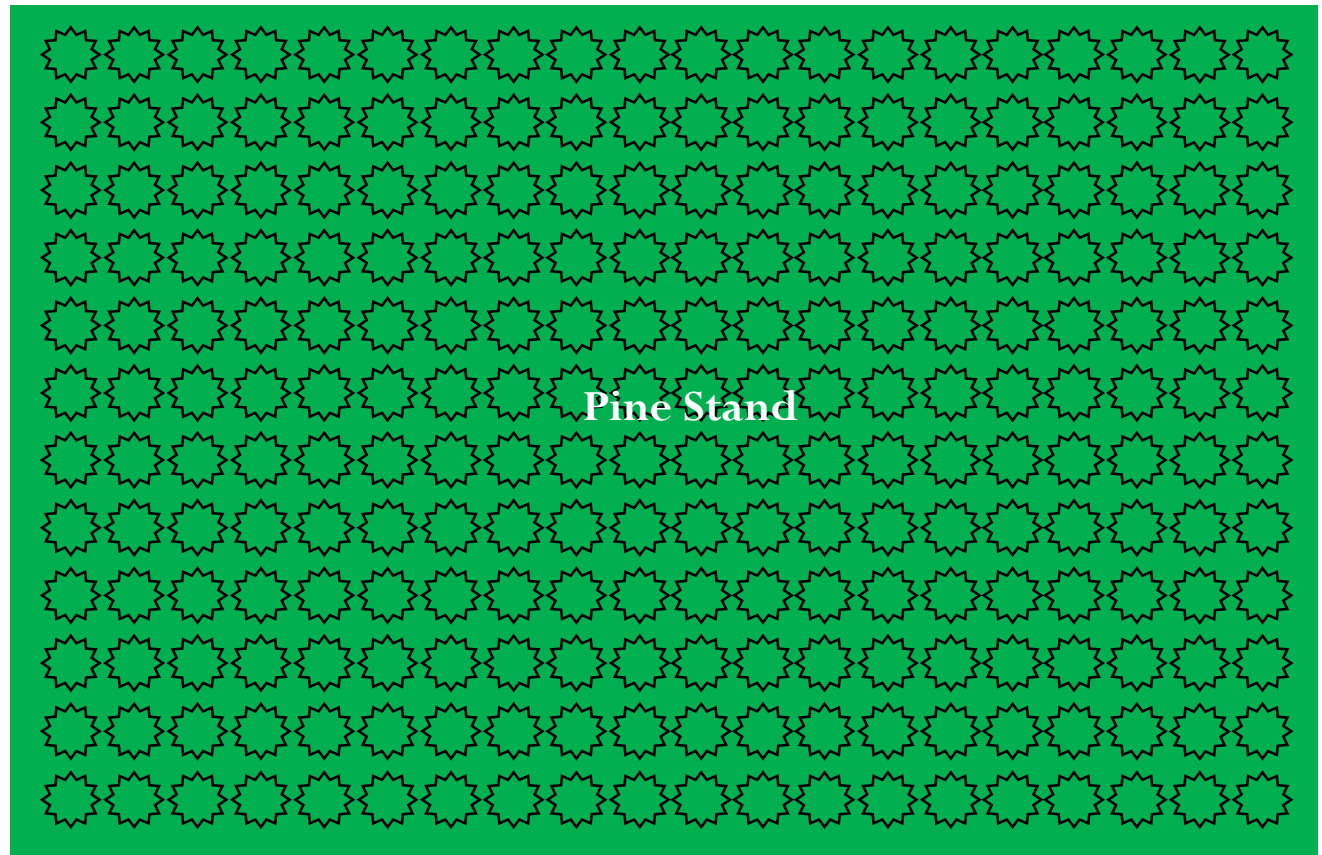
DESIGNING YOUR HABITAT PROJECT

- Example 4: Timber Land – Managed pine forest

Thinning is a normal practice in pine management. Thinning a little heavier than normal improves herbaceous cover in the understory.

Before:

This “pine desert” is ready to be thinned. Canopy closure has shaded out the understory, making it unusable by quail.



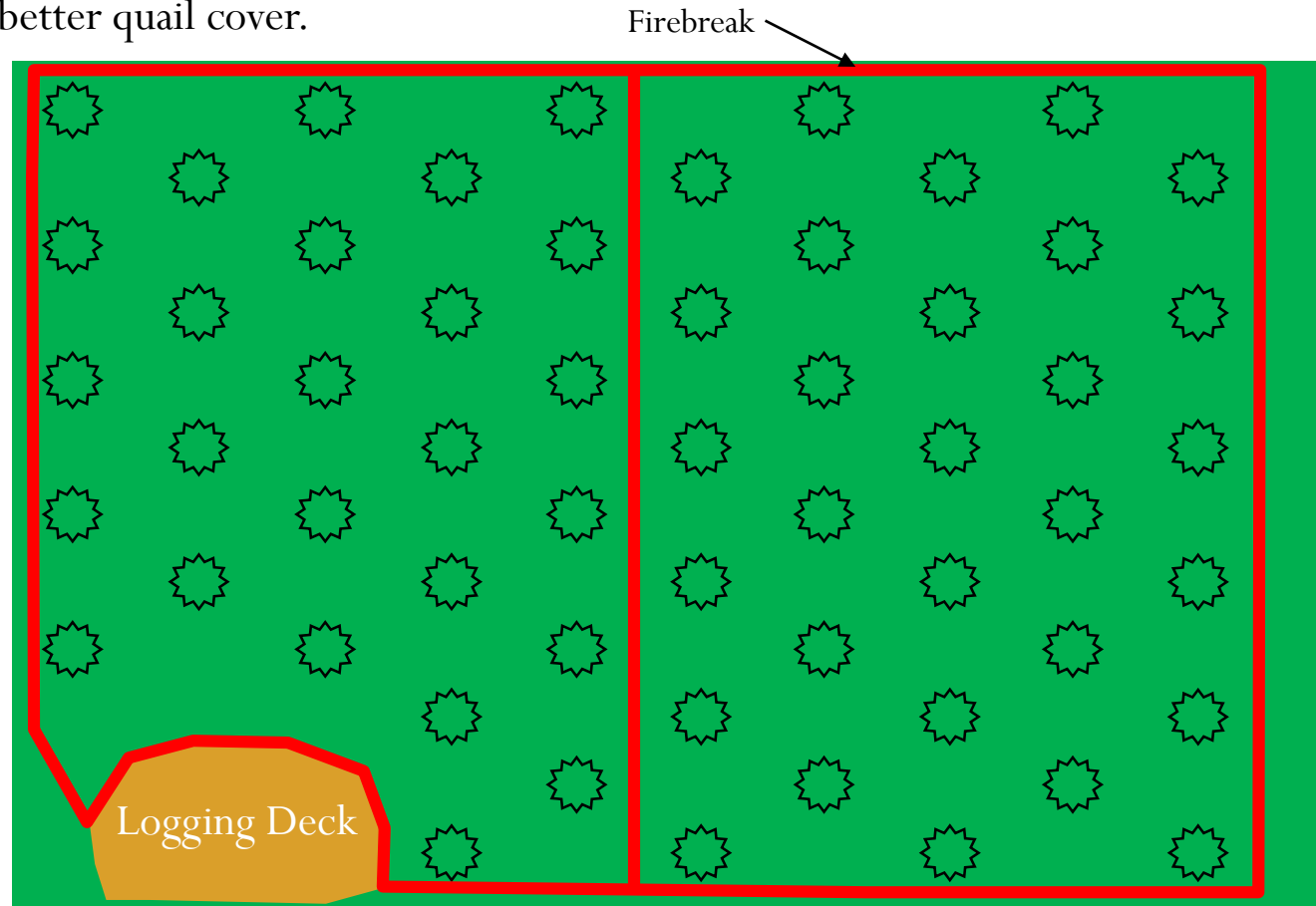
DESIGNING YOUR HABITAT PROJECT

• Example 4: Timber Land – Managed pine forest

A “standard” thinning leaves about 80-90 sq ft of basal area. Thinning to 60 sq ft or below makes for much better quail cover.

After:

- Firebreaks established during timber harvest, splitting stand into 2 units that are burned on a 2-5 year rotation to maximize diversity.
- Firebreaks and logging deck planted into legume mixture.
- Future sawtimber value may be reduced due to fewer residual trees, but may be compensated for by increased growth of residuals.
- Thinning more heavily brings in more income from pulpwood that can pay for firebreak creation and future burning.



DESIGNING YOUR HABITAT PROJECT

- Example 4: Timber Land – Managed pine forest



When pines reach canopy closure, it creates a “desert” for quail and other wildlife (above).

Through adequate thinning and timely burning, a managed pine stand can be a quail haven while putting some money in your pocket through timber sales. Herbicide treatments to emerging hardwoods is often required to achieve desired results.





RESOURCES FOR YOUR PROJECT

© Dave Quillen



RESOURCES FOR YOUR PROJECT

- **Technical Assistance and More Information**

Explore the resources on the following page, educate yourself a little more, and begin thinking about your opportunities. Ask to have a biologist visit with you to provide specific recommendations for your property when you're ready to get started. We're here to help!



RESOURCES FOR YOUR PROJECT

Marc Puckett – Small Game Project Leader

Virginia Department of Game and Inland Fisheries

107 Foxwood Drive

Farmville, Va. 23901

434-392-8328

Marc.Puckett@dgif.virginia.gov

VDGIF Quail & ES Species Recovery Initiative Webpage

www.vaQuail.com

Like us on Facebook!

www.facebook.com/virginiabobwhitebulletin

Virginia Bobwhite Bulletin YouTube Channel

Library of habitat and how-to videos. Click [here](#)

Virginia Department of Forestry

www.dof.virginia.gov

National Bobwhite Conservation Initiative (NBCI)

www.bringbackbobwhites.org

NBCI Comprehensive Guide to Creating, Improving & Managing Bobwhite Habitat

Click [here](#)



RESOURCES FOR YOUR PROJECT

- **Financial Assistance**

Financial assistance may be available for your habitat project. There are a few “Farm Bill” programs available to assist landowners with the costs of implementing conservation work on private land. The three main ones used for wildlife work are the Environmental Quality Incentives Program (EQIP), the Conservation Reserve Program (CRP) and the Conservation Reserve Enhancement Program (CREP). Each program has specific rules, eligibility requirements, and options as far as what type of work can be done. Contact your local USDA Service Center and speak to a representative from the Natural Resources Conservation Service (NRCS) or the Farm Service Agency (FSA) to get started.

In addition to Federal programs, there may also be local government programs offering financial assistance for work that could benefit quail. Check with your local Soil and Water Conservation District and state natural resource agencies to see if there are other programs available. For instance, the Virginia Department of Forestry currently has a program available to help fund quail-friendly forestry practices in target counties within the Commonwealth.

Local chapters of non-governmental organizations (NGOs) such as the Quail and Upland Wildlife Federation, Quail Forever, Pheasants Forever, National Wild Turkey Federation, and others may sell seed, shrubs, or have volunteer habitat work days. Stay involved with your local chapters to get in on those opportunities.





CONCLUSION



© Andy Rosenberger

CONCLUSION

DILIGENCE, HOPE, and PATIENCE are required for quail recovery. Quail didn't decline to their current population levels overnight, and they won't rebound overnight, either. *We cannot give up!* It may take years for quail to return, but enjoy the more immediate benefits that your habitat work will provide (songbirds, wildflowers, pollinators, other game and non-game wildlife).



CONCLUSION

KEEP ‘EM CONNECTED! Remember the *Fall Shuffle* that was mentioned before? Quail need to be connected to each other in order to maintain genetic diversity and to ensure covey sizes are adequate heading into winter. If coveys get cut off from one another due to habitat fragmentation, they may inbreed or not have enough individuals to survive the winter. Throw in a really bad winter or extreme weather event, and those birds could be wiped off the map. This is why so many folks I meet with say that the quail just “vanished” years ago. Most quail in the Shenandoah Valley of Virginia held on by a thread after decades of habitat loss and fragmentation until one severe winter in the 1970s became the nail in the coffin. Many quail did not survive, and because habitats became so isolated, the survivors could not find one another to recover. If you have enough habitat and it’s well-connected, quail can make it through those tough times. They’re adapted for it—it’s been demonstrated that quail can increase their population size by 300% in one year if habitat and weather conditions are optimal. They can do it. We just need to give them a place to do it. Work with your neighbors to ensure each habitat component is adequately provided. No single project is too small, but if we each do a little, it adds up to a lot.



CONCLUSION

No two properties are the same, but you can easily adapt the habitat management strategies outlined in this book to fit YOUR property and provide all of the essential habitat components that quail need to thrive.

Remember to contact your local wildlife professionals for assistance—we're glad to help, and don't be afraid to ask about financial assistance for habitat projects.

Just know that managing your land for quail doesn't have to break the bank. A little bit of cash and a lot of sweat equity could bring birds back to your back forty...

...and there's only one way to find out.





The Virginia Quail Team (left to right): PLB Andy Rosenberger, PLB Bob Glennon, PLB Lorien Huemoeller, PLB David Bryan, Team Leader Marc Puckett, PLB Justin Folks, NRCS State Biologist Jeff Jones, Team Leader Jay Howell.