

Case Study: B. Bryan Farms, West Point, MS

This case study illustrates the conservation planning process for a large-scale commercial cattle and rowcrop operation where production, erosion prevention, water quality, and wildlife habitat management are coequal objectives. A suite of federal farm programs provided the vehicle for implementation of these practices.

Jimmy Bryan fondly recalls bird hunting as a boy along the many miles of osage orange hedgerow that criss-crossed his family's large cattle operation near West Point, Mississippi (Figure 1). Until last year, it had been several decades since he had last watched a covey rise over bird dogs on the property that he now owns and manages. As the cattle operation grew in size and efficiency, the cattle business boomed, but bobwhite populations plummeted.

Having succeeded in the cattle business, four years ago Jimmy decided it was time to do something to restore the quail hunting that he enjoyed as a young man. Additionally he developed a new appreciation for the magnitude of soil erosion on his cattle and rowcrop operation and its effects on water quality in Town Creek, which bisects the property. After researching the subject and soliciting guidance from his NRCS office and Mississippi State University, he realized that he could implement management practices that would simultaneously address all three concerns. Working with resource conservationists, Jimmy identified a suite of buffer practices that would minimally impact his production system, but produce substantial returns on soil, water, and wildlife conservation.

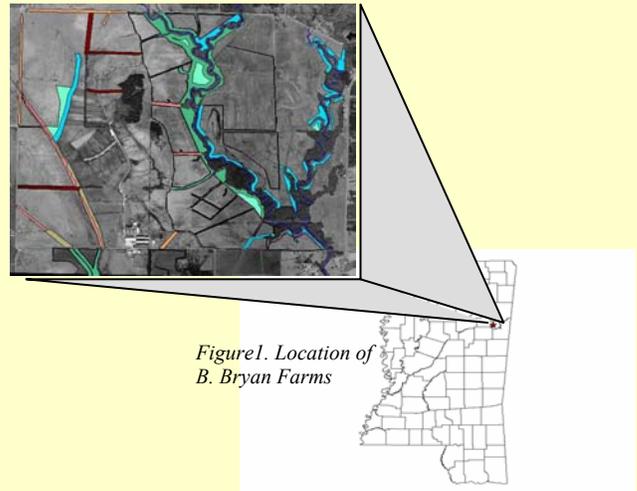


Figure 1. Location of B. Bryan Farms

Site Description

Today, B. Bryan Farms, Inc. (BBF) is a very successful cattle and rowcrop operation located in the Black Prairie Physiographic region of Clay County, MS. The 1450-acre cattle operation is diversified with cow/calves, stockers, and a conditioning facility. The 3705-acre core property also has about 910 acres in corn and soybean production. The western portion of the core property is rolling to steeply rolling and is primarily dedicated to forage production. The rowcrop operation, in the eastern portion of the property, lies in the floodplain of the east and west forks of Town Creek, which converge near the southern boundary of BBF (Figure 2).

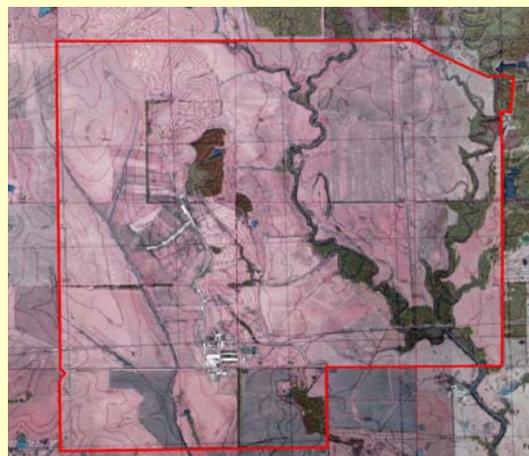


Figure 2. Topography and land use on B. Bryan Farms.

Jimmy Bryan's goal is to run a profitable, diversified, cattle/rowcrop operation in the context of a land stewardship ethic. His specific management objectives were to control erosion in pastures and croplands, improve bank stability and water quality in Town Creek, and restore bobwhite populations to huntable levels.

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Analysis

The core property of BBF is composed of approximately 28% rowcrop, 45% pasture, 14% woods, and 12% conservation practices. These conservation practices were installed to deal with a number of specific problems. The steep topography on the hillside pastures resulted in heavy runoff during rain events. This runoff created concentrated flow erosion and streamside bank degradation and erosion. There was experiencing substantial headcutting in draws draining pastures and rowcrops. Cattle trampling accelerated headcutting and

Conservation Problems

Erosion

- Heavy runoff from pastures
- Concentrated flow erosion
- Streambank degradation/erosion
- Headcutting in draws
- Cattle trampling

Bobwhite

- Hedgerow removal
- Cattle trampling of shrubby cover
- Native grasses replaced with exotic forage grasses (fescue and Bermuda)
- Intensive grazing left little cover
- Annual plant communities eliminated from cropland and pastures
- Lack of transition zones

erosion.

Bobwhite populations had declined over time because of systematic loss of habitat associated with the removal of hedgerows to increase the efficiency of the cattle operation. Native grasses, to which bobwhite are adapted, had been replaced with sod-forming exotic forage grasses (Fescue and Bermuda). Intensive grazing of pastures left little residual cover, and cattle grazing and loafing in remnant hedgerows had destroyed brushy escape cover. Brood-rearing cover in the form of annual plant communities had been eliminated from rowcrops and pastures. Grazing and cropping practices had left hard edges between rowcrops or pastures and remnant woods. There were no transition zones. The net effect was a simplification of the landscape and a dramatic reduction in usable space for bobwhite.

Habitat Resource Management

Working with resource professionals, Mr. Bryan developed a comprehensive soil and wildlife conservation plan that uses a combination of federal conservation programs and voluntary practices to accomplish conservation objectives. To minimally impact the production system, practice selection focused on buffer practices.

ACP

Initial erosion control practices were initiated in the mid 1970's with installation of primary surface control structures (w-ditches, v-ditches, diversions). Under the ACP program, Mr. Bryan worked to stabilize stream banks by fencing cattle out of riparian areas and planting woody vegetation (oak mixture) along 30 acres

of riparian zone (Figure 3). Critical areas were stabilized with gully smoothing and establishment of fescue in draws and concentrated flow areas.

CRP CP22 – Forest Riparian Buffer

With the availability of Continuous CRP, the implementation of buffer practices began in earnest in 1998. In 1998, Mr. Bryan established 20 acres of CP22 forest riparian buffers along key drainages in his pastures. Cattle were fenced out of 100'-wide buffers and a mixture of oak species was planted. However, fescue competition was not controlled at tree planting, thus seedling survival and bobwhite habitat was poor (Figure 4).



Figure 3. ACP riparian buffer along cropland ditch.



Figure 4. CP22 along pasture drains, enrolled 1998.

In 1999, an additional 135 acres were enrolled in CP22 – forest riparian buffer. Cattle were fenced out of these 150'-wide riparian areas, and a 5 species oak mixture was planted. Prior to planting, fescue was eradicated on about one half of this area using 1.5 qt of Roundup®/ac (Figure 5).



Figure 5. CP22 along Town Creek riparian zone, enrolled 1999.

In 2000, BBF enrolled 35 acres in 180' wide riparian buffers under CP22. The riparian zone and an additional 20' buffer were fenced to exclude cattle. The extra 20 feet would allow maintenance of an annual herbaceous community or food planting adjacent to the riparian buffer. Although no incentive payment or cost-share was associated with this 20', Mr. Bryan

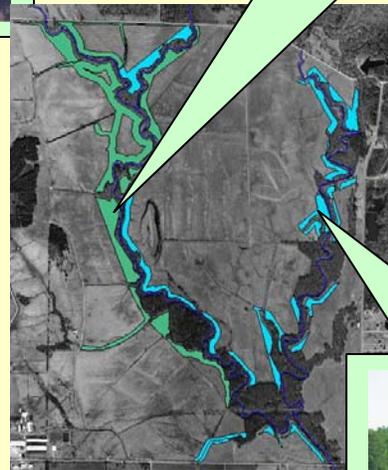


Figure 6. CP22 along Town Creek riparian zone, enrolled 2000.



voluntarily added it to the conservation practice to provide flexibility in bobwhite management. Fescue was controlled on all acreage using 1.5 qt of Roundup®/ac. A 5-species oak mixture was planted (Figure 6).

WHIP 2001

Mr. Bryan had a clear recollection of the historic locations of hedgerows in the upland pastures. Over time, most had been eliminated to enhance grazing efficiency. To improve bobwhite habitat quality and restore connectivity across the landscape, he planned to recreate these corridors. These new corridors would tie together existing and newly created habitat patches. Since these historic corridors were in the upland pasture, CP22 was not an option. However, the Mississippi WHIP program had a transition zone/corridor practice that was applicable. In 2001, he submitted a WHIP proposal to create 17.5 acres of 100'-wide corridors. The corridors consist of a 60' wide planting of mixed upland oaks with a 20' legume mixture (partridge pea and kobe lespedeza) planted on each side of the corridor. Cattle were fenced out of the entire 100'. Prior to planting, fescue was eradicated with 1.5 qts of Roundup[®]/ac (Figure 7).

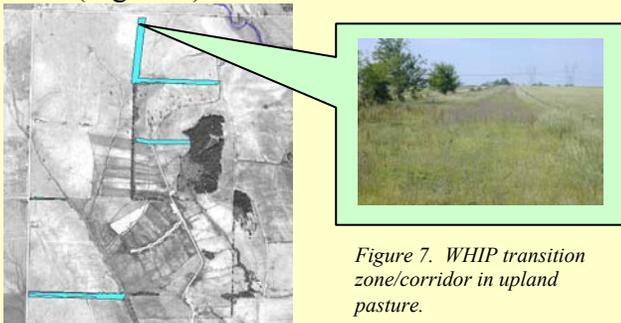


Figure 7. WHIP transition zone/corridor in upland pasture.

Voluntary Corridors

In addition to riparian buffers and WHIP corridors, Mr. Bryan also installed 31.5 acres of voluntary buffers with no incentive or cost-share payments. He saw an opportunity to create additional habitat and connecting corridors while in the process of replacing several miles of fence around the



Figure 8. Voluntary pasture corridors.

perimeter of the core property. Instead of removing and replacing the old fence, BBF moved the location of the new fence 50' into the pasture to create a boundary corridor. Within this fenced region, 3 rows of mixed upland oaks and 20' of kobe lespedeza were planted (Figure 8.).

Field Borders

Around all agricultural fields 20'-wide field borders were planted to kobe lespedeza and partridge pea. These borders were allowed to succeed naturally, but will be maintained in a herbaceous plant community with periodic disking on a 3-year rotation. The specific objective of the field border practice was to add brood-rearing and nesting habitat to the rowcrop landscape and to further enhance connectivity.



Figure 9. Voluntary field borders



Synthesis

B. Bryan Farms Inc. has made a substantial investment in conservation. This has occurred over time as management priorities have evolved from maximizing profits to development of a sustainable, diversified operation emphasizing stewardship of various natural resources. In implementing the conservation plan, BBF has employed a combination of federal farm programs and voluntary practices to simultaneously control erosion, improve water quality, and enhance wildlife habitat. With the implementation of each successive management practice, wildlife benefits grew as habitat increased in quantity, quality, and became more interconnected.

Today, BBF has substantially reduced erosion and headcutting. As a result, water quality in Town Creek and downstream water bodies has improved. Although it is still early in the management program, bobwhite populations seem to be responding. Mr. Bryan is optimistic. Last year he bought 2 new bird dogs. This past season, his dogs consistently found birds, as many as 7 coveys in a morning, while hunting this working farm.

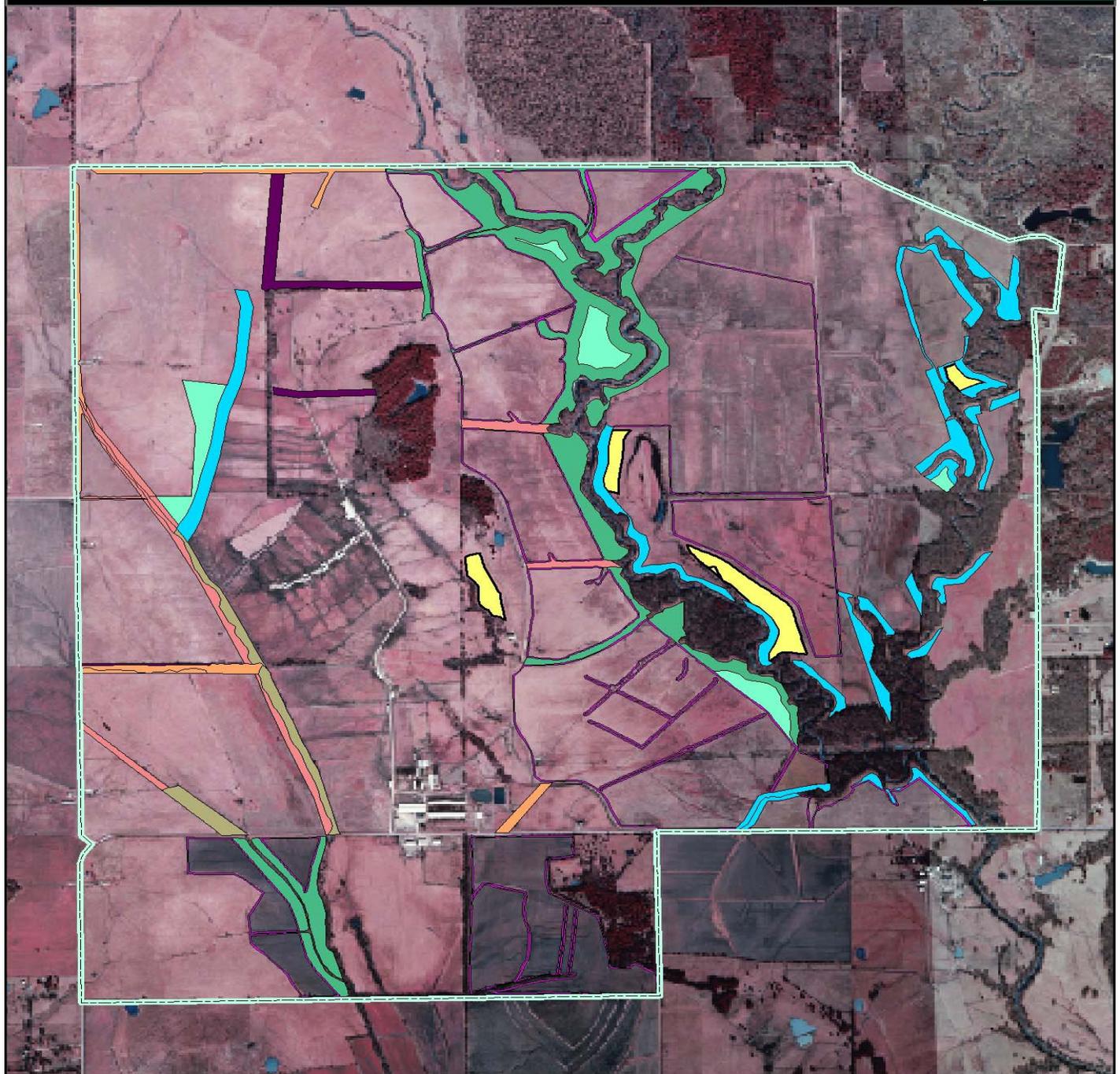
Bobwhite is not the only species that has benefited. Avian surveys along field margins demonstrate 6-9 times greater abundance of wintering sparrows on fields with conservation borders. During the breeding season, grassland/shrub bird species, including common yellow-throat, indigo bunting, and dickcissel were more abundant on bordered edges than conventional crop-field margins.



Federal conservation programs play an integral role in resource planning on BBF. But the key to success has not been a single management practice, nor a program. Rather the key has been a comprehensive, objective-driven approach to conservation planning, grounded in a land stewardship ethic and guided by a clear vision of the stated objectives.



Synthesis - B. Bryan Farms, Westpoint, MS



Basemap Information

Planning Boundary

Conservation Practices

ACP

Annual

CP22_1998

CP22_1999

CP22_2000

Field Border

NWSG

Voluntary Buffer

WHIP2001



0 1,550 3,100 6,200 9,300 12,400 Feet