TABLE VII

PRODUCTIVITY OF PARSON AND BODKIN ISLANDS BREEDING POPULATION

	1953	*Number*	*% of Total*
1.	Total breeding-pair population	79	100.0
2.	Total number of nests	147	100.0
3.	Number of successful pairs	49	62.0
4.	Number of successful nests	49	33.3
5.	Total number of eggs in successful nests	442	100.0
6.	Average number of eggs in successful nests	9.0	. . .
7.	Clutch mortality:		
	a. Partial destruction (eggs)	40	9.0
	b. Undeveloped and infertile eggs	21	4.8
	c. Eggs hatching but abandoned	7	1.6
8.	Total number of successful eggs	374	84.6
9.	Average number of eggs in successful nests	7.6	. . .
10.	Average Class III brood-size	6.9	. . .
11.	Brood mortality	0.7	9.2
12.	Average brood-size at hatching for total breeding-pair population	4.7	. . .
13.	Average flying brood-size of breeding-pair population	4.3	. . .

A RECENTLY DEVELOPED FORESTRY PLANTING TECHNIQUE FAVORABLE TO BOBWHITE QUAIL

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Despite the general acceptance of the Bobwhite Quail (*Colinus virginianus*) as a farm game species, an important segment of the annual hunting effort in Louisiana takes place in the woodlands, often miles from agriculture. Even with recent small scale efforts on the part of forest landowners and the Louisiana Wild Life and Fisheries Commission to do quail habitat development work in the pine type, the bulk of the population owes its existence to the land use in practice.

The role of many factors known to affect, or suspected of affecting quail numbers are not yet thoroughly understood. Research throughout the bobwhite range will provide answers to many of today's questions as well as pose new ones to be answered in the distant future.

One outstanding factor seemingly important in regulating all animal numbers is the strata they occupy in plant and animal succession. We can safely classify the bobwhite as a pioneer who is much more successful during the early stages of plant succession. We can also generally state that better quail habitat is provided where an interspersion of plant communities occurs.

While the game biologist generally understands the basic facts of meeting year-round food and cover needs of quail by plant community manipulations, he is at present lacking in knowledge necessary to accurately predict cost and results of such management.

The modern trend toward more efficient land use aimed at producing more goods of known monetary value has often adversely affected game populations. The field worker today realizes the futility of attempting to halt progress in the name of better game populations. Instead he should realize that his management recommendations must be compatible with the economics of modern land management.

While some of the recent developments in forest management techniques have been discouraging to the game manager, others show promise of materially

aiding game populations. One of these more promising changes is the subject of this report.

The Crosby Chemical Company, Louisiana Division, owns and controls approximately 145,000 acres of land in Southwest Louisiana. While the company operated plant is engaged in the manufacture of wood naval stores, one of their aims is to reforest their barren lands and to manage existing timber stands. On most of their lands the hunting privilege accrues to the general public and is more or less taken for granted by the hunters. It is on open lands such as this that the majority of quail hunting efforts in the pine type occur.

The company has long been interested in reproducing a crop of Longleaf Pine (*Pinus palustris*) on that portion of their lands from which virgin longleaf was harvested by prior owners. The high mortality of 1-0 longleaf seedlings handled and planted by conventional methods was discouraging to them as it was to others attempting to artificially establish longleaf.

In the fall of 1952 a research program was inagurated. This research has since then been agumented by extensive field work aimed at establishing longleaf by direct seeding. A number of obstacles have been encountered and numerous techniques discarded or revised. Greatest deterrents to direct seeding were: bird damage, fall drouth, summer drouth, rodent and other mammalian seed eaters, damping off of seedlings, too deep or too shallow planting of seed, brown spot, and mechanical injury to seedlings by cattle, hogs, and pocket gophers.

This paper will deal primarily with the techniques presently employed and their relationship to game.

Land treated is generally open but may have longleaf seed trees and/or light to moderately heavy stands of upland oaks. Land preparation consists of disking nine-foot strips approximately seven feet apart. These strips are initially disked in summer with a Rome Bush and Bog Disk Harrow with eight twenty-four inch pans powered by a D-2 Caterpillar tractor. They are all re-disked in the late summer or early fall with lighter John Deere Crawler and light disk equipment. The second cultivation results in an almost complete kill of the perennial bluestem grasses from the plowed strips. On the third and final part of the planting operation tandem planters which drop and press the seed into the seedbed are used.

Time does not allow a detailed discussion of results from an economic forestry viewpoint but it is noteworthy that results are such that the company plans to continue this type planting, favoring it over any of the recently developed techniques for direct seeding longleaf pine.

The benefits to quail ranges are readily apparent. Where necessary woody cover requirements are met in proximity to areas treated in this manner, year-round quail ranges are established. In large areas where only grass cover abounded before treatment, spring, summer and fall populations have apparently increased.

Prior to the very good 1955-56 quail season several trips were made into an area which was direct seeded in the fall of 1952. Most of the annual plants native to this type had shown favorable response to the land scarification. Dogs were used to locate quail and the scenting action of the dogs as well as the number of droppings present in the disked strips indicated that the strips were heavily favored over the adjacent strips of rough. Although a large number of quail were found none were collected for food habit study.

Plant succession seems to depend upon a number of factors one of which is doubtlessly the presence of seed of the primary plants. The first fall following planting *Panicum fusiforme* dominates large areas of the disturbed soil. While it occurs as less vigorous plants for at least three additional years it is largely replaced by other annuals and perennials after the one good year of dominance. Twenty-four genera of plants known to be used as quail food have been identified on the strips. This list should increase considerably with more intense taxonomic work and as the planting operation embraces a larger variety of soil and drainage types.

Some of the important quail foods known to thrive on disturbed soils are present only because of the prior activity of man and his livestock on the area.

These include Goatweed (*Croton capitatus*) and Common Lespedeza (*Lespedeza striata*).

Native annuals and perennials found on these strips include:

Flowering spurge ..... (*Euphorbia corollata*)
Noseburns ..... (*Tragia* spp.)
Queen's Delight ..... (*Stillingia sylvatica*)
Tropic Croton ..... (*Croton glandulosa*)
Pencil Flower ..... (*Stylosanthes biflora*)
Butterfly Pea ..... (*Centrosema virginianum*)
Wooly Wild Bean ..... (*Strophostyles helwola*)
Milk Pea ..... (*Glactia* spp.)
Partridge Pea ..... (*Cassia fasciculata*)
Dollar Peas ..... (*Rhynchosia* spp.)
Cracca ..... (*Thelphrosia* spp.)
Tick Clovers ..... (*Desmodium* spp.)
Beakrushes ..... (*Rhynchospora* spp.)
Nutrushes ..... (*Scleria* spp.)
Foxtail Grass ..... (*Seteria lutescens*)
Florida Paspalum ..... (*Paspalum floridanum*)
Pitchfork Paspalum ..... (*Paspalum bifidum*)
Fringeleaf Paspalum ..... (*Paspalum ciliatifolium*)
Panic Grasses ..... (*Panicum* spp.)
Swamp Sunflower ..... (*Helianthus angustifolius*)
Coneflowers ..... (*Rudbeckia* spp.)
Beefsteak-plant ..... (*Perilla frutescens*)
Ruellia ..... (*Ruellia* spp.)
Sorrel ..... (*Oxalis* spp.)
Green silkyscale ..... (*Anthaenantia villosa*)

After stand establishment longleaf pine continues more favorable to quail than either loblolly (*Pinus tadea*) or slash pine (*Pinus caribaea*). A number of factors are responsible for this and include wider spacing, thinner crowns, slower rate of crown closure, and the more liberal use of fire as a silvicultural tool in longleaf management.

We have some color slides prepared that show both the plants invading the disk areas and some plants that have been introduced to similar strips plowed as pre-suppression fire breaks.

TECHNICAL FISH SESSION

RESULTS OF AN OPENING WEEK CREEL CENSUS AND TAGGING STUDY ON THREE STATE-OWNED LAKES

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ABSTRACT

The greatest concentrations of fishermen on Kentucky's state-owned lakes have been observed to occur during the first week following the opening of these lakes to fishing. To measure the impact of this surge of fishermen on an unsuspecting fish population, an opening week creel census and tagging study was conducted on 3 dissimilar state-owned lakes. In each lake bass were caught by angling and tagged. Tag returns were remarkably similar: 27%, 30.9%, and 27.5%. Evidence seemed to indicate strap jaw tags adversely affected the growth of tagged bass. In the creel census 70% of the largemouth bass

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