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TRENDS IN MANAGEMENT OF THE BOBWHITE QUAIL ON COMMERCIALY OWNED FOREST LAND AND NATIONAL FORESTS OF THE SOUTHERN REGION

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Introduction

It has been amply documented that good populations of bobwhite quail can be maintained on forest land where at least 0.25 of the area is maintained in scattered small openings (1,2).

Even-aged timber management has become a common silvicultural practice in southern woodland management. This type of management entails clearcutting, and invariably includes some type of site preparation such as burning, mist blowing of herbicides, or the use of mechanical equipment such as choppers and KG blades. The size of the clearcuts, the span of time involved in the cutting cycles, and the type of site preparation will all have an effect on quail populations. According to personal communication with Mr. Carroll Perkins (1972), International Paper Company economists have determined that clearcuts of 400 acres approach the maximum in economic efficiency, cuts larger or smaller than this increase the cost of land clearing. Many of the clearcut areas produce excellent quail hunting for the first 2 or 3 years after clearcutting. This is especially true on cleared forest land which has at one time been in cultivation.

This survey was initiated to ascertain the trends in forest management and bobwhite quail management on commercially owned forest land and on National Forests of the Southern Region.

Procedure

Addresses of owners of extensive areas of commercial forest land in the Southeastern United States were obtained from the Wood and Woodlands Directory of the January, 1972, issue of Pulpwood. A questionnaire was developed with the help of Mr. Ross Shelton, Extension Specialist, Mississippi State University, and with Mr. Carroll Perkins of the Department of Wildlife and Fisheries, along with personnel of the Forestry Department at Mississippi State University.

This questionnaire was sent to timberland managers of all timber companies listed in the aforementioned directory for the Southeastern Region of the United States. This area included the states of Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, Mississippi, Louisiana, Tennessee, Alabama, and Kentucky. A total of 70 questionnaires were sent to timber companies and 47 (67%) responded.

A similar questionnaire for determining quail management trends in the national forest area of the Southern Region was prepared with the help of Herman L. Holbrook of the Wildlife Management Division of Region 8 of the United States Forest Service. Mr. Holbrook sent the forms to forestry personnel in charge of management of national forest lands in Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Arkansas, Mississippi, Alabama, Kentucky, Louisiana, Tennessee, Texas, and Oklahoma.

Results

Forest Management on Commercial Forest Land

Ninety-one % of the timber companies responding showed that even-aged management was being practiced on their land. Forty-three companies reported a total of 17,213,525 acres of forest land under even-aged management out of a total of 25,392,551 acres, which is approximately 67% of the total forest land area owned by the companies reporting. The total acreage that was reported as being clearcut annually was 605,500 acres with an average of 14,719 acres reported per company. Of more significance for quail management was the average acreage size of clearcut reported by the timber companies. This amounted to an average of 227 acres per company with a range of 50 to 1500 acres. Although 23% of the timber land managers said that there was no maximum size limit on the clearcuts, only 16% of the companies reported clearcut acreage of 400 acres and over.

The average span of time between clearcutting of adjacent blocks ranged from 1 year to 30 years. Fifty-one % of the companies reported short cutting spans of 10 years and under.

The majority of the timberland owners are utilizing some form of site preparation with 75% of the companies reporting that 80% or over of the clearcut areas were site prepared, with a total acreage of 535,470 acres reported as site prepared in 1971. A large majority of the timber companies reported burning and soil scarification with heavy equipment as being the main technique used in site preparation. Fourteen companies reported a total of 33,100 acres of land site prepared by burning alone, while 39 companies (91%) reported a total of 370,124 acres site prepared by a combination of heavy equipment and burning. Severe criticism of this method used in site preparation was limited. Nine companies (21%) reported criticism of the clearcutting operations with most of the criticism coming from local sportsmen's groups.

Quail Management on Commercial Forest Land

Only 11% of the companies reported any specific consideration given to the site preparation program for quail habitat management. Forty-five % of the companies reported using food strips in a quail management program. A total of 4,539 food strips with a combined acreage of 1,746 acres was reported. The proportion of land planted to food plots to total acreage was 1 to 14,543 acres.

Only 6 companies reported using quail feeders, the range being 28 to 750 feeders per company. Only 1 company reported the release of pen-reared quail.

Fourteen companies (33%) reported a total of 71,400 acres of land managed specifically for quail. Of the total acres owned by timber companies, 1 acre of land was managed for quail out of each 355 acres of timberland owned. Only 21% of the companies reported leasing lands specifically for quail hunting.

Thirty-seven % of those responding indicated that interest for leasing land for quail hunting had increased, none of the companies reported any decrease in interest, whereas 54% reported interest was remaining about the same as in previous years.

Forest Management on National Forest Lands

Questionnaires returned by the U. S. Forest Service personnel in Region 8 showed that out of a total 12,205,894 acres of forest land, even-aged management was practiced on 10,831,000 acres. The total acreage on 30 national forest areas reported to be clearcut annually was 112,150 acres, with the annual clearcut ranging in size from 1,250 acres to 20,000 acres per national forest. The average size per clearcut was 43 acres in the Mountain area, 65 acres in the Piedmont, and 90 acres in the Coastal Plains. Maximum size of clearcuts averaged 63 acres in the Mountains, 125 acres in the Piedmont, and 117 acres in the Coastal Plains.

The span of time between clearcuttings on a given site ranged from a minimum of 10 to 20 years to a maximum of 10 to 100 years with the majority of the national forests reporting a range of 10 to 30 years.

All but 3 national forests reported that 100% of their clearcut land was site prepared. In the other 3 national forests the reports showed 90% of the land was site prepared. In the Southern Region a total of 133,125 acres was site prepared in 1970-71.

The most commonly used technique involved in site preparation was the tree injecting method (55,661 acres) followed closely by preparation with heavy equipment (52,995 acres). Burned sites accounted for only 17,287 acres (Table 1).

Sixty-six % of the respondents reported they were criticized for the site preparation techniques used, with the majority of the criticism coming from local sportsmen and ecology groups.

Quail Management on National Forest Lands

Nearly 0.5 (47%) of the national forest rangers reported that some specific consideration was given to site preparation for quail habitat management.

Only the national forests in the deep southern states of Alabama, Arkansas, Florida, Georgia, and Mississippi established food strips for quail. National forest areas in these states reported a total of 1,135 acres of quail food plots, which amounted to 1 acre of food plantings per 10,754 acres of timberland.

Reports indicated that in only 5 southern national forest areas was there a substantial acreage specifically managed for quail. The total acreage reported in these 5 areas was 206,000 acres.

The interest in quail hunting increased in Arkansas and in the 5 deep southern states and remained constant elsewhere.

Table 1. Acreage Involved in Three Types of Forest Site Preparation on National Forest Lands of Region 8 for 1970-71.

	Burning	Heavy equipment	Comb. of both	Tree injecting	Total acres
Alabama	6,104	1,520	7,624	3,417	18,665
Arkansas (Okla.)		6,000		18,000	24,000
Florida		17,300	17,300		34,600
Georgia	130	3,850		4,750	8,730
Kentucky		1,242		4,619	5,861
Louisiana	1,300	2,700	1,400		5,400
Mississippi	648	7,983		10,169	18,800
North Carolina	1,627			1,567	3,194
South Carolina	2,400	4,800	350	1,750	9,300
Tennessee				1,440	1,440
Texas	5,080	6,300	5,080	1,060	17,520
Virginia		1,300		8,889	10,189
TOTALS	17,289	52,995	31,754	55,661	157,699

Discussion

The total acreage of clearcut and the size of clearcut areas were substantially greater on commercial forest land than on national forest land. The majority of the companies reported having clearcut acreage approximately twice as great as the acreage of clearcut on national forest land. This increase in size of harvested area would be expected on commercial forest land where significant monetary savings accruing from harvesting larger areas are usually considered to be more mandatory than on nationally owned forest lands.

Burning as a technique in site preparation was much more commonly used on commercial lands, whereas tree injecting was much more commonly used on national forest lands. Injection was not mentioned by any of the reporting timber companies. Plant successions developing from tree-injecting techniques do not normally have as many good quail food plants as do the plant communities developing from burning or discing techniques.

The total acreage developed for quail food plots in both commercial forest land and national forest land was insignificant considering the acreage involved. The reported increase in interest in quail hunting reported by Rangers in 6 southeastern states should point out the need for greatly increased habitat management programs in Region 8.

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PANEL SESSION II

HERETICAL IDEAS ABOUT BOBWHITE ECOLOGY AND MANAGEMENT

Moderator -- Ralph W. Dimmick,
Associate Professor of Forestry
The University of Tennessee

THE ONE QUAIL PER ACRE MYTH

Forest E. Kellogg and Gary L. Doster, Southeastern Cooperative Wildlife Disease Study, University of Georgia, Athens

Edwin V. Komarek, Sr., and Ray Komarek, Tall Timbers Research Station, Tallahassee, Florida

Abstract:

Data are presented which conflict with the 1-bird-per-acre saturation point concept for bobwhites (Colinus virginianus). Conclusions are that if a saturation point exists it is at a level **greater** than 2 bobwhites per acre.

A well-accepted dictum in bobwhite management has been that 1 quail per acre is the maximum attainable population level. Present-day concepts were summarized by Rosene (6:221) who indicated that the maximum stable population was only slightly over 1 bird per acre. He suggested that regardless of habitat quality, bobwhites would not tolerate greater densities since mature birds refused to be crowded beyond that point.