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ILLINOIS NATURAL HISTORY SURVEY

Natural Resources Building
Urbana, Illinois 61801

Telephone: 333-6880
Area Code 217

August 19, 1970

GEORGE SPRUGEL, Jr., *Chief*



Dear Friends:

Since the attached report was prepared the Illinois Department of Conservation, through the Nature Preserves Commission, has purchased from The Nature Conservancy four prairie chicken sanctuaries totaling 410.3 acres. These were the 17-acre and 40-acre Cyrus Mark sanctuaries, the 58.3-acre Stuart H. Otis Sanctuary, and the 135-acre Marshall Field III Sanctuary near Bogota, Jasper County, and the 160-acre Natural History Survey Sanctuary in Marion County.

Quoted below are a few important points from a letter dated June 4, 1970, from Mr. E. R. Kingman, Vice-President of The Nature Conservancy, to Acting Director Dan Malkovich, Illinois Department of Conservation, and signed by Mr. Malkovich on July 22, 1970.

"It is the intention of the Nature Conservancy to use the monies received from the sale of these lands to the Department of Conservation to purchase additional sanctuaries for the Prairie Grouse The Nature Conservancy suggests . . . that all sanctuaries, regardless of ownership, be under the management of a single agency. Inasmuch as the Illinois Natural History Survey will manage lands held by the Nature Conservancy for the benefit of the Prairie Grouse, and that the present management program . . . has been effective and satisfactory, The Nature Conservancy suggests that the Illinois Natural History Survey also manage lands held by the Department of Conservation for the benefit of the Prairie Grouse

"The Nature Conservancy understands that the Department of Conservation wishes to acquire the offered lands for the purpose of maintaining them as Prairie Grouse sanctuaries, . . . and . . . intends to dedicate these tracts as nature preserves by the Illinois Nature Preserves Commission for that specific purpose. In the event that these lands are found to be of no further value as Prairie Grouse sanctuaries at some future date, it is agreed that the Department of Conservation and the Nature Conservancy will consult one another before putting the lands to alternate uses."

The Department has agreed to retain the present names of the sanctuaries.

The PGC now plans to acquire sanctuaries in the Kinmundy-Farina area (Fig. 3, attached report). However, on July 27, 1970, a purchase agreement was signed for the acquisition of the 175-acre C. C. Fuson Farm just north of Bogota, and adjacent south and west of the Otis Sanctuary. The purchase price was \$58,000, or \$331.43 per acre. A high density of prairie chicken nests occurred on the Otis Sanctuary this year. Thus, we are fortunate to be able to add this tract to the sanctuary system at a reasonable price.

Sincerely,

Glen C. Sanderson, Head
Section of Wildlife Research

GCS:ljr
Attachments

THIRD ANNUAL REPORT OF THE PRAIRIE GROUSE COMMITTEE
ILLINOIS CHAPTER-THE NATURE CONSERVANCY.

July 1, 1970

Prepared by: Ronald L. Westemeier, Illinois Natural History Survey, Urbana 61801
William R. Edwards, Illinois Natural History Survey, Urbana 61801

INTRODUCTION

Conservationists are gaining in their efforts to insure the preservation of prairie chickens (Tympanuchus cupido pinnatus) in Illinois. The population level of prairie chickens on the primary management area near Bogota showed a 38 percent increase from 1968 to 1969. This was followed in the spring of 1970 by a whopping 112 percent increase! This spring more cocks (108) were present on the Bogota area than any spring since our intensive censuses were initiated in 1963 (Fig. 1). The two consecutive increases at Bogota were in sharp contrast to population trends of all unmanaged flocks which declined 21 percent in 1969 and 9 percent in 1970. However, of nine areas where prairie chickens have been censused annually since 1963, the two areas which supported chickens in 1970 (Farina and Mt. Erie), increased from 23 cocks in 1969 to 33 in 1970 (Fig. 1).

High nesting success has been demonstrated annually on the sanctuaries at Bogota. The mean of 69 percent hatched nests is significantly higher than reports in the literature and is higher than the hatching success of nests on private land at Bogota. The major portion of the nesting effort is now on the sanctuaries, thus accounting for the increased population level at Bogota.

The responses of the prairie chickens at Bogota to habitat manipulation provide encouraging evidence that these native grouse can be preserved; however, their numbers must still be regarded as low and therefore endangered. Also, the concentration of the Bogota flock is a matter of concern. Almost two-thirds of the cocks at Bogota concentrated their booming activities on one major booming ground in the spring of 1969 and one-half of the cocks boomed on this same ground in the spring of 1970. While this may be normal behavior for the present density of the Bogota flock, efforts are being made to promote a greater dispersion of the population during the period of reproduction. Proper management of potential booming grounds is the key to this effort. It is recognized that suitable sites for booming involve (1) bare ground or exceedingly short cover, (2) an optimum spacing of about 600 yards between grounds, (3) an area of about 10 acres, and (4) an area lying in close proximity to nesting, brooding, and perhaps roosting cover.

The opportunity for preserving flocks of prairie chickens in addition to the Bogota flock still exists near Kinmundy and Farina in Marion County and near Loogootee in an area overlapping Fayette and Effingham counties. These flocks demonstrate a tenacity that will make their preservation possible if a minimum of 5 sanctuaries, each 40 to 80 acres in size, can be established in key locations within the next 1 to 2 years.

Two groups, the Prairie Chicken Foundation of Illinois (PCFI) and the Prairie Grouse Committee (PGC), Illinois Chapter-The Nature Conservancy, are continuing their efforts to preserve and perpetuate the native prairie chickens in Illinois by the acquisition and management of an adequate system of

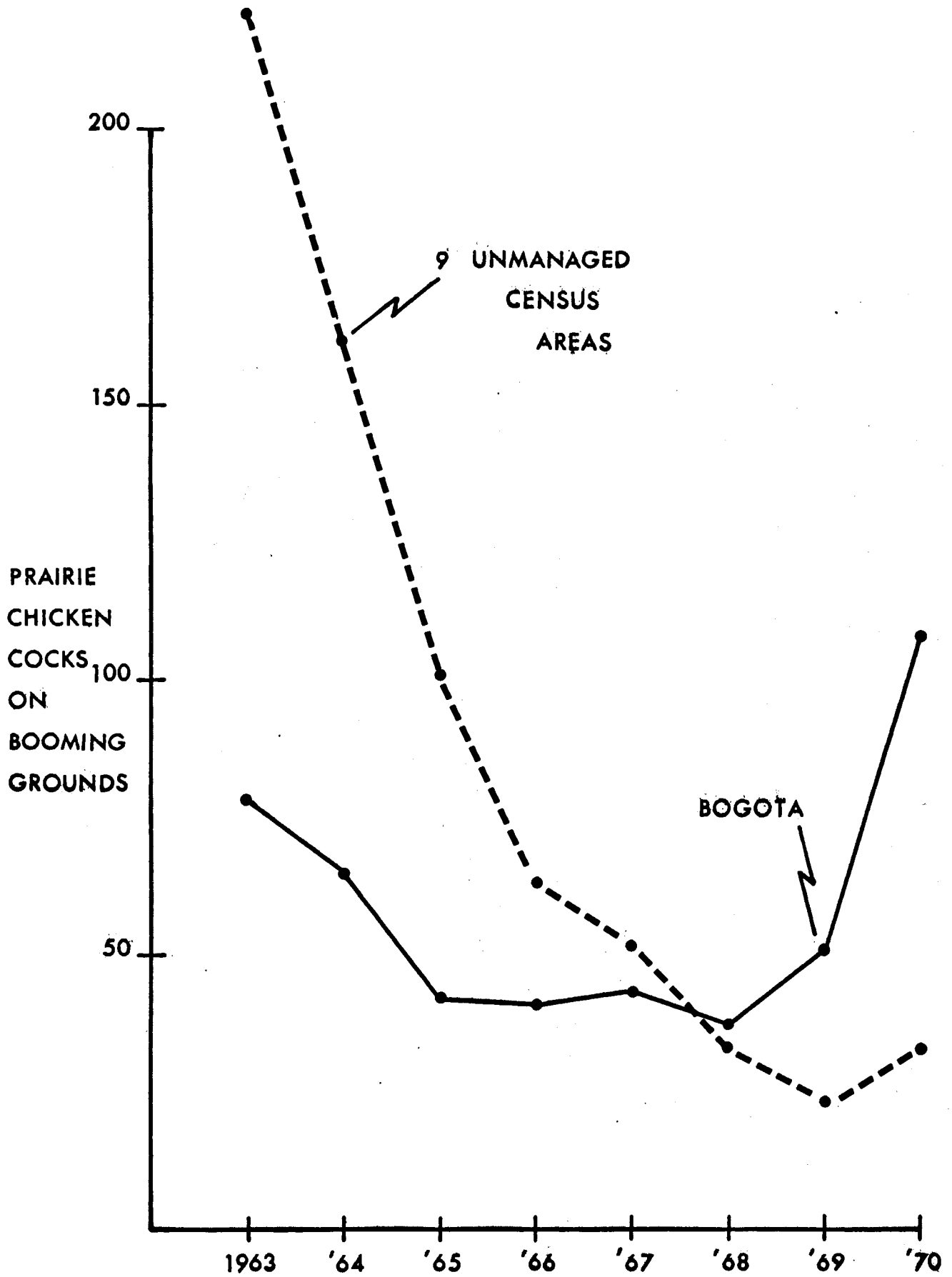


Figure 1. Prairie chicken population trends on nine unmanaged census areas in contrast to the primary management area at Bogota, 1963-70.

sanctuaries. Biologists of the Illinois Natural History Survey, with the cooperation of the Illinois Department of Conservation (IDC), are participating in this joint effort by conducting censuses of prairie chickens, studying their ecology and response to management, and generally serving as consultants on land acquisition and management to all agencies involved.

The PCFI, formed in September 1959, has acquired control of 297 acres (Table 1 and Fig. 2).

The Illinois Chapter-The Nature Conservancy formed the PGC in the fall of 1965. Land acquisition by the PGC has proceeded as rapidly as suitable tracts have become available and funds could be raised. At this writing (June 1970), the PGC has acquired 390.3 acres near Bogota and 420 acres near Farina (Table 2 and Figs. 2 and 3). Thus, 810.3 acres of prairie chicken sanctuaries are managed by the PGC.

Leopold (1931:169) and Yeatter (1943) both commented on the capacity of the prairie chickens of southeastern Illinois to persist at low densities. This trait is particularly evident in several small flocks remaining in the Farina-Kinmundy-Loogootee area. At Bogota we are observing a remarkable recovery of a population which had declined to only 35 to 40 birds of each sex in 1968. Recovery is attributed to the development of a relatively limited acreage of grassy vegetation within the range of the remnant flock at Bogota. The tenacity of Illinois' native prairie chickens provides the basis of the hopes for ultimately preserving the species in Illinois.

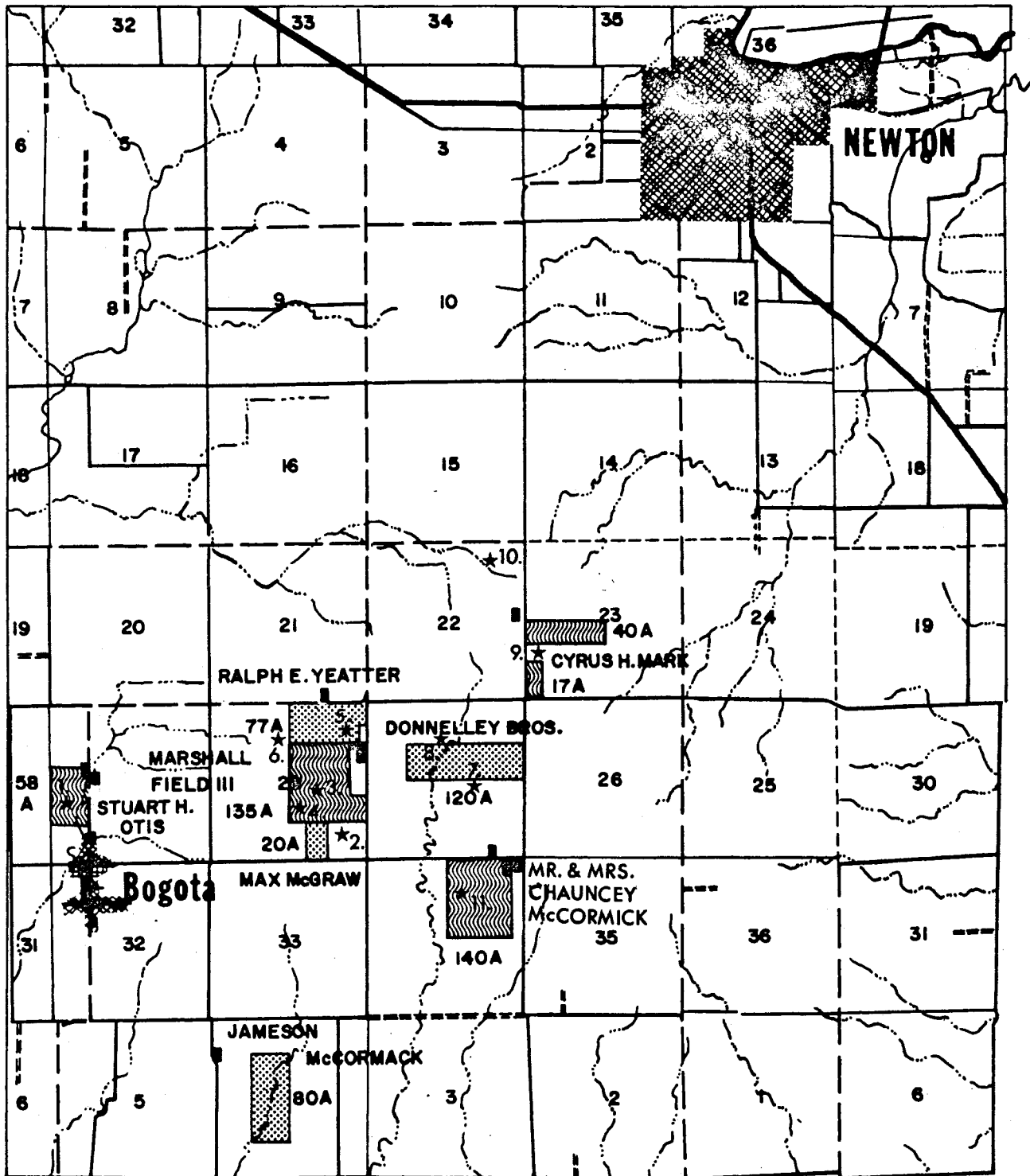
If one applies Adams' (1902) criteria for the center of origin of a species to the prairie chickens of southern Illinois, it is easy to build a case for this area as a possible center of prairie chicken evolution, particularly during the Pleistocene and post-Pleistocene periods. Certainly prairie chickens attained great abundance and relative dominance on the Illinois prairies. Available data suggest that Illinois birds are comparatively large and lay large clutches of eggs in comparison with prairie chickens in neighboring states. The tenacity of this population under existing agricultural patterns is indicative of a basically stable population. Certainly one can develop a convergence of lines of possible migration and dispersal of races of prairie chickens centering in Illinois, particularly eastward into the prairie peninsula and northward into the area of Wisconsinan glaciation. And finally, the capacity of the prairie chicken to survive in the face of intensive agriculture is best demonstrated in Illinois. This is consistent with the concept that in its center of origin a species is least dependent upon a restricted habitat, in this instance, native prairie.

At this point we do not claim southcentral Illinois as the center of origin of prairie chickens. We feel that our birds are unique and different genetically from races still to be found further north and west. We feel that this uniqueness is one further reason for saving Illinois' native prairie chickens. If we lose this genotype, we cannot duplicate it and problems of reintroduction and subsequent management will be infinitely greater if we are forced to seek and use prairie chickens of a different and less well adapted genotype.

Thus far we have demonstrated that the prairie chicken can be saved and that management can be based upon relatively simple practices at a low cost. Our

PRAIRIE CHICKEN SANCTUARIES

BOGOTA AREA



PRAIRIE GROUSE COMMITTEE, ILLINOIS CHAPTER -
THE NATURE CONSERVANCY



PRAIRIE CHICKEN FOUNDATION OF ILLINOIS

Figure 2. Prairie chicken sanctuaries and booming ground locations on the Bogota Study Area, Spring 1970.

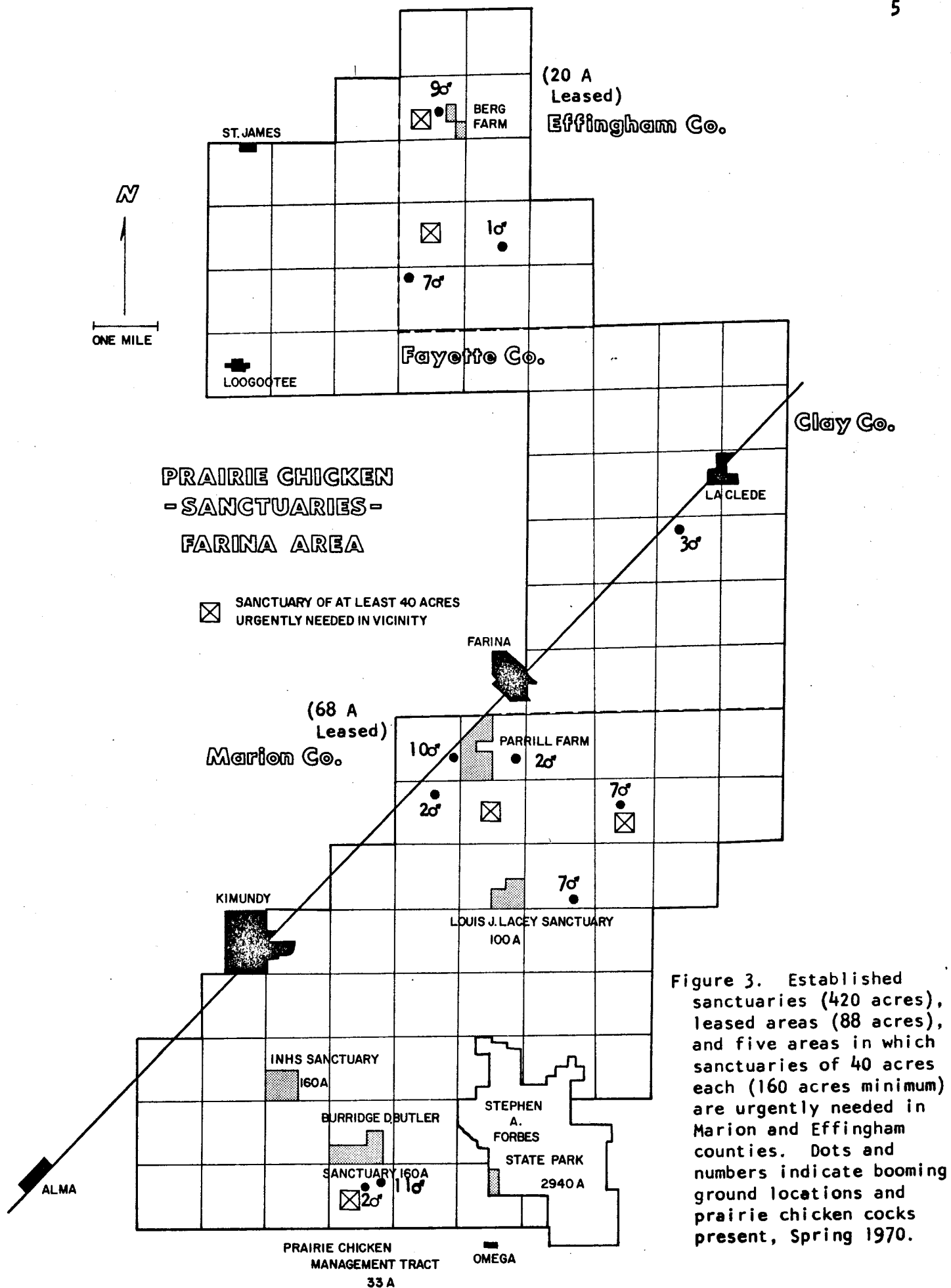


Figure 3. Established sanctuaries (420 acres), leased areas (88 acres), and five areas in which sanctuaries of 40 acres each (160 acres minimum) are urgently needed in Marion and Effingham counties. Dots and numbers indicate booming ground locations and prairie chicken cocks present, Spring 1970.

work has demonstrated that conservationists are determined that Illinois' prairie chickens will be saved and that they are willing to make material contributions in time and money to this end. However, no individual or small group of individuals can be expected to undertake the saving of this species for all of the people in Illinois.

Relationships between local farmers and biologists of the IDC and INHS with regard to the acquisition and management of prairie chicken sanctuaries have, on the whole, been excellent. However, there is a real and growing concern by local residents over the potential loss of revenues if the sanctuaries become exempt from taxation. At present, all sanctuaries are subject to prevailing tax rates. The 1969 taxes, paid in 1970, for PGC sanctuaries totaled \$2,571.36. Should the sanctuary system be consolidated for management under the Illinois Department of Conservation through the Nature Preserves Commission and removed from taxation, it may be desirable to negotiate an annual payment in lieu of school bond levies, road maintenance and other services provided by local tax revenues.

The purpose of this third annual report is to inform members and supporters of the PGC of the current status of our endangered native prairie grouse and progress toward saving them from extinction, and to discuss long term goals for the land acquisition and management necessary to assure the permanent security of the prairie chicken in Illinois.

It must be remembered that acquisition is only the first step. It takes 2 and sometimes 3 years to convert corn and soybean fields to nesting cover acceptable to prairie chickens.

POPULATIONS AND SANCTUARIES

Bogota

Responses of prairie chickens to the acquisition and management of sanctuaries at Bogota has been highly encouraging. The count of 108 booming cocks observed this spring (1970) was 112 percent higher than 1969. The 1970 count was 38 percent higher than the previous high count made in 1963, the year the census was initiated. It was 192 percent higher than the low year of 1968 (Fig. 1). By contrast, only two of the nine unmanaged areas (outlying Bogota) where censuses were also initiated in 1963 (221 total cocks observed), still contained prairie chickens in 1970 (33 total cocks observed).

A more favorable dispersion of the breeding population at Bogota was also noted this spring, compared with 1969. In the spring of 1969 seven booming grounds were found in 3 square miles on or near six sanctuaries. This spring, booming was observed in 12 general areas in 6 square miles and on all but 1 of the 10 sanctuaries at Bogota (Fig. 2). The J. Woods booming ground (on private farmland) regularly had 47-54 cocks (Table 3) and continued to be the focus of the Bogota flock. Two new booming grounds were established near the J. Woods ground on the Marshall Field III Sanctuary and two grounds were found on or near the Yeatter Sanctuary (Fig. 2 and Table 3). The high density of approximately 83 cocks in the square mile that contains the Yeatter, McGraw, and Field sanctuaries would be difficult to match anywhere in the range of the greater prairie chicken in North America. Booming cocks were observed in 1970 for the first time on the 17-acre and 40-acre Cyrus Mark sanctuaries and also on the 58-acre Stuart Otis Sanctuary. The booming grounds on or near the Mark and Otis

sanctuaries were of uncertain status because of the relatively few cocks involved and because of the instability of their booming locations. However, up to 31 prairie chicken hens were seen between the two Mark sanctuaries and 19 hens were seen on the Otis Sanctuary this spring (Table 3). Two booming grounds were established in the immediate vicinity of the Donnelley Sanctuary and a ground was established by five cocks on a burned portion of the prairie on the 140-acre Mr. and Mrs. Chauncey McCormick Sanctuary.

Nest searches and brood observations by biologists of the INHS and IDC leave little doubt that the major proportion of the nesting now occurs on the sanctuaries and that hatching success is high. The sanctuaries are also used extensively by prairie chickens for brooding, roosting, and loafing throughout the year. We believe that the present acquisition of 390.3 acres by the PGC and 297 acres by the PCFI at Bogota is adequate to support a spring population of at least 100 to 200 cocks (200-400 total birds) and that for the immediate future, this flock of prairie chickens is safe enough for highest priority in acquisition to shift to other areas. However, we anticipate that several key tracts of land will become available at Bogota in the next few years. Needless to say, we hope that as these tracts become available that they can be acquired by the PGC, the PCFI, or any other group or individual interested in saving the prairie chicken.

The current sanctuary system (PGC and PCFI) at Bogota totals 687.3 acres in 7 tracts (10 separate acquisitions) in 6 sections (Fig. 2). Ultimately we would like to see at least 1,500 acres in about 20 tracts in 10-12 sections. Thus, we feel that through the recent efforts of the PGC the immediate future of the prairie chicken at Bogota is secure and that approximately half of the ultimately desirable sanctuary system has now been obtained.

Farina

The flock at Farina has contained between 25 and 40 cocks each spring since 1964. This spring there were 28 cocks present (Fig. 3). The key to the present survival of this flock is 68 acres of grassland leased through June 1970 by the IDC on the Parrill Farm, some remnant native prairie along the adjacent Illinois Central Railroad, one or two nearby, small old fields of redtop, and acreage diverted from crop production through the Federal Feed-Grain Program. The status of this flock is precarious because (1) either the IDC or the landowner may decide against renewing the annual lease, (2) the redtop sods will ultimately be plowed and planted to corn or soybeans, (3) the railroad prairie may be burned at any time presenting a hazard to active nests and eliminating suitable nesting cover for at least 1 year, and (4) the Federal farm programs have an uncertain future.

The flock at Farina can be saved. To do so will require acquisition in the next 1 or 2 years of at least one, and preferably two, tracts of 40-80 acres including or immediately adjacent to one of the traditional booming grounds. Ultimately, acquisition should involve at least 1,000 to 1,500 acres in 12-15 tracts in 9-11 sections dispersed in a manner which would link the Farina and Kinmundy flocks.

One sanctuary of 100 acres (Louis J. Lacey Sanctuary) was acquired approximately 3 miles south of Farina in 1969. Although acceptable nesting cover

will be available there in 1970, good cover conditions will not exist prior to 1971 or possibly 1972. Even then, the Lacey Sanctuary may not be truly effective until other tracts are acquired and developed between it and the traditional booming grounds near the Parrill Farm south of Kinmundy.

Kinmundy

The flock at Kinmundy numbered only 13 cocks in 1970. Nest destruction by farming activities has been serious in this area during the past 3 springs. However, the high count for this area for the 7 years of our census was only 17 cocks while the low was 7 cocks. Two sanctuaries have now been acquired in the general area of this flock, the 160-acre INHS Sanctuary in 1967 and the 160-acre Burrige D. Butler Sanctuary in 1969. Good nesting and brood cover are now present on the Survey Sanctuary and it is probable that prairie chicken nests were successfully hatched there in 1967, 1968, 1969 and 1970 as broods were observed there all 4 years. However, no booming has been observed there and the nearest booming ground is nearly 2 miles away. Thus, for the present, use of the Survey Sanctuary will be relatively low. However, this will be an excellent sanctuary when one or two additional tracts are obtained and developed between it and the Butler Sanctuary.

The Burrige D. Butler Sanctuary is located immediately north across a county road from a traditional booming ground. Cover conditions for nesting on the Butler Sanctuary in 1970 are only mediocre but some nesting is expected. By 1971 however, at least 120 acres of this sanctuary should provide fair to excellent nesting cover. In 1972 cover conditions should be near optimum over much of the area.

Because of the critical need for nesting cover in 1969 and 1970 within the critical 600 yards from the booming ground south of the Butler Sanctuary some trading has been done with a local farm operator who was granted larger shares of wheat crops in fields that were reseeded on the Survey Sanctuary for his agreement not to plow or mow fields of legumes and grasses adjacent to the booming ground until after July 1, 1970.

The sharecropping approach has proven both efficient and economical in terms of establishing and managing cover on the sanctuaries. We give up little for what we get in exchange. We could not afford the men and equipment to make the seedings we obtain through sharecropping. In our program, agreements are negotiated each year for specific crops, usually wheat or oats, and in specific fields depending on what cover is needed. Seeding of legumes and grasses is part of the agreement. Mowing to control weeds competing with the new seedings is also frequently specified. In return, the sharecropper may receive part or all of the crop depending on its expected value in relation to the services he provides.

We believe the acquisition of 80-160 acres in the immediate vicinity of the traditional booming ground south across the road from the Butler Sanctuary is of highest possible priority. Two possibilities for acquisition now exist but neither of these two 80-acre tracts is currently for sale. A third 80-acre tract further south is an additional possibility, but we do not believe it has the immediate potential of the first two. We believe that every effort should be

made to acquire one of these tracts now even if it is necessary to pay a premium price.

Some highly desirable acreage north of the Butler Sanctuary may also become available in the near future. Our ultimate objectives at Kinmundy should be acquisition of approximately 1,000 acres in about 15 tracts in 8-10 sections arranged to connect the Kinmundy and Farina flocks.

Loogootee

This spring the Loogootee flock numbered 17 cocks. This is down about 30 percent from the 24 cocks present in 1969. The key to the survival of this flock are two, old 10-acre redtop meadows and about 160 acres of formerly wet prairie which is still too wet to farm at least 2 years out of 3. The redtop persists because the owner has leased it for the past 3 years, otherwise it would now be in corn or soybeans. It is only a matter of time until we get a succession of dry years or the owner achieves better drainage and the wet spot too will be gone. This flock is in a precarious status. However, with annual leasing, the temporary security of this flock is possible.

In recent years the Loogootee flock has utilized two primary booming grounds located about 2 to 2½ miles apart. To assure saving of the Loogootee flock, an immediate acquisition of at least 40 to 80 acres near each booming ground is highly desirable.

The long term land acquisition objective for the Loogootee flock should again be a total of 1,000 to 1,500 acres in a system of 15 to 20 sanctuaries distributed over 10-15 different sections located in southwest Effingham and southeast Fayette counties.

An ideal distribution of sanctuaries at Loogootee would connect the range of this flock with that of the Farina flock about 7 miles to the south. The ultimate objective would be a contiguous strip of prairie chicken range about 2 miles wide by 18 miles long, the equivalent of one township in size. Within this strip approximately 100 acres per square mile, 3,600 acres total, would be in sanctuaries. The balance of the land would remain in private ownership. We believe such a sanctuary system is capable of supporting 2,000 cocks, and perhaps considerably more, and as many hens. But this is the big picture and one which will involve funding far beyond the capacity of the limited number of conservationists currently involved in our present attempts to save the prairie chicken.

The Immediate Need for Sanctuaries

Highest priority must be given the acquisition of five tracts of land as follows: one tract of 80-160 acres located immediately south of the Butler Sanctuary in Marion County, two tracts of 40-80 acres each in the vicinity of the Parrill Farm in Marion County, and one tract of 40-80 acres each near each of the two traditional booming grounds of the Loogootee flock in southwest Effingham County. These acquisitions would involve about 250-400 acres of land at an average cost of about \$450 per acre, an approximate total of \$110,000 to \$180,000.

THE NESTING STUDY

In 1969 at Bogota a total of 347 acres of sanctuary land were searched intensively for nests by biologists and summer assistants of the INHS and J. Slachter of the IDC. Of primary significance was the finding of 28 prairie chicken nests of which 18 were successful. These 28 nests are believed to represent the nesting of about 60 percent of the hens available to nest at Bogota. As time and manpower limitations did not permit thorough searching of all potential nesting cover, there is little doubt that numerous additional nests were also present on the sanctuaries. On this basis, we conclude that the bulk of prairie chicken nesting at Bogota in 1969 was on the sanctuaries. It was also apparent that nesting success was high on the sanctuaries in 1969. As a result, the sanctuaries played a primary role in the 112 percent increase observed on the booming grounds in April, 1970.

In addition to the 28 prairie chicken nests found in sanctuary grasslands, nests of 14 other species of birds were represented in 1969 as follows: red-winged blackbird, 292 nests; eastern meadowlark, 118; bobwhite quail, 58; dickcissel, 47; mourning dove, 31 (ground nests); field sparrow, 10; grasshopper sparrow, 9; Henslow's sparrow, 1; song sparrow, 1; short-billed marsh wren, 7; indigo bunting, 2; upland plover, 2; goldfinch, 1; and ring-necked pheasant, 1. Parasitism by the brown-headed cowbird was noted in a redwing nest and in a field sparrow nest.

Thus, redwings and meadowlarks continue to be the most abundant nesting birds on sanctuary grasslands, with bobwhites ranking third in abundance. One oddity was a hatched prairie chicken nest which also contained two hatched quail eggs.

Each spring the sanctuary system at Bogota serves as an outdoor laboratory for many students and interested individuals. The prairie restoration now being emphasized on the sanctuaries will also provide another valuable asset on the sanctuaries. In the fall and spring bird watchers visit the sanctuaries to watch raptors and other birds.

FINANCIAL

The PGC has land valued at approximately \$262,000 (not including the 80 acres of the Louis J. Lacey Sanctuary which the PGC leases) and a working cash balance of approximately \$5,500 giving us total assets of about \$267,500. Our liabilities include \$27,360 owed on the Burrigge D. Butler Sanctuary (\$6,840 per year for the next 4 years), a \$34,081-bank loan on the Field Sanctuary (payable anytime we have the money), and \$30,000 owed on the Mr. and Mrs. Chauncey McCormick Sanctuary (\$6,000 per year for the next 5 years). This is a total debt of \$91,441 (Table 4), not including interest. To balance this debt, we have pledged and expected contributions of about \$100,000, payable over the next 5 years, which should liquidate our present indebtedness. The annual income from the sanctuaries (Tables 5 and 6) should take care of the taxes (about \$2,600 annually, Tables 5 and 7) and part of the annual cost for management and interest (Tables 5 and 7).

Thus, when we find new money, we will be ready to acquire another sanctuary. We have asked the World Wildlife Fund for help and they have agreed, in principle,

to help us, but so far have not decided how they can help.

Appendix A summarizes the status of vegetation on the PGC sanctuaries in the spring of 1970 plus a listing of management activities conducted on individual sanctuaries since June 1, 1969.

Table 1. Land acquisitions by the PCFI.

Name of Sanctuary	Date Obtained	Acreage	Cost per Acre ^a	Type of Purchase	Total Cost of Sanctuary
Ralph E. Yeatter	5-15-62	77	\$225	Cash	\$17,325
Max McGraw	2-17-64	20	275	Cash	5,500
Donnelley	7-64	60	300	Contract ^b	18,000
Jameson McCormack	11-1-65	80	312.50	Lease ^c	25,000
Donsback Tract ^d	Summer 67	60	525	Contract ^e	31,500
Totals or Average		297	\$327.69		\$97,325

^a This figure does not include interest charges, if paid.

^b Paid \$1,500 down and the balance on a 10-year contract at 5% interest.

^c Title is held by purchaser who plans to donate the land to the PCFI.

^d Adjoins the original Donnelley 60 and the entire 120 acres is now so named.

^e Paid \$8,000 down, with \$5,000 to be paid in 1968 and the remainder to be paid at the rate of \$3,000 per year; rate of interest is 6%.

Table 2. Land acquisitions by the PGC.

Name of Sanctuary	Date Obtained	Acreage	Cost per Acre ^a	Type of Purchase	Total Cost of Sanctuary
JASPER COUNTY					
Cyrus H. Mark	10-18-65	17	\$400	Public Auction	\$ 6,800
Mr. & Mrs. Chauncey McCormick	3-1-66	140	428.57	Contract ^b	60,000 ^c
Cyrus H. Mark	4-18-66	40	435	Public Auction	17,400
Stuart H. Otis	7-1-66	58.3 ^d	266.14	Cash	15,250 ^e
Marshall Field III	3-1-68	<u>135^f</u>	472.22	Cash ^g	63,750
Acreage sub-total		<u>390.3</u>			
MARION COUNTY					
Illinois Natural History Survey ^h	4-17-67	160	280	Lease ⁱ	44,800
Burridge D. Butler	3-20-69	160	285	Contract ^j	45,600
Louis J. Lacey	5-7-69	80	420	Lease	33,600
		<u>20</u>	<u>420</u>	Donation	<u>8,400</u>
Acreage sub-total		<u>420</u>			
Totals or Average		810.3	\$364.80		\$295,600

^a This figure does not include interest charges, if paid, and is figured on the final acreage in the sanctuary.

^b Paid \$6,000 down and the balance on a 9-year contract at 6% interest. Formerly known as the Zimmerman tract.

^c Not including interest.

^d 60 acres purchased but buildings and 1.7-acre lot sold on 4-7-67.

^e Cost after subtracting sale price of land and buildings.

^f 160 acres purchased but buildings and 25 acres sold on 5-16-68.

^g Entire original purchase cost of \$85,000 borrowed at 6.5% interest.

^h Formerly known as the Westfall tract.

ⁱ Title was held by two purchasers until the fall of 1969 who then donated the land to the PGC.

^j Five-year contract at 6% interest on balance of \$34,200.

Table 3. Spring counts of prairie chickens on booming grounds at Bogota in 1970.

Symbol on Fig. 2	Booming Ground	Cocks		Highest Count	Highest Count of Hens
		Regularly Present Minimum	Maximum		
1	Otis ^a	3	4	4	19
2	J. Woods	47	54	56	30
3	M. Field #1	11	12	17	6
4	M. Field #2	5	5	7	0
5	Yeatter East ^a	8	9	9	9
6	Yeatter West ^a	2	3	3	4
7	Donnelley East	16	19	19	16
8	Donnelley North	1	1	1	15
9	Mark vicinity ^a	1	2	2	31
10	J. May	3	3	4	0
11	C. McCormick	5	5	7	8
	TOTALS	102	117	129	138

^a Booming ground of uncertain status.

Table 4. Balance sheet for fiscal years ending 6-30-69 and 6-30-70.

	<u>6-30-69</u>	<u>6-30-70</u>
Assets		
Cash	\$ 3,767	\$ 5,744
Land at cost:		
Mark I 17 acres (1965)	\$ 6,800	\$ 6,800
McCormick 140 acres (1968)	60,000	60,000
Mark II 40 acres (1966)	17,400	17,400
Otis 58.3 acres (1966)	15,250	15,250
Field 135 acres (1968)	63,750	63,750
Butler 160 acres (1969)	45,600	45,600
Survey 160 acres (1969)	44,800	44,800
Lacey 20 acres (1960)	8,000	8,000 (est.)
	<u>\$208,800</u>	<u>\$261,600</u>
TOTAL ASSETS	<u><u>\$212,567</u></u>	<u><u>\$267,344</u></u>
Liabilities		
Obligations on land		
McCormick contract	\$ 36,000	\$ 30,000
Field bank loan	42,272	34,081
Butler contract	34,200	27,360
	<u>\$112,472</u>	<u>\$ 91,441</u>
TOTAL LIABILITIES	<u>\$112,472</u>	<u>\$ 91,441</u>
EQUITY	<u>\$100,095</u>	<u>\$175,906</u>
TOTAL LIABILITIES AND EQUITY	<u>\$212,567</u>	<u>\$267,347</u>

Table 5. Cash position; income and expenses for fiscal years ending 6-30-69 and 6-30-70.

	<u>1968-69</u>	<u>1969-70</u>
Cash balance 7/1	\$ 7,508.90	\$ 3,766.80
Income:		
Government programs	\$ 2,919.65	\$ 1,417.88
Sale of crops	1,582.16	1,330.97
Donations for land	28,728.50	27,453.81
Other donations	3,149.73	3,871.80
	<u> </u>	<u> </u>
TOTAL INCOME	\$36,380.04	\$34,074.40
	<u> </u>	<u> </u>
	\$43,888.94	\$37,841.20
Expenses:		
Habitat management	\$ 1,811.88	\$ 1,260.15
Taxes	2,003.12	2,575.56
Miscellaneous	664.83	409.59
Land	28,174.05	21,031.06
Interest	7,468.26	6,020.94
Rent		800.00
	<u> </u>	<u> </u>
TOTAL EXPENSES	\$40,122.14	\$32,097.30
	<u> </u>	<u> </u>
Cash balance 6/30	\$ 3,766.80	\$ 5,743.90
Gifts of land at cost		
160 acres - Illinois Natural History Survey Sanctuary		\$44,800.00
20 acres - Louis J. Lacey Sanctuary		8,000.00

Table 6. Summary of income from PGC sanctuaries, annual totals for 1966 through 6-30-69, detailed for 7-1-69 through 6-30-70.

Year	Sanctuary	Item	Amount	Total
1966	All			\$ 1,154.36
1967	All			3,577.74
1968 (to 5/31)	All			409.59
1969 (to 6/30)	All			4,501.81
1970 (to 6/30)	All			
Jasper County				
	All	Federal Govt. Feed- Grain Prog. 1969 2nd $\frac{1}{2}$ payment	640.33	
		Wheat program 1969	133.52	
	Field	Wheat seed	162.94	
	McCormick, Mark 17 & 40	Redtop seed	620.79	
	McCormick	Oil royalties	33.37	
Marion County				
	All	Federal Govt. Feed- Grain Prog. 2nd $\frac{1}{2}$ payment	427.43	
	Survey	Cost sharing on lime applied in 1969	216.60	
		Redtop seed	236.41	
	Butler	Oats	132.56	
		Pasture and house rent minus seeding and moving costs	178.27	
				\$ 2,782.22

Table 7. Summary of expenses for PGC sanctuaries, annual totals for Fall 1965 through 6-30-69, detailed for 7-1-69 through 6-30-70.

Year	Sanctuary	Item	Amount	Total
1965	All			\$ 69.00
1966	All			1,146.66
1967	All			7,333.09
1968 to 5/30	All			4,861.85
1969 to 6/30	All			11,947.99
1970 to 6/30	All			11,066.24
Jasper County				
	Mark 17	Taxes	70.78	
	Mark 40	Taxes	166.52	
	McCormick	Taxes (land)	608.12	
		Taxes (oil well)	4.20	
		Interest	2,160.00	
		Crushed rock	97.20	
	Otis	Taxes	244.50	
	Field	Taxes	566.20	
		Interest	1,808.94	
Marion County				
	Survey	Taxes	385.26	
		Limestone	436.05	
		Fertilizer	483.90	
	Butler	Taxes	473.48	
		Interest	2,052.00	
		Insurance (fire)	7.00	
		Insurance (wind)	7.00	
		Limestone	123.92	
	Lacey	Taxes (on 20 acres)	56.50	
		Rent (for 80 acres)	800.00	
Several sanctuaries				
		Wheat seed	6.15	
		Fertilizer	4.68	
		Domestic grass & legume seed	205.45	
		Sign materials	29.89	
		Legal fees	35.00	
		Movie	27.00	
		Miscellaneous	206.50	

APPENDIX A

A list of management activities accomplished on PGC sanctuaries in Jasper and Marion counties; summer 1969 through spring 1970. The management activities were by local farmers (LF) and research personnel (RP).

Marshall Field III Sanctuary - 135 acres

1969

- 5/13, 6/10, and 6/28 Disc'd 1-acre strip and seeded to prairie grasses after third discing (RP).
6/4 Disc'd and seeded 0.5-acre strip to corn to be left unharvested (LF).
6/16 Mowed field lanes to facilitate brood observations (RP).
7/1 Wheat combined on 12 acres (LF).
7/14-15 Oats combined on 12 of 17 acres; poor crop due to weather (LF).
7/16 Mowed lanes and diverted acres for weed control (RP).
8/1 Disc'd 18 acres of rank weedy sweet clover and old straw bales in preparation for plowing (RP).
8/5-10/1 Grazing permitted with 20, 500 lb. calves (avg. wt.) on 28-acre portion of sanctuary (LF).
8/5 Burned 5 acres of 20-acre timothy field (RP).
8/7 Burned 5 acres of 20 acres of mixed redtop and timothy (RP).
8/12 Plowed 18 acres of weedy sweet clover and old straw bales (LF).
9/10 Oats stubble clipped and baled on 8 acres (LF).
10/9 Mowed field lanes and seeded strips to prairie grasses (RP).

1970

- 3/24 Burned 10 acres of 20-acre redtop legume field and partially burned 5 acres of 20-acre timothy field (RP).

Mr. and Mrs. Chauncey McCormick Sanctuary - 140 acres

1969

- 6/16 Mowed farmyard and field lanes to facilitate brood observations (RP).
6/20, 6/26 Timothy mowed for hay on 7 acres (LF) following a careful search (RP) for nests and broods.
7/22 Timothy mowed for hay on 9 acres (LF).
7/28-8/5 Redtop combined for seed on 45 acres (LF).
8/7 Disc'd firelanes for prescribed burning (RP).
8/11 Burned 50 acres on portions of 6 fields (RP).
9/16 Mowed farmyard and field lanes (RP).
9/25 Mowed strips seeded to prairie grasses for weed control (RP).

1970

- 3/6, 3/31 Burned 19 acres on portions of 3 fields (RP).
3/17 New sign and outdoor privy installed (RP).
3/17, 19, and 27 Warm-up building set up for visitors (RP).

- 4/1, 4/16 Hand seeded 14 acres (two burned-over fields) with seed combined on Ill. Central R.R. prairie (RP).
 4/8 Spread 24 T of crushed rock on farmyard lane (LF).
 5/12 Brush killer (2-4-5-T) selectively applied to stumps and brush along fencerows (RP).

Cyrus Mark Sanctuary - 17 acres1969

- 7/28-8/4 Redtop seed combined on 16 acres (LF).
 8/20 Burned 5 acres of 17 acres of redtop seed meadow (RP).

Cyrus Mark Sanctuary - 40 acres1969

- 7/28-8/4 Redtop seed combined on 15 acres (LF).
 8/20 Burned 20 acres; a 5-acre field and a 15-acre field (RP).
 8/20 Mowed 7-acre field for weed control (RP).

1970

- 3/9 Burned 5 acres (RP).
 4/29 Hand seeded 3.5-acre burned field with seed combined on Ill. Central R.R. prairie (RP).

Stuart H. Otis Sanctuary - 58.3 acres1969

- 6/15-10/1 Pasture (6.4 acres) grazed by two ponies (LF).
 8/15 Redtop and timothy seed combined on about 5 acres (LF).
 8/29, 10/9, 10/21 Mowed 25 acres for weed and brush control (RP).
 11/17 Disced firelanes (RP).

1970

- 3/9, 3/24 Burned 8.5-acre field and 5-acre field (RP).
 4/16 Hand seeded 8.5-acre burned field with seed combined on Ill. Central R.R. prairie (RP).

Illinois Natural History Survey Sanctuary - 160 acres1969

- 5/21 Bulldozed stumps, fence, house and corn crib foundations, buried same and built up dam on pond in pasture (LF).
 6/6 Burned brush heap and seeded bulldozed area (RP).
 7/5-9/20 Pasture (37 acres) grazed by 14 cows with 11 calves on the cows (LF).
 7/5-25 Wheat combined on 30 acres; poor crop due to wet weather (LF).
 7/29-31 Redtop seed combined on 40 acres (LF).
 7/29, 8/12 Plowed 19 acres for fall wheat seeding (LF).

- 8/12 Discd 7-acre field for limestone application and prairie seeding (LF).
 9/26, 10/2 Discd 7-acre field, firelanes, ditches, and seeded ditches (RP).
 10/4 Wheat seeded on 19 acres; 12.5 acre-field and 6.5 acre-field (LF).

1970

- 2/7 Delivered redtop seed from Bogota sanctuaries to tenant for seeding on Survey Sanctuary (RP).
 3/10 Hand seeded 7-acre discd field with seed combined on Ill. Central R.R. prairie (RP).
 3/14 Seeded 19-acre wheat field with redtop and alfalfa via aircraft (LF).
 3/24 Burned 5 acres of a 10-acre field of mixed grass forbs (RP).

Burridge D. Butler Sanctuary - 160 acres (possession 3/20/69 but subject to rights of tenant until 3/1/70)

1969

- 3/? Fall '68 wheat seeding (20 acres) seeded to red clover, timothy, and redtop (LF). Wheat harvested 7/?. (LF).
 3/? Oats (20 acres) seeded to redtop, lespedeza, and timothy. Oats harvested 7/? (LF).
 5/1-10/? Pasture (25 acres) grazed moderately (LF).
 6/? Corn planted on 36 acres; 18 acres harvested winter 1969-70 and 18 acres harvested 6/?/70 (LF).
 6/? Soybeans planted on 30 acres and harvested fall 1969 (LF).
 7/? Weedy red clover (22 acres) clipped for weed control and grazed moderately (LF).

1970

- 2/27 Delivered redtop and legume seed combined on sanctuaries at Bogota to tenant on Butler Sanctuary (RP).
 3/? Redtop and legumes seeded on 20 acres of new wheat (LF).
 3/? Oats, redtop, and legumes seeded on 10 acres (LF).
 6/4 New sign erected (RP).

Louis J. Lacey Sanctuary - 100 acres (possession in July 1969 but subject to rights of tenant until 12/1/69).

1970

- 3/10 Delivered redtop and legume seed combined on sanctuaries at Bogota to tenant on Lacey Sanctuary (RP).
 4/11-5/8 Five fields totaling 40 acres seeded to redtop and legumes (LF).
 6/4 New sign erected (RP).

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