



I L L I N O I S

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

PRODUCTION NOTE

University of Illinois at
Urbana-Champaign Library
Large-scale Digitization Project, 2007.

Maibed January 1975
E.S.

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

November 14, 1972

Prepared by: Ronald L. Westemeier, Illinois Natural History Survey,
Effingham 62401
D. Russel Vance, Illinois Natural History Survey, Effingham
62401

POPULATION STATUS

Results of booming ground surveys conducted in nine areas, in seven counties of south-central Illinois in the spring of 1972 revealed a total of 261 prairie chicken cocks. The 196 cocks in the Bogota flock in Jasper County comprised 75 percent of the known statewide total and showed an increase of 23 percent since the spring of 1971. This was the fourth consecutive and substantial increase at Bogota. Except for two minor booming grounds involving only one or two cocks each, all booming was located on or within 200 yards of the sanctuaries. The traditional central core of the Bogota Area contained the phenomenal density of 135 cocks--a half-section area comprised of the Ralph E. Yeatter, Marshall Field III, and Max McGraw sanctuaries (232 acres). Between the springs of 1971 and 1972, the counts on the Otis and Fuson Farm sanctuary on the west edge of the area increased by 50 percent and the counts on the Mark sanctuaries on the northeast corner of the study area increased 57 percent. For the first time since its acquisition in 1965, one cock was present regularly on the 80-acre Jamerson McCormack Sanctuary on the extreme south edge of the area. One morning four hens were observed with this vanguard.

Flocks in the Farina and Kimundy-Forbes Park areas have regained last year's losses and now contain 28 cocks and 12 cocks, respectively. Of the six areas outlying the two sanctuary systems, only the Hoyleton flock showed an increase (2 cocks to 5 cocks). No prairie chickens were seen in the LaClede area, where 1 cock remained last spring. Other declines included Loogootee (8 cocks to 6 cocks), Fairman (4 cocks to 3 cocks), and Mt. Erie (13 cocks to 6 cocks). Five cocks were again censused near Bible Grove in Clay County. Increases in the flocks on the sanctuary systems in Jasper and Marion counties accounted for 47 of the 50 additional cocks found since the spring of 1971. All declines occurred on unmanaged areas.

The two flocks in northeastern Marion County are now firmly bound to nest sanctuaries. Major shifts in distribution were noted as cocks abandoned traditional booming grounds and established new grounds on and in proximity to the 100-acre Lacey Sanctuary and adjacent Loy 40-acre tract near Farina and also near the 160-acre Butler Sanctuary between Kimundy and Forbes State Park. These encouraging responses give hope for the preservation of prairie chicken flocks in Marion County as well as in Jasper County.

VISITORS TO THE BOOMING GROUNDS

During the spring of 1972, 301 people visited the prairie chicken sanctuaries in Jasper County on a reservation basis. In addition, an unknown number of people without reservations visited the sanctuaries. Forty-five groups and 29 mornings were involved this spring. Groups represented included Earlham College, 57 individuals; Illinois Department of Conservation, 13; Northern Illinois University, 11; Illinois Audubon Society, 23; Illinois Natural History Survey, 13; Illinois State Museum, 2; Goshen College, 8; Illinois State University, 4; Greenville College, 8; University (of Illinois) High School, 15; Purdue Bird Study Group, 4; Ohio Audubon Council, 11; University of Illinois, 23; Eastern Illinois University, 15; Musselman Audubon Society, 13; Indiana University, 14; CBS TV News, 1; Champaign Centennial High School, 20; Boy Scouts of America, 9; and 37 other interested ornithologists, sportsmen, and laymen. Included in these groups were visitors from Indiana, Ohio, Tennessee, Maryland, and California. Thus, prairie chickens in Illinois continue to provide a unique nature experience and an educational opportunity for people from many states as well as for citizens of the Prairie State.

The numbers of guided visitors in 1966, 1967, 1968, 1969, 1970, and 1971 were 56, 84, 159, 225, 334, and 295, respectively. It remains imperative that all visits to the booming grounds be conducted under close supervision. The best time for viewing the spectacular display of territorial defense and courtship of Illinois' prairie chickens is during the last week in March and the first 2 weeks in April. These 3 weeks constitute the major period during which hens visit the booming grounds. The peak in actual mating activity is usually about April 7, but the annual deviations may be as much as a week before and after this date. Some excellent shows occur on some booming grounds after mid-April, but they are not as predictable as during the above period. We try to schedule as many requests for blinds as possible during the best period-- on a first come-first served basis. However, under present conditions the number of observers should be limited to about 16 individuals per morning. Up to 25 people can be accommodated per morning depending on their age, the number of groups, the number of experienced observers, and other variables. However, about 16 people per morning is presently the most convenient number to accommodate in blinds. Large numbers of visitors can of course be assisted in viewing the booming grounds from roadsides. When roadside observers are at least 200 yards from a booming ground, they are free to come and go as they choose. Observers in blinds, however, must remain quiet and unseen for about 2 hours. Our main rule is to avoid flushing hens from the booming grounds. Although the population level of prairie chickens at Bogota has been increasing steadily for the past 4 years, this native grouse must still be considered as an endangered species in Illinois. Harassment by visitors during the main breeding period must be held to a minimum.

Reservations for blinds can be made by contacting R. L. Westemeler, 304 Poplar Drive, Effingham (home phone 217-342-4403) or D. R. Vance, 208 E. Grove Street, Effingham (home phone 217-342-6560), or by calling the Illinois Natural History Survey office in Effingham at 217-342-6075.

Visitors to the booming grounds can be a distinct aid to the research project. Standardized recording forms are provided for observers to record such information as the number of cocks and hens; the number of copulations; the effects of harassment by raptors, mammals, pheasants, and other factors on the behavior of the prairie chickens; and other details. This information is making a valuable contribution toward a greater understanding of the intricacies of prairie chicken behavior and population dynamics.

NESTING ON THE SANCTUARIES

A total of 85 prairie chicken nests were found in 375 acres of nest cover on the sanctuaries at Bogota in the summer of 1972. This density of one nest per 4.4 acres searched is the highest recorded for the sanctuary system. The previous high was one nest per 5.7 acres searched in 1964, but only 97 acres were searched that year. Due to manpower shortages this year, we were unable to search 143 additional acres of potential nest cover.

Of the 85 nests, 6 were of unknown fate and 6 were atypical having only one egg each in a scraped-out depression with little or no bowl of grassy duff. Of the remaining 73 nests of known fates, 47 were successful, 23 were destroyed (either before or after abandonment), and 3 were abandoned. The rate of success of 64.4 percent, while relatively high, was slightly lower than the mean of 66.8 percent for the 9-year period of 1963-71. Hatch success ranged as high as 77.8 percent for 10 nests on the Donnelley Brothers Sanctuary and 72.1 percent for 49 nests on the combined Ralph E. Yeatter, Marshall Field III, and Max McGraw sanctuaries that are on adjoining tracts, to as low as 38.9 percent for 23 nests on the Mr. and Mrs. Chauncey McCormick Sanctuary. The low success level on the Mr. and Mrs. Chauncey McCormick Sanctuary may have been the indirect result of a large-scale bulldozing operation on a farm adjacent to this sanctuary. The destruction of the woodland and brush on the adjacent farm, which recently changed ownership, and the resultant displacement of numerous mammalian predators may have caused the unusually high rate of nest destruction on the McCormick Sanctuary.

Because of the high densities of prairie chickens and nests on the sanctuaries, we are attempting to capitalize on a unique opportunity for conducting a nest study on the greater prairie chicken. We are able to gather more data on the nest ecology of this species in 1 year than other states have collected in projects covering periods of several years. Thus, research findings on nest ecology of prairie chickens in Illinois have definite and important implications for the management of this grouse throughout its remaining range in North America. Our findings are probably applicable to the closely related sharp-tailed grouse.

STATUS OF LAND ACQUISITION

Following the purchase of the 110-acre Specht tract in the spring of 1972 (Table 1), the sanctuary system in Jasper County now contains 960.8 acres in 12 tracts (separate acquisitions). The Specht tract lies about 0.25 mile East of the Donnelley Sanctuary and 0.25 to 0.50 mile southeast

Table 1. Summary of land acquisition for prairie chickens in Illinois

Name of Sanctuary	Date Obtained	Acreage	Total Cost of Sanctuary	Bought or Leased by
JASPER COUNTY				
Ralph E. Yeatter	5-15-62	77	\$17,325	PCFI ^a
Max McGraw	2-17-64	20	5,500	PCFI ^a
Donnelley Brothers	7-64	60	18,000	PCFI ^a
Donnelley Brothers	Summer 67	60	31,500	PCFI ^b
Jamerson McCormack	11-1-65	80	25,000	PCFI ^b
Subtotal		297		
Cyrus Mark	10-18-65	17	\$ 6,800	PGC ^c
Mr. & Mrs. Chauncey McCormick	3-1-66	140	60,000	PGC
Cyrus Mark	4-18-66	40	17,400	PGC ^c
Stuart H. Otis	7-1-66	58.3	15,250	PGC ^c
Marshall Field III	3-1-68	135	63,750	PGC ^c
Fuson Farm	8-29-70	163.5	47,999 ^d	PGC
Specht Farm	5-5-72	110	27,500	PGC
Subtotal		663.8		
Subtotal (Jasper County)		960.8		
MARION COUNTY				
Illinois Natural History Survey	4-17-67	160	\$56,500	PGC ^c
Burridge D. Butler	3-20-69	160	45,600	PGC
Louis J. Lacey	5-7-69	100	42,000	PGC
Loy Tract	5-28-71	40	20,000	PGC
Subtotal (Marion County)		460		
TOTAL		1,420.8		

^a The Prairie Chicken Foundation of Illinois (PCFI) plans to give this land to the Illinois Department of Conservation this year.

^b The PCFI turned this land, and the payments due, over to the Prairie Grouse Committee (PGC) this year.

^c Purchased by the State from the PGC in June 1970 (total cost, \$165,500)

^d Cost after subtracting the sale price (\$10,001) of land (11.5 acres) and buildings sold on 5-2-72.

Sanctuaries

1. Cyrus H. Mark, 40 acres
 2. Cyrus H. Mark, 17 acres
 3. Donnelley Brothers, 120 acres
 4. Mr. and Mrs. Chauncey Mc Cormick, 140 acres
 5. Ralph E. Yeatter, 77 acres
 6. Marshall Field III, 135 acres
 7. Max Mc Graw, 20 acres
 8. Jamerson Mc Cormack, 80 acres
 9. Stuart H. Otis, 58 acres
 10. Fuson Farm, 164 acres
 11. Specht Farm, 110 acres
- ✱ Visitors Headquarters
- ▨ Acquisition in progress (1972)

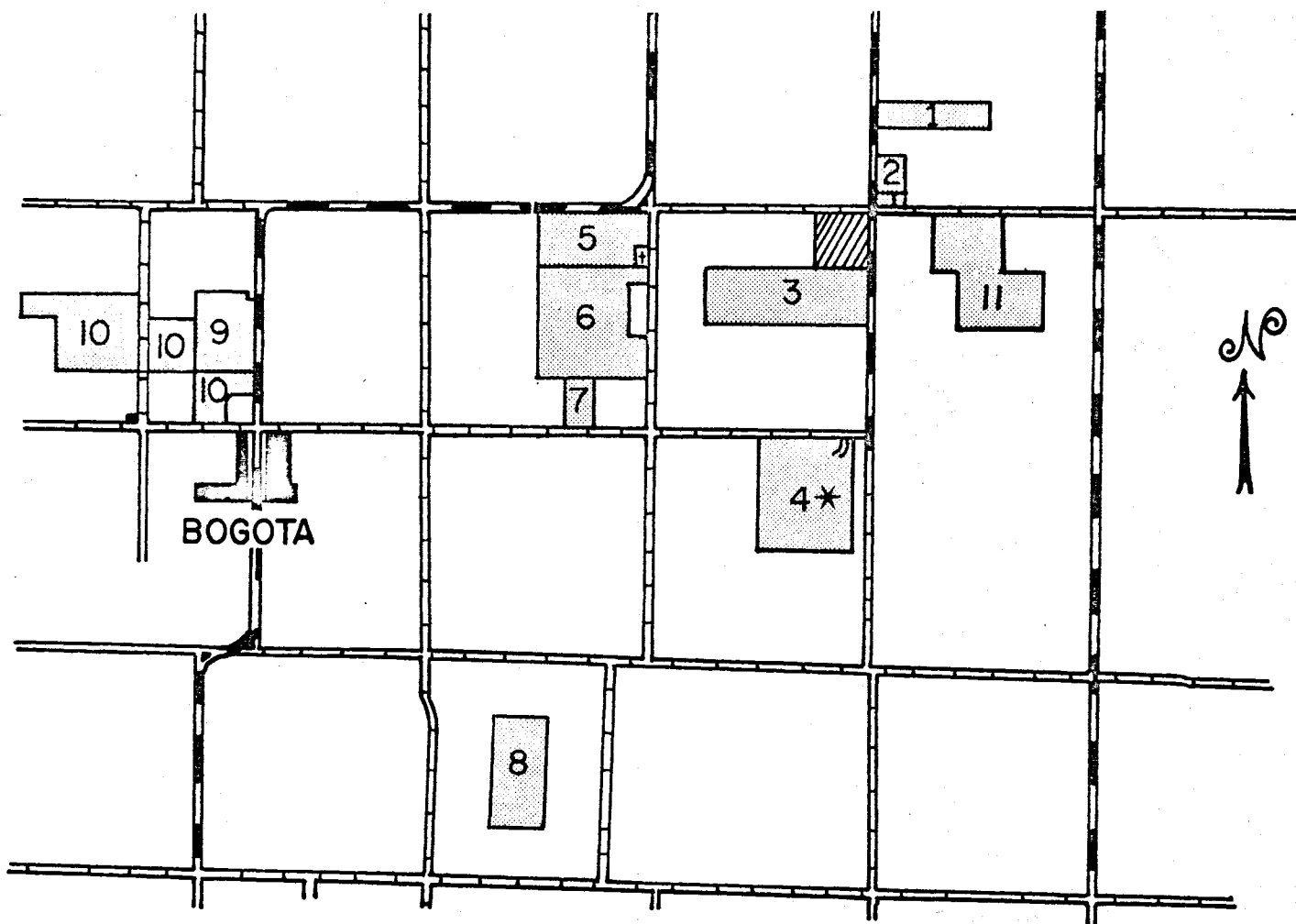


Fig. 1. Distribution of prairie chicken sanctuaries near Bogota in Jasper County in 1972.

of the two Mark sanctuaries (Fig. 1). We are now about 500 acres short of our goal of 1,500 acres for Jasper County. Our greatest need is to link the Jamerson McCormack Sanctuary to the remainder of the sanctuary system by purchases in section 33 or southwest section 34. Land currently available includes the 40-acre Walters tract north of the Donnelley Brothers Sanctuary and possibly the 30-acre McCormack tract in section 33 south of the Max McGraw Sanctuary. Since prairie chickens now utilize the 30-acre McCormack tract for feeding and roosting, priority should be given to the Walters 40. The Walters tract contains about 25 acres of remnant prairie plant species not commonly found in the area and has not been farmed since about 1957 (Table 2). Periodic prescribed burning and several years of selective basal spraying would be required to develop the Walters 40 into a nest sanctuary for prairie chickens.

The PGC has authorized the purchase of this tract, but the land is presently in an estate, with most of the owners living in Washington. As soon as the necessary legal work can be accomplished, we hope that the heirs to the estate will sell this land to the PGC.

Marion County

In Marion County, we now have 460 acres in four tracts (Table 1)--about 1,000 acres short of the desired 1,500 acres for Marion County. The most desirable land purchases would be in sections 7, 10, and 16, T 4 N R 4 E, northwest, northeast and east, respectively, of the Lacey-Loy complex to link with booming grounds on private land; in sections 2 and 12, T 3 N R 3 E, west and south, respectively, of the Burrige D. Butler Sanctuary to link the Butler and Illinois Natural History Survey sanctuaries and extend the sanctuary system to the south; in section 7, T 3 N R 4 E, southeast of the Butler Sanctuary to link with the management tract on the Stephen A. Forbes State Park; and in sections 25, 35, 36, T 4 N R 3 E, northeast, and east, respectively, of the Survey Sanctuary to help consolidate all of the Marion County sanctuaries. Land currently available for purchase is the Dace 80-acre tract immediately northeast and adjoining the Survey Sanctuary. Negotiations were transacted with the heirs of the Engel Estate and with Mr. Larry Loy over the past year but neither of these properties is available for purchase at present. The loss of the Engel land in particular was unfortunate as active booming grounds are still located on both parcels--in section 10 and 16. The Dace 80 would be a desirable addition to the Survey Sanctuary; however, it does not have the potential for immediate response by, and benefit to, prairie chickens. Also, the continuing problem with feral dogs on the Survey Sanctuary prompts us to recommend against the purchase of the Dace 80 at this time.

SANCTUARY MANAGEMENT

The abundance and distribution of prairie chickens in Illinois is clearly limited by the availability of suitable grassy vegetation for nesting. Thus, providing attractive, safe nest cover is the primary problem in perpetuating remnant flocks of prairie chickens in Illinois.

Table 2. Partial list of plants observed on the Walters 40-acre tract near Bogota on September 1, 1971, by Dr. Robert A. Evers, Illinois Natural History Survey.

Latin Names	Colloquial Names
POLYPODIACEAE	
<i>Asplenium platyneuron</i>	ebony spleenwort (fern)
GRAMINEAE	
<i>Andropogon scoparius</i>	little bluestem
<i>Andropogon gerardi</i> ^a	big bluestem
<i>Andropogon virginicus</i> ^a	broom-sedge
<i>Cinna arundinacea</i>	wood reedgrass
<i>Eragrostis spectabilis</i>	tumble grass
<i>Panicum hauchucac</i>	panic grass
<i>Panicum circulare</i>	panic grass
<i>Setaria faberii</i>	giant foxtail
<i>Setaria lutescens</i>	yellow foxtail
<i>Sorghastrum nutans</i>	Indian grass
CYPERACEAE	
<i>Cyperus strigosus</i>	sedge
JUNCACEAE	
<i>Juncus biflorus</i>	two-flowered rush
<i>Juncus brachycarpus</i>	short-fruited rush
<i>Juncus tenuis</i> ^a	slender rush
POLYGONACEAE	
<i>Polygonum pennsylvanicum</i>	pinkweed
LEGUMINOSAE	
<i>Baptisia leucantha</i>	white-false indigo
<i>Cassia fasciculata</i>	partridge pea
<i>Desmodium sessilifolium</i>	tick trefoil
<i>Lespedeza capitata</i>	bush clover
LINACEAE	
<i>Linum medium</i>	flax
POLYGALACEAE	
<i>Polygala sanguinea</i>	milkwort
EUPHORBIACEAE	
<i>Euphorbia corollata</i> ^a	flowering spurge
ONAGRACEAE	
<i>Gaura biennis</i>	butterfly weed
<i>Ludwigia alternifolia</i>	seedbox

Table 2--continued.

Table 2.--continued.

Latin Names	Colloquial Names
ASCLEPIADACEAE	
<i>Asclepias hirtella</i>	milkweed
VERBENACEAE	
<i>Verbena hastata</i>	blue vervain
LABIATAE	
<i>Lycopus americanus</i>	water horehound
<i>Physostegia virginiana</i>	obedient plant
<i>Pycnanthemum virginianum</i>	mountain mint
SCROPHULARIACEAE	
<i>Gerardia aspera</i> (and white fld. form)	
RUBIACEAE	
<i>Diodia teres</i>	rough buttonwood
COMPOSITAE	
<i>Ambrosia bidentata</i>	lance-leaved ragweed
<i>Boltonia asteroides</i> var.?	boltonia
<i>Bidens aristosa</i>	tickseed sunflower
<i>Erechtites hieracifolia</i>	fireweed
<i>Eupatorium perfoliatum</i>	thoroughwort
<i>Eupatorium serotinum</i>	late boneset
<i>Gnaphalium obtusifolium</i>	catfoot
<i>Helianthus mollis</i>	hairy sunflower
<i>Hieracium longipilum</i>	hawkweed
<i>Liatris aspera</i>	rough blazing-star
<i>Liatris pycnostachya</i> ^a	prairie blazing-star
<i>Liatris squarrosa</i>	scaly blazing-star
<i>Prenanthes aspera</i>	rattlesnake-root
<i>Silphium integrifolium</i> ^a	rosinweed
<i>Silphium laciniatum</i>	compass-plant
<i>Silphium terebinthinaceum</i> ^a	prairie-dock
<i>Solidago altissima</i>	tall goldenrod
<i>Solidago gigantea</i>	late goldenrod
<i>Solidago media</i>	goldenrod
<i>Solidago nemoralis</i>	gray goldenrod
<i>Solidago rigida</i>	hard-leaved goldenrod

^a Additional plants identified by R. L. Westemeier and D. R. Vance.

However, such crops as corn, soybeans, wheat, and oats, which under intensive farming have eliminated prairie chickens from most of their native Illinois range, have a definite role in the management of nest sanctuaries.

Old sods that have become heavily invaded with undesirable weeds and woody plants can be fall plowed, fertilized, and seeded to soybeans for 1 or 2 years--using a herbicide if necessary--and then reseeded to a redtop-timothy-legume mixture, using a small grain, preferably oats, as a nurse crop. This entire renovation is accomplished by sharecropping agreements with local farmers. Soybean stubble provides an ideal site for booming grounds. New seedings of a combination of small grain, grass, and legumes also provide suitable sites for booming and excellent brood cover. For these reasons, about 20 percent of each sanctuary is scheduled for planting to row crops and small grains annually.

It is neither feasible nor necessary to leave the landowner's share of crops in the field for winter food as is the common practice on many state wildlife areas. The availability of winter food has not presented a problem to prairie chickens in Illinois. It is desirable that the landowner's share of crops be harvested and that any revenue be used to help cover the cost of management activities and taxes on sanctuary land. Long-term treatments of limestone and rock phosphate are costly, but necessary in the development of quality nest cover for prairie chickens. Fence building, selective basal spraying, mowing for weed and brush control, native prairie restoration, firelane maintenance, and prescribed burning are other management activities that involve some expense but must be accomplished on an annual basis. Revenues from grass and legume seed, grazing, and haying (crops in which a permittee has no investment) help minimize the cost of annual management on prairie chicken sanctuaries.

State-owned Sanctuaries

In 1970, 250 acres in Jasper County--the Field, Otis, Mark 17, and Mark 40 sanctuaries--and 160 acres in Marion County--the Survey Sanctuary--were sold to the State. In addition, 157 acres--the Yeatter, McGraw, and west 60 acres of the Donnelley sanctuaries--are to be transferred from the PCFI to the State in 1972. This transfer will bring the state-owned portion of the prairie chicken sanctuary system to 567.3 acres (Table 1). The management activities scheduled for 1973 are listed on Table 3. A total of 410 acres on state-owned sanctuaries are planned for cropping, harvest of grass seed, and haying or grazing in the 1973 crop year. These 410 acres include 14 acres of wheat (two fields), 12 acres of oats (one field), 100 acres of soybeans (nine fields), 200 acres of redtop to be combined, 18 acres of hay, and 66 acres of pasture (two fields). The State's share of revenues from these crops after deductions for short-term fertilizer, herbicides, and taxes can be roughly estimated to be \$2,450 (Table 3). If the State approves, these monies will be spent by sharecroppers as directed by the sanctuary manager to accomplish a limestone or rock phosphate (long-term treatments) application or other necessary management practices. In this fashion, the State's share of cropping revenue is fully utilized and budget expenditures are minimized. Despite the use of revenues anticipated from sharecropping, the estimated cost of

Table 3. Summary of management activities planned for 1973 on state-owned prairie chicken sanctuaries.

Type of Management	Year-	State-owned Sanctuaries (567.3 acres)					Total	Estimated		
		Field	McGraw	Donnel-	Mark	Otis			INHS	Income
	ter			ley	17	40				
CROPS (acres)										
Wheat, grass, legumes	7			7				14	\$ 280	
Oats, grass, legumes							12	12	120	
Soybeans	8	18	8	7	6	6	15	100	2,000	
Redtop seed	10	60		40	11	23	8	200	2,000	
Hay (prairie)	18							18	180	
Pasture					26		40	66	330	
FIRELANES (miles)										
	1.0	4.0	0.25	0.75	0.5	1.5	1.0	9.0	\$ 36	
PRESCRIBED BURNS (acres)										
March	5	16	3	6	1	3		34	neg.	
August	6	10	3			5		24	neg.	
SELECTIVE BASAL SPRAYING (miles) (acres)										
		0.5	3	0.5	0.5	1.0	1.5	4	80	
				0.5	1.5			9.5	50	
FENCE BUILDING (miles)										
					0.25	0.33	0.25	0.83	1,460	
LIMESTONE AND ROCK PHOSPHATE TREATMENTS (acres)										
	8	18	8	7	6	6	15	6	74	2,960
MOWING FOR WEED AND BRUSH CONTROL (acres)										
	10	20	5	5	1	2	10	25	78	156
PRAIRIE SEEDINGS (acres)										
		6		7		3		16	96	
								Total	\$4,910	\$4,838
								Minus estimated taxes	2,460	
								Balance after taxes	\$2,450	
								Deficit	\$2,388	

management for 1973 (\$4,838) leaves an estimated deficit of \$2,388. Some of this deficit can be eliminated by income from 1972 crops that were not harvested at the time this report was prepared. Also, the estimates for income in 1973 are only rough estimates. The estimated income of \$2,000 for soybeans was based on a rate of \$20.00 per acre. However, the landowner's share of income from soybeans has ranged as high as \$40.00 per acre after deductions for fertilizer and herbicide. Likewise, the estimated income of \$2,000 for redtop seed was based on a rate of \$10 per acre, but the landowner's share has ranged as high as \$30 per acre for a good stand of redtop. Thus, the estimated income for 1973 could be higher than the \$4,910 indicated in Table 3. The major expense of \$2,960 on state-owned sanctuaries would be for needed treatments of limestone and rock phosphate on at least 74 acres. These treatments are based on application rates of 6 tons per acre for limestone at \$5.25 per ton and 1,500 pounds of rock phosphate per acre at \$25 per ton. The second major expense is for 0.83 mile of fence on the Mark 40, Otis, and Survey sanctuaries at an estimated cost of \$1,460 (\$1.00 per yard). This fence must be built if the adjacent landowners fence their properties. Lesser expenses are anticipated for brush killer and fuel oil for selective basal spraying and for gasoline and tractor and machinery servicing and repairs for disking firelanes for prescribed burning, mowing for weed and brush control, and making prairie seedings.

Taxes on state-owned sanctuaries for 1971 paid by sharecroppers in 1972 amounted to \$606.14 for 112 acres in Jasper County and \$516.54 for 132 acres in Marion County. These totals will increase substantially as the titles to more sanctuaries are transferred to the Illinois Department of Conservation as perpetual landowner and dedicated as part of the Illinois Nature Preserves System. (Note: The Nature Conservancy pays taxes on all of its sanctuaries.) Because of the continuing importance to maintain a cooperative attitude among local residents, it is important that taxes continue to be paid on as much sanctuary land as possible. However, we have not received an interpretation from the State regarding the payment of taxes on the portions of state-owned sanctuaries that are farmed.

Nature Conservancy Sanctuaries

Management activities planned for 1973 on the 854 acres of sanctuaries owned or leased by The Nature Conservancy are summarized on Table 4. These 854 acres include 118 acres of small grains, 103 acres of row crops, 364 acres of grass and legume seed, 68 acres of hay, and 44 acres of pasture. The Nature Conservancy's share of income from these crops after deductions for short-term fertilizer and herbicides is estimated as \$7,440 (Table 4). Oats do not usually provide income because sharecroppers are (1) required to make a seeding light enough to permit establishment of new grass-legumes seedings; (2) make the grass-legume seeding with the oats; and (3) clip the new seeding for weed control in late summer, if necessary. The Nature Conservancy's 50 percent share of red clover seed harvests is not sold. This legume seed and some of the PGC's 50 percent share of redtop seed are used for new grass-legume seedings. The use of redtop and red clover seed produced on the sanctuaries results in a substantial saving to the PGC.

Table 1. Summary of management activities planned for 1973 on sanctuaries owned or leased by The Nature Conservancy.

Type of Management	Nature Conservancy Sanctuaries (854 acres)							Total	Estimated Income	Estimated Cost
	C.Mc- Cormick	Fuson	Donnel- ley	J.Mc- Cormack	Specht	Butler	Lacey			
CROPS (acres)										
Wheat, grass, legumes		13	10		30				53	\$1,060
Oats, grass, legumes		10	7	18		14	16		65	
Soybeans	30	27				7	8	16	88	1,760
Corn						15			15	300
Redtop seed	44	67	43	50	40	65	40		349	3,490
Red clover seed	5	10							15	
Hay (tame)	21	10				18	8		57	570
Hay (prairie)	11								11	110
Pasture		19				25			44	150
LIMESTONE AND ROCK PHOS- PHATE TREATMENTS (acres)										
	17	10	7	9		20	8		71	\$2,840
FENCE BUILDING (miles)	0.25			0.25					0.50	880
FIRELANES (miles)	3.0		0.4	0.5	2.0				5.9	neg.
PRESCRIBED BURNS (acres)										
March	12					37			49	neg.
August	5		7	5					17	neg.
SELECTIVE BASAL SPRAYING										
(miles)	2.0	2.0	0.14	0.25	2.5	1.0	2.0	0.5	10.39	200
(acres)				10	37		2	4	53	250
MOWING FOR WEED AND BRUSH CONTROL (acres)										
	12		2	5			5	5	29	neg.
PRAIRIE SEEDINGS (acres)										
	1					9			10	neg.
										2
										\$7,440
										\$4,170
										\$2,796
										\$1,374

The estimated cost of habitat management on PGC sanctuaries in 1973 is \$4,170 (Table 4). The major expense of \$2,840 is for limestone and rock phosphate. These treatments are necessary if we are to keep share-cropping as the primary tool in accomplishing the necessary annual management of the habitat. Moderate levels of fertility are essential for the development of good quality cover for nesting hens. The PGC may be legally obligated to share the costs (about \$880) of building 0.5 mile of fence on the Mr. and Mrs. Chauncey McCormick and on the Jamerson McCormack sanctuaries.

The fencing obligation is most likely to occur on the J. McCormack Sanctuary in 1973. Materials and equipment for selective basal spraying on about 10 miles of brushy fencerows and waterways and on 53 acres in advanced stages of woodland succession may cost up to \$450. This need is particularly great on the newly acquired Specht tract. Because of the large number of man-hours required for this amount of selective basal spraying, it is unlikely that all of the necessary basal spraying can be accomplished in 1973. Multiflora rose (Rosa multiflora), silver maple (Acer saccharinum), honey locust (Gleditsia triacanthos), Japanese honeysuckle (Lonicera japonica), and crab apple (Crataegus sp.) are the woody species most in need of control on many of the sanctuaries. Desirable native mast producers, such as pin oak (Quercus palustris) and shingle oak (Q. imbricaria), and summer fruit bearers such as wild black cherry (Prunus serotina), gray dogwood (Cornus racemosa), dewberry (Rubus flagellaris), and blackberry (R. allegheniensis) are generally left unsprayed. However, even these desirable woody species can become so thick as to create an undesirable hemmed-in effect on some of the sanctuaries. The possibility of a hemmed-in effect is particularly true on the C. McCormick, Lacey, and Specht tracts.

Additional expenses for such activities as maintenance of firelanes for prescribed burning, mowing for weed and brush control, and prairie establishment should be negligible. The Illinois Department of Conservation has been paying for the gasoline and repairs on the new International 544 tractor that was assigned to the prairie chicken project at Bogota in July 1970.

The taxes on PGC sanctuaries for 1972 payable in 1973 are estimated as \$4,644 (\$6.00 per acre). If income is as low as estimated (Table 4), and expenses run as high as estimated, the deficit would be \$1,374. However, income may be higher than estimated and expenses may be lower than estimated.

Although not included in the budget estimates, there is a need for a 4-wheel tractor of about 50 horsepower equipped with a 3-point hitch to do routine maintenance work on the sanctuaries in Marion County.

PRAIRIE RESTORATION ON SANCTUARIES

Some form of prairie restoration has now been attempted on 298.9 acres of sanctuaries. This acreage includes 218.9 acres in Jasper County; 57 acres on the Marion County sanctuaries and 23 acres of the 33-acre management tract on Stephen H. Forbes State Park in Marion County (Table 5). Essentially

no results are yet evident on 25.5 acres. Results were rated as poor to fair on 102.5 acres and good to excellent on 150 acres. It is too early to evaluate results on an additional 20.5 acres that were seeded in August and September 1972.

The 150 acres with the good to excellent rating includes only 40 acres with well-established switchgrass, big bluestem, and Indiangrass on the Yeatter (18 acres), C. McCormick (21 acres), and Field (1 acre) sanctuaries. In 1971, 93 acres were seeded to prairie grasses in Jasper County and all but 1 of the 10 fields involved looked good by this fall. However, the 58 acres seeded on the Fuson Farm in 1971 included only switchgrass with the predominant redtop, timothy, and legumes. Native grass seedings on the remaining 35 acres included big and little bluestem, Indian grass, side-oats grama, and switchgrass. Two fields totaling 38 acres in Marion County also included switchgrass in the 1971 seedings; the results of these seedings were rated as poor so far.

It is becoming evident that one of the best methods of establishing prairie grasses is to select fields that are relatively free of weeds, particularly foxtail (Setaria sp.). The site should be fall plowed or should consist of soybean or small grain stubble that has been disked three or four times in spring and early summer. The repeated disking minimizes weed competition prior to the seeding, which should be made in late June or early July. Redtop and timothy are added to the prairie mixture to reduce weed competition after seeding. The redtop and timothy provide nest cover soon after seeding and these domestic grasses also provide fuel for prescribed burning that promotes rapid development of the native grasses. The prairie grasses seem to exert dominance over redtop and timothy after a burn about the third year after seeding.

It should be evident from Table 5 that many different approaches have been used to establish prairie-type vegetation on the sanctuaries. Satisfactory stands of prairie grasses have sometimes resulted from over-seeding a light seeding of oats. Seeding with oats was successful with a 1969 seeding on the C. McCormick Sanctuary (Table 5). However, similar seeding on the Field Sanctuary during the same spring nearly failed. The near failure on the Field Sanctuary was attributed to the abnormally wet weather just before harvest in 1969. The wet weather lodged or flattened the ripe oats, delayed harvesting, and nearly smothered the seedlings of prairie grasses. Also, a subsequent heavy development of sweet clover, red clover, and Eurasian weeds caused excessive competition on the prairie seeding. This seeding now shows signs of developing an acceptable stand of prairie grasses.

Because of the well-developed stands of prairie grasses now present on the C. McCormick, Field, and Yeatter sanctuaries, we are in a position to harvest our own seed. Sufficient prairie grass seed was harvested in 1971 to seed 20.5 additional acres in 1972. We also plan to seed 26 acres in 1973 with seed from the sanctuaries.

Because restoration of prairie vegetation is a prime objective on at least a portion of each sanctuary, the response by nesting hens to restored prairie needs to be evaluated. The annual management for prairie grasses

Table 5. Summary of prairie-type seedings, subsequent management efforts, and results by October 1, 1972 of prairie chicken sanctuaries in Jasper and Marion counties, Illinois.

Date(s) Seeded	Sanctuary	Acres Seeded	Type of Seedbed	Subsequent Management	Results
Spring 1963	Yeatter	35	Fall '62 seeding of redtop, timothy, and legumes.	Mowing for seed, weed control, and hay, 1/3 burned Aug. '69, 1/3 burned Aug. '70.	18 acres left intact with excellent stand P.v., plus some A.g. and S.n. ^a
1963-70?	Yeatter	3.7	Transplants into old redtop and bluegrass sod.	None.	Poor
4-15-67	Yeatter	0.4	Soybean stubble disked twice.	None.	Fair
3-31-66, 3-25-68, 4-10-68, and 4-1-70	C. McCormick	10	Soybean stubble disked and seeded to oats and timothy. Also overseeded burned sod with seed from I.C.R.R. prairie. Also some transplants.	1/2 burned 2-28-68 and 3-17-72. 1/2 burned 8-22-68 and 3-31-70. Partially mowed for hay and combined for seed.	Excellent stand of P.v., A.g. and S.n. from first seeding.
4-10 & 11-68	C. McCormick	0.5	Burned redtop.	Seed combining.	Poor
4-10 & 11-68	C. McCormick	1	Weedy grasses and forbs.	Mowing for weed control.	None
4-10 & 11-68	C. McCormick	1	Mowed legumes and weeds.	Mowing for weed control.	None
4-10 & 11-68	M. Field III	1	Burned timothy and redtop.	Mowing for seed and weeds and burned Aug. '70.	Poor

Table 5--continued.

Table 5.--continued.

Date(s) Seeded	Sanctuary	Acres Seeded	Type of Seeded	Subsequent Management	Results
4-10 & 11-68	M.Field III	2	Corn stubble.	Burned Mar. '70 and grazed '70.	None
4-10 & 11-68	M.Field III	2	Oats, redtop, and legumes.	Seed combining, 1/4 burned Mar. '70, 1/4 burned Aug. '71, 1/4 burned Mar. '72, 1/4 burned Mar. '70 and Aug. '72.	None
4-10 & 11-68	M.Field III	2	Oats, redtop, timothy, brome, orchard grass, and legumes.	Grazed lightly, 1/4 burned Mar. '72, 1/4 burned Aug. '72.	None
4-10 & 11-68	Otis	1	Burned orchard grass.	Mowed for weeds, burned Mar. '70.	None
4-10 & 11-68	Otis	2	Burned weedy grass and forbs.	Mowed for weeds, 1/4 burned Mar. '69.	Fair
4-11-68	Survey	7	Fall 1967 redtop seeding.	Seed combining.	None
March 1969	C.McCormick	11	Oats.	Mowed for weeds.	Good stand of <u>P.v.</u> , <u>A.g.</u> , and <u>S.n.</u>
March 1969	Field	18	Oats.	Mowed for weeds.	Poor-Fair
6-28-69	Field	1	Fall plowed and disked three times in spring.	Mowed for weeds, burned 1-29-71 and combined.	Excellent stand of <u>P.v.</u> , <u>S.n.</u> , and <u>A.g.</u>
4-16-70	C.McCormick	12	Burned weedy grass and forbs.	Mowed for weeds.	Poor

Table 5--continued.

Table 5--continued.

Date (s) Seeded	Sanctuary	Acres Seeded	Type of Seedbed	Subsequent Management	Results
4-29-70	Mark 40	3.5	Burned weedy grass and forbs.	Mowed for weeds.	None
4-16-70	Otis	6.3	Burned orchard grass overseeded with I.C.R.R. prairie seed.	Mowed for weeds.	Poor
3-10-70	Survey	7	Disked weedy grass and forbs.	Mowed for weeds.	None-Poor
4-28-70	Forbes Park	15	Burned redtop and timothy.	Annual mowing for hay.	Poor-Fair
5-4-70	Survey	5	Burned weedy grass and forbs, overseeded with I.C.R.R. prairie seed.	Mowed for weeds.	Poor
March 1971	Fuson	58	Oats.	Combined for seed.	Good stand of <u>P.v.</u>
6-24-71	Fuson	10	Soybean stubble disked three times.	Mowed for weeds and combined for redtop.	Excellent stand of <u>P.v.</u> , <u>A.g.</u> , <u>S.n.</u> , and <u>B.c.</u>
March 1971	Loy	20	Oats.	Mowed for stubble hay in '71.	Poor
March 1971	Butler	18	Wheat.	Mowed for hay in '71 and '72.	Poor
7-7-71	Mark 17	5	Oats stubble disked three times.	None.	Good stand of <u>P.v.</u> , <u>A.g.</u> , <u>S.n.</u> , and <u>B.c.</u>
7-8-71	Mark 40	7	Oats stubble disked three times.	None.	Good stand of <u>P.v.</u> , <u>A.g.</u> , <u>S.n.</u> , and <u>B.c.</u>

Table 5--continued.

Table 5.--continued.

Date(s) Seeded	Sanctuary	Acres Seeded	Type of Seeded	Subsequent Management	Results
7-8-71	C. McCormick	6	Burned sod disked four times.	Mowed twice for weeds and partially hayed.	Good stand of <u>P.v.</u> , <u>A.g.</u> , <u>S.n.</u> , and <u>B.c.</u>
7-8-71	C. McCormick	7	Oats stubble disked three times.	Mowed twice for weeds and partially hayed.	Good stand of <u>P.v.</u> , <u>A.g.</u> , <u>S.n.</u> , and <u>B.c.</u>
8-15-72	Forbes Park	8	Wheat stubble disked four times.		Too early to evaluate.
9-1-72	M. Field III	10	Soybean stubble disked four times.		Too early to evaluate.
9-1-72	M. Field III	2.5	Old timothy burned and disked twice.		Too early to evaluate.

^a P.v.--Panicum virgatum (switch grass).
S.n.--Sorghastrum nutans (Indian grass).
A.g.--Andropogon gerardi (big bluestem).
A.s.--Andropogon scoparius (little bluestem).
B.c.--Bouteloua curtipendula (side-oats grama).

will consist of mowing for hay, limited grazing, and periodic burning. Left undisturbed, prairie grasses present a tall, rank, impenetrable layer of cane-like stems and residual cover on the ground. Thus far, prairie chicken nests have not been found in undisturbed stands of prairie grasses and it is highly unlikely that broods make much use of them. Haying and grazing of prairie grasses may be the answer to this problem, but to date it remains unknown how well this type of management will be accepted by local farmers or by the prairie chicken.

THE CIPS PROJECT

A recent development in the area of the Jasper County sanctuaries has the possibility of being of benefit to prairie chickens or of doing irreparable harm. Central Illinois Public Service Company (CIPS) is now purchasing land for an 8,000 acre, steam-powered generating complex and cooling lake. The PGC is directly involved since CIPS wants to purchase 10 or 20 acres of the west end of the Fuson Farm (Fig. 2).

The \$140,000,000 plant will initially generate 600,000 kilowatts and burn approximately 2,000,000 tons of coal annually. Construction is expected to start this fall and continue for 5 years. About 1,000 workers will be employed during the construction phase but only 100 employees will be needed to operate the plant. The power plant will be located in the SW 1/4, SW 1/4 section 24, T 6 N R 8 E, approximately 1 mile northwest of the Fuson Farm. The proposed dam site is in section 10, T 5 N R 8 E, approximately 4 miles Southwest of the Fuson Farm. The spillway elevation will be 505 feet with 512 feet the maximum floodline elevation.

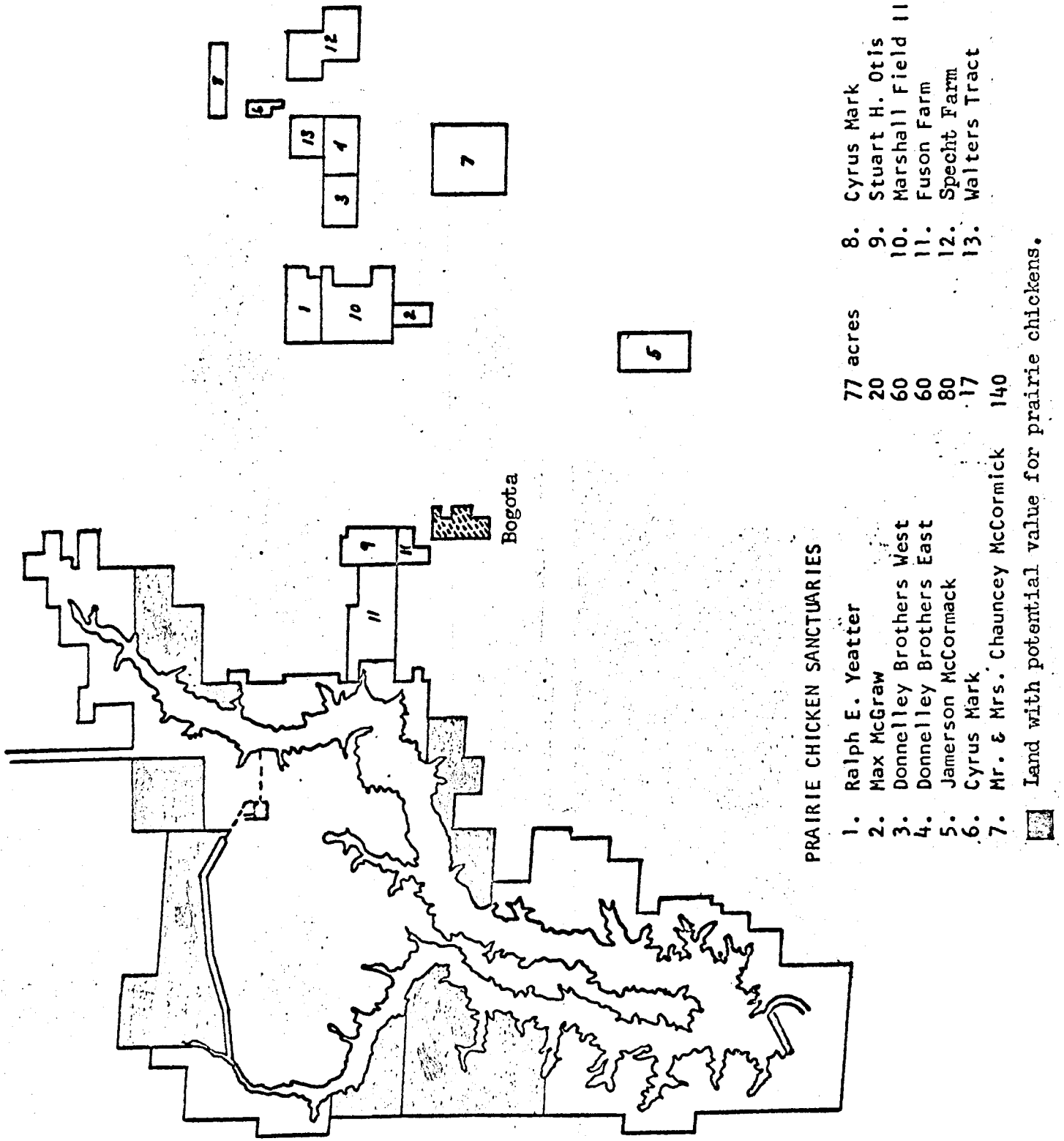
The 10-20 acres involved is primarily upland oak-hickory woodland. This woodland was cut over 15-20 years ago and presently contains some merchantable timber. The agent for CIPS has offered \$200 per acre. It is currently of little value to prairie chickens but may be considered as a future buffer area between the proposed lake and the sanctuary.

The CIPS project could conceivably provide additional acreages for prairie chicken management. There are about 1,000 acres of gray prairie farmland immediately west and northwest of the site of the power plant and several hundred acres along the west edge of the land being acquired that would be suitable for prairie chicken management. At this point, we do not know if an opportunity for management of CIPS land for prairie chickens will be presented.

There are many possible problems associated with this project. Air pollution from burning 2,000,000 tons of high-sulfur Illinois coal annually will probably not be a problem, if the power plant is equipped, as is anticipated, with the latest antipollution devices.

To the best of our knowledge, CIPS will manage the 8,000-acre tract and it will be essentially closed to the public. However, according to the June 17, 1972, edition of the Effingham Daily News, the Jasper County Board and the Embarras Regional Planning and Development Commission are investigating "the possibilities of CIPS allowing recreational sites to

FIG. 2 JASPER COUNTY PRAIRIE CHICKEN SANCTUARIES AND C PROJECT.



be constructed at the power facility lake." These recreational sites could, depending on their nature and location, have detrimental effects on the prairie chicken.

We can anticipate some problems from the influx of 1,000 construction workers into the area. Many of these workers will probably be driving through the sanctuary area daily. Trespassing and poaching on sanctuaries may increase to significant levels.

The high-capacity transmission lines and their steel pylons and guy wires pose another problem. The lines as now proposed (running west and northwest from the power plant) would be no threat to present prairie chicken flocks. However, should CIPS decide to run the transmission lines easterly across the sanctuary area, the lines, towers, and guy wires would be a real hazard to flying prairie chickens and would add an objectionable unaesthetic character to the sanctuary area.

It is entirely feasible that with cooperation, Central Illinois Public Service Company, The Nature Conservancy, the Illinois Department of Conservation, and Illinois prairie chickens could all benefit from this project.

Table 6. Balance sheet for fiscal years ending 6-30-71 and 6-30-72.

	<u>6-30-71</u>	<u>6-30-72</u>
ASSETS		
Cash	\$ 77,005.98	\$ 76,304.61
Land at Cost		
C. McCormick 140 acres (1966)	60,000	60,000
Fuson 163.5 acres (1970)	58,000	47,999 ^a
Donnelley 60 acres (1967)		31,500 ^a
J. McCormack 80 acres (1965)		25,000 ^a
Butler 160 acres (1969)	45,600 ^b	45,600 ^b
Lacey 20 acres (1969)	8,000 ^b	8,000 ^b
Loy 40 acres (1971)	20,000	20,000
Specht 110 acres (1972)		27,500
	<u>\$191,600</u>	<u>\$265,599</u>
TOTAL ASSETS	<u>\$268,605.98</u>	<u>\$341,903.61</u>
LIABILITIES		
Obligations on Land		
C. McCormick contract	\$ 24,000	\$ 18,000
Butler contract	20,520	13,680 ^a
Donsbach contract		9,500 ^a
J. McCormack lease		750 ^a
Lacey 80-acre lease	800	800
	<u>\$ 45,320</u>	<u>\$ 42,730</u>
TOTAL LIABILITIES	<u>\$ 45,320</u>	<u>\$ 42,730</u>
EQUITY	<u>\$223,285.98</u>	<u>\$299,173.61</u>
TOTAL LIABILITIES & EQUITY	<u>\$268,605.98</u>	<u>\$341,903.61</u>

^a Former PCFI land.

^b Estimated value; land was donated.

Table 7. Cash position; income and expenses for fiscal years ending 6-30-71 and 6-30-72.

	<u>1970-71</u>	<u>1971-72</u>
CASH BALANCE 7/1	\$ 5,743.90	\$ 77,005.98
INCOME		
Sale of Land	165,500.00	10,001.00
Government Programs	2,803.45	851.30
Sale of Crops, House Rent and Refunds	7,656.74	4,455.27
Donations for Land	30,116.75	
Other Donations	1,192.80	29,461.63
	<u>\$207,269.74</u>	<u>\$ 49,769.20</u>
Total Income	\$213,013.64	
EXPENSES		
Habitat Management	1,873.76	
Taxes	2,830.12	6.00
Building Operations	412.92	
Land	124,921.37	44,561.20
Interest and Legal Fees	4,974.14	2,671.20
Rent	800.00	800.00
Misc.	246.30	2,432.17
	<u>\$136,058.61</u>	<u>\$ 50,470.57</u>
Total Expenses	\$136,058.61	\$ 50,470.57
CASH BALANCE 6/30	\$ 77,005.98	\$ 76,304.61
Memo - Land Payments 1971-72		
Principal payment - McCormick		6,000.00
Principal payment - Butler		6,840.00
Specht purchase (110 acres)		27,500.00

Table 8. Summary of income from PGC sanctuaries, annual totals for 1966 through 6-30-71, detailed for 7-1-71 through 6-30-72.

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			2,782.22
1971(to 6/30)	All			10,460.19
1972(to 6/30)	All			5,347.57
Jasper County				
	C.			
	McCormick	Federal cost sharing, lime	\$ 86.00	
		Redtop seed	45.36	
	Fuson	Federal Feed Grain Payment	311.81	
		House rent	573.40	
		Wheat	658.10	
		Soybeans	573.46	
		Corn	340.36	
		Insurance & electric refunds	28.00	
	Mark, Field, & Otis	Tax refund	122.93	
Marion County				
	Butler & Lacey 20	Federal Feed Grain Payment	291.65	
	Butler & Lacey 20	Federal Wheat Program	31.53	
	Butler	Hay & pasture	271.42	
		Corn	332.43	
		Oats	52.08	
		Wheat	117.81	
		Redtop seed	642.29	
		Insurance reimbursement	11.69	
	Lacey 80	Federal Feed Grain Payment	146.55	
		Federal Wheat Program	13.76	
	Lacey	Hay	69.50	
		Corn	232.67	
		Soybeans	106.61	
		Redtop seed	206.97	
	Loy	Soybeans	75.19	
				\$ 5,341.57

Table 9. Summary of expenses for PGC sanctuaries, annual totals for fall 1965 through 6-30-71, detailed for 7-1-71 through 6-30-72.

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
1971(to 6/30)	All			11,148.34
1972(to 6/30)	All			8,004.13
Jasper County				
	C.			
	McCormick	Interest	\$ 1,440.00	
		Lime and fertilizer	1,359.07	
		Soil samples	10.50	
		Electricity	30.00	
	Fuson Farm	Lime, fertilizer & herbicide	134.00	
		Termite control	197.00	
		Insurance on bldgs.	106.00	
		Survey of sale parcel	175.95	
		Survey recording	3.00	
		Attorney fee	64.50	
		House repairs	12.71	
	Specht Farm	Attorney fee	38.00	
		Lime & fertilizer	1,372.24	
		Seed	71.55	
	Donnelley (West 60)	Attorney fee	51.00	
	Donnelley (East 60) (Donsbach contract)	PCFI share of 1967 taxes	65.80	
		Attorney fee	25.00	
	Walters 40	Appraisal fee	100.00	
	All sanctuaries	Seed	236.40	
		New disk & seeder parts	554.80	
Marion County				
	Butler	Interest	1,231.20	
		Lime and fertilizer	644.56	
		Insurance (Fire & Wind)	14.00	
	Lacey	Fertilizer	66.85	
				\$ 8,004.13