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ANNUAL PRAIRIE-CHICKEN MANAGEMENT REPORT TO COOPERATORS

January 1985

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Illinois Natural History Survey

Cooperating Agencies:

Illinois Department of Conservation (DOC)
Illinois State Natural History Survey (INHS)
Illinois Chapter, The Nature Conservancy (TNC)
Illinois Nature Preserves Commission (NPC)
Illinois Endangered Species Protection Board (IESPC)

Purpose:

This report reviews the management of prairie-chicken sanctuaries in Jasper and Marion counties for 1984. The intent is to update, inform, and help coordinate the efforts of various agencies, groups, and individuals in (1) preserving native prairie-chickens, (2) benefiting associated grassland wildlife, and (3) restoring native prairie flora on prairie-chicken sanctuaries. We would appreciate comments on the various items in the report, especially the budgets and proposed management initiatives. We plan to prepare reports each January.

POPULATION STATUS REPORT

Prairie-Chickens: The 1984 count of prairie-chicken cocks on booming grounds totaled 55 for Jasper County and 74 for Marion County, decreases of 8% and 20%, respectively from 1983. Despite the declines, densities of Illinois prairie-chickens based on birds per area of managed grassland, are probably highest in the range of the species. No prairie-chickens were found near Mt. Erie in Wayne County this past spring, so all of Illinois' remnant prairie-chickens

probably occur only on or near the managed sanctuaries. More details on population status were given in the previous report (Westemeler 1984c).

In 1984 in Jasper County, hatch success (71%), average clutch size (13.1), and the average number of fertile eggs per clutch (12.4) were among the highest on record, but egg success (75.7%) was the lowest on record due to interference by pheasants. Despite the problems with pheasants, we anticipate 75 ± 9 prairie-chicken cocks on the booming grounds in Jasper County in spring 1985, based on the 17 hatched nests (of 25 total) found last summer.

Ring-necked Pheasants: We estimated 24 crowing cock pheasants on the 32-section area at Bogota this past spring, a 21% drop from 1983. An all-time high of 26 pheasant nests was found during the nest study, but 6 of these nests were found inadvertently or with the use of a cable-chain drag on sanctuaries where prairie-chickens were not present--possibly due to interactions with pheasants. Also, at least 18 pheasant eggs were found in 7 prairie-chicken nests. The parasitism rate of 28% was down in 1984, but not significantly lower than the 43% found in 1983.

Bobwhite Quail: A density of 0.22 nest per 10 acres was found during the nest study, the second highest density in 7 years. However, this density is far below the 0.44 nest per 10 acres averaged over the past 19 years at Bogota.

Upland Sandpiper: The spring of 1984 was the second year an upland sandpiper census was conducted on the sanctuaries. Seven pairs were

found on the Jasper County sanctuaries but only four individuals were found in Marion County. However, the census in Marion County was not completed due to time limitations.

Mallard: Since 1981 the mallard has become a regular nester on the prairie-chicken sanctuaries. Five mallard nests were found on or near the sanctuaries in Jasper County. One mallard nest was also parasitized by a pheasant.

Other Birds: The following birds experienced increases in nest density since 1983 on the Jasper County sanctuaries: mourning dove (ground nests) (50%), eastern meadowlark (120%), red-winged blackbird (16%), dickcissel (467%). No nests were found for the sedge wren, field sparrow, grasshopper sparrow and American goldfinch, but adult birds were observed.

Mammals: Densities of cottontail nests remain low (0.09 nest per 10 acres) in Jasper County. The big drop was in the density of small mammal nests from 53.24 nests per acre in 1983 to 1.40 nests per acre in 1984. The low abundance of small mammals evidently explains the absence of short-eared owls and the scarcity of harriers on the sanctuaries during the winter of 1983-84.

HIGHLIGHTS OF 1984

Booming Ground Visitation Program: A total of 84 people from 12 different organizations viewed the prairie-chicken courtship during the spring of 1984.

Sanctuary Manager To Be Hired: The DOC announced that funds from the Illinois Non-game Wildlife Conservation Fund will be used to hire a full-time sanctuary manager some time in the winter of 1985. We applaud the DOC's efforts in taking this step to address the many management needs for prairie-chickens and other grassland wildlife.

New DOC Leases: Bids were accepted for DOC leases on the state owned prairie-chicken sanctuaries in Jasper County for the 1985 and 1986 cropping seasons. The results of the competitive bidding will produce a surprising \$5,200.00 for each of the next two crop years, a four-fold increase over the previous leases. The payments on the leases will be made in the form of fencing supplies, gravel, herbicides, grass seed, and other improvements on the sanctuaries. Although the increased cash bids will produce a reasonable and long-overdue, fair return to the DOC, one long-time lessee who was outbid, became highly upset--a disadvantage of the system.

New Sanctuary Acquired in Marion County: TNC acquired the 40-acre Soldner Tract for \$46,000. Full mineral rights were donated to TNC as consideration for naming the tract the "Herman and Iris Soldner Prairie Chicken Sanctuary." (A major oil boom underway in this area is even more significant than the one at Bogota.) The Soldner Sanctuary is located on the south side of the Loy 100-acre tract and will provide not only additional habitat for the prairie-chicken, but a brushy waterway on the unit contains a variety of native prairie plants. Much work needs to be done to salvage and expand the remnant patches of prairie.

New Equipment Purchased By TNC: A rotary mower and a front-end loader were purchased by TNC. The equipment has already resulted in numerous improvements on sanctuaries and increased management capabilities.

WORK DONE IN 1984 AND PLANNED FOR 1985

Management activities accomplished in 1984 and those planned for 1985 are listed in Table 1. Much of what was accomplished this past year was due to the assistance of capable summer help, notably Scott A. Simpson and Terry L. Esker.

Sharecropping: Our crop-rotation system on the sanctuaries suffered a set back with no wheat planted in fall 1984 due to the delay in crop harvests. The result will be that many planned grass seedings will be delayed for up to 1 year. We will attempt to prepare some bean stubble fields for new grass seeding over the next two springs, but we are limited in the acreage we can cover with our small equipment, limited mobility, and limited manpower. Wheat is an important stage in our cover-rotation strategy, because red clover is over-seeded on the wheat, hayed late to avoid nests and broods, disked, seeded, and rolled by tenants. Red clover is only fair as nest cover for prairie-chickens, but it provides excellent brood habitat. Nitrification of the soil for subsequent grass meadows is an added benefit of red clover.

Woodland Reduction: The 2nd of 3 phases of woody cover reduction on the C. McCormick Sanctuary is almost complete, woody vegetation was greatly reduced on the east boundary of the Galbreath Sanctuary, and further

reductions were made on the Walter's tract. Many sanctuaries need additional reduction of woodlands to maximize open space for prairie-chickens. Our strategy is to lower the height of various fencerows and woodlots, but not to totally remove woody vegetation from the sanctuaries. We hope that leaving numerous, dense, low brush piles surrounded by blackberry brambles and forbs will enhance habitat for rabbits, bobwhite quail, field sparrows, brown thrashers, etc. Reduction of raptor perches may also be an important consideration in upgrading sanctuary habitat for grassland wildlife.

Rotary Mowing: The 7-ft Bush-Hog mower purchased by TNC greatly improved our mowing efficiency and resulted in some savings of gasoline. In the past, mowing 20 acres in a day without a breakdown was an accomplishment. Now we can mow 30 acres per day with little difficulty. The mower plus our tractor drawbars were specially modified by the INHS Operations group to mow high. The importance of high mowing and proper structure of vegetation was described in 3 recent publications (Westemeier and Buhnerkempe 1983, Buhnerkempe et al. 1984, and Westemeier 1984a). Acquisition of an adequate tractor appears to be the major problem for accomplishing rotary mowing operations. This past year we experienced more than 3 weeks of down time due to tractor repairs.

Prairie Restoration: This year we attempted to harvest prairie grass seed on the 40-acre Walter's Sanctuary in Jasper County, but ground conditions and logistic problems prevented us from doing so. The seed was to be used for a prairie restoration effort on the sanctuaries in 1985. We expect to try again in the fall of 1985.

FINANCES

INC - CY 1984 & 1985: Table 2 gives a summary of income and expenses incurred by TNC. Despite the poor crop year experienced in this part of the state, we did much better than the predicted deficit of \$4,500.00 in the previous report (Westemeier 1984c). Income off TNC sanctuaries covered taxes, cropping expenses, management expenses, the Perbix lease, and the equipment purchases.

Table 3 contains the estimated revenue off TNC sanctuaries for 1985 and a budget proposal covering 75% of the expected gross income. A surplus of over \$4,000.00 probably will be available at the end of next year, unless a major disaster strikes. We anticipate that some of the surplus can be spent on one of the new management initiatives described below.

DOC - FY 1985 & 1986: Table 4 lists income and expenses as of 20 January 1985 from management of prairie-chicken sanctuaries owned by the DOC. It may not be realistic to work up a detailed budget until the sanctuary manager is hired.

PROPOSED MANAGEMENT INITIATIVES

The hiring of a full-time sanctuary manager in the winter of 1985 will be a vital step in sustaining an adequate management program on the prairie-chicken sanctuaries in Illinois. However, without the addition of new equipment and funding of major management projects we can expect only modest gains in optimizing habitat for prairie-chickens and other grassland

wildlife. If present equipment is not supplemented by new equipment, the manager will lose effectiveness each year. The following is a list of initiatives that are currently not part of the annual budgets, but are those that need consideration:

1. Equipment Trailer Purchase: One of the major problems we are currently faced with is getting specialized equipment back and forth between the two sanctuary systems. The problem is becoming more evident as tenants (undergoing financial stress) are less willing to do extra management functions.

Estimated Cost = \$7,000

2. Tractor Purchase: The DOC's IH544 is currently 15 years old and in need of frequent expensive repairs, as is evident by the bills accumulated this year (Table 4). The PTO has sustained much wear over the years. Because over half of the hours accumulated each year on the tractor involve the PTO, we can expect increasingly higher repair bills and long delays in performing management operations. Repairs on the tractor in 1984 cost about \$500 plus a 3 week delay in rotary-mowing operations. The manager will also need a tractor with proper safety equipment to work on the type of terrains we are currently managing. Safety equipment for the current tractor is no longer available.

Estimated Cost = \$22,000 (New)

\$10,000 (Used)

3. Air Compressor Purchase: An old dental-office compressor is not meeting our needs and will be lucky to last a couple more years. A new

compressor is important in maintaining tires, blowing out radiators, air cleaners, etc.

Estimated Cost = \$500

4. Post-Hole Auger Purchase: An extensive fencing program is needed to implement grazing on the sanctuaries and to help control trespass. It is difficult to imagine a post-hole auger not adding to the managers efficiency when one considers the many miles of fencing needed on the sanctuaries.

Estimated Cost = \$500

5. Butler Landscaping Project: We need to have a house foundation, old cistern, and several buildings torn down along with reexcavating a pond. These old structures are dangerous and we may be liable for accidents. The pond needs to be improved, since it is the water source for the pasture system on the Butler Sanctuary. Currently, this is our only significant grazing operation on any sanctuary. The grazing approach to providing nest-brood habitat needs considerable research.

6. Perbix Landscaping Project: An old barn is in need of removal on the Perbix Sanctuary in Marion County.

7. Lacey-Loy Landscaping Project: The waterway system on the Lacey Sanctuary is undergoing severe erosion in places and needs major repairs. An old building site on the adjacent Loy 40 also needs to be renovated.

Other management initiatives are currently being compiled up and will be added to future annual reports. If funding becomes available for one or more of the initiatives, we will provide the additional details at that time.

SOME RECENT PUBLICATIONS

- Westemeler, R. L. and J. E. Buhnerkempe. 1983. Responses of nesting wildlife to prairie grass management on prairie chicken sanctuaries in Illinois. Pages 39-46 In R. Brewer, ed., Proceedings of the Eighth North American Prairie Conference. Western Michigan University, Kalamazoo. 176pp.
- Buhnerkempe, J. E. and R. L. Westemeler. 1984. Northern Harrier nests on a Prairie-Chicken Sanctuary in Jasper County. Illinois Audubon Bulletin 208:28-29.
- Buhnerkempe, J. E. and R. L. Westemeler. 1984. Nest-sites of turkey vultures in buildings in southeastern Illinois. Wilson Bulletin 96:495-496.
- Buhnerkempe, J. E., W. R. Edwards, D. R. Vance, and R. L. Westemeler. 1984. Effects of residual vegetation on prairie-chicken nest placement and success. Wildlife Society Bulletin 12:382-386.
- Westemeler, R. L. 1984a. Responses and impact by pheasants on prairie-chicken sanctuaries in Illinois: a synopsis. Pages 117-122 in R. T. Dumke, R. G. Stiehl, and R. B. Kahl, eds. Perdix III: Partridge/Ring-necked Pheasant Workshop Proceedings. Wis. Dept. Nat. Resour., Madison. 203pp.
- Westemeler, R. L. 1984b. Prairie chicken management--cycles, densities, and thresholds. The Illinois Natural History Survey Reports. No. 235.

Westemeier, R. L. 1984c. Annual prairie-chicken management report to cooperators, July 1984. Mimeo. 29pp.

Copies of these publications are available upon request from the Section of Wildlife Research, State Natural History Survey, Natural Resources Building, 607 E. Peabody, Champaign, IL 61820.

PUBLICATIONS PENDING

Westemeier, R. L. In press. History of prairie-chickens and their management in Illinois. Selected Proceedings of the Fourth Annual Illinois History Symposium, Springfield. Dec. 2-3, 1983.

Buhnerkempe, J. E. and R. L. Westemeier. Under review. Breeding biology and habitat of upland sandpipers on prairie-chicken sanctuaries in Illinois.

Westemeier, R. L. and J. E. Buhnerkempe. Under review. Parasitism of prairie-chicken nests by pheasants in Illinois.

Table 1. Management accomplished in 1984 and planned for 1985 on prairie-chicken sanctuaries in Jasper and Marion counties.

| Management | INHS Managed (1,761 acres) | | | | | | DOC Managed (200 a) (CIPS owned) | |
|------------------------|----------------------------|------|-----------|------|-------|------|-------------------------------------|------|
| | IDOC owned | | TNC owned | | Total | | 1984 | 1985 |
| | 1984 | 1985 | 1984 | 1985 | 1984 | 1985 | | |
| Acres | | | | | | | | |
| Cover seedings | 40 | 0 | 58 | 23 | 98 | 23 | 2 | 10 |
| Grass seed harv. | 167 | 199 | 453 | 519 | 620 | 718 | 0 | 0 |
| Rotary mowing | 130 | 144 | 160 | 182 | 290 | 326 | 0 | 0 |
| Delayed hay harv. | 84 | 42 | 92 | 78 | 126 | 120 | 25 | 15 |
| Light grazing | 6 | 6 | 42 | 42 | 48 | 48 | 25 | 45 |
| Grain cropping | 116 | 87 | 298 | 170 | 414 | 267 | 0 | 0 |
| Prescr. burning | 4 | 40 | 55 | 73 | 59 | 113 | 0 | 40 |
| Firelanes (miles) | 1.3 | 3.0 | 2.1 | 7.0 | 3.4 | 10.0 | 0 | 0 |
| Man-hrs. (est.) | | | | | | | | |
| Woods reduction | 30 | 60 | 230 | 460 | 260 | 520 | 0 | 40 |
| Prairie restor. | 30 | 80 | 42 | 180 | 72 | 260 | 0 | 0 |
| Lease work | 180 | 120 | 80 | 80 | 260 | 200 | 30 | 30 |
| Public visitation | 80 | 120 | 80 | 120 | 160 | 240 | 0 | 0 |
| Predator control | 25 | 25 | 12 | 25 | 37 | 50 | 0 | 0 |
| Pheasant control | 0 | 50 | 90 | 50 | 90 | 100 | 0 | 0 |
| Gen. maint. | 130 | 200 | 140 | 220 | 270 | 420 | 0 | 0 |

Table 2. Receipts and disbursements for 1 January to 31 December 1984 including late grain payments from management of prairie-chicken sanctuaries owned or leased by The Nature Conservancy.

Receipts

| | |
|---------------------|-------------|
| Soybeans | \$ 8,531.90 |
| Grass Seed | 7,468.08 |
| Wheat | 2,800.52 |
| Misc. Income | 715.00 |
| Corn | 376.29 |
| Government Programs | 43.65 |

Disbursements

| | | |
|------------------------------|--|-------------|
| Taxes | | \$ 8,171.98 |
| Equipment (mower and loader) | | 6,500.00 |
| Fert. & Herbicides | | 2,500.94 |
| Lease (Perbix) | | 1,500.00 |
| Equipment repairs | | 781.70 |
| Seed (grass and legume) | | 441.00 |
| Misc. Expenses | | 187.94 |
| Petty Cash | | 100.00 |

| | | |
|--------|--------------------|--------------------|
| Totals | <u>\$19,935.44</u> | <u>\$20,183.56</u> |
|--------|--------------------|--------------------|

| | | |
|---------|--|-----------------|
| Balance | | <u>- 248.12</u> |
|---------|--|-----------------|

Table 3. Estimated revenue and expenses for the period 1 January to 31 December 1985 for the management of prairie-chicken sanctuaries owned or leased by The Nature Conservancy. The budgeting of expenses is based on 75% of the gross estimated revenue.

Estimated Revenue

| | |
|---------------------|-------------|
| Soybeans | \$ 9,350.00 |
| Grass seed | 8,242.90 |
| Misc. Income | 200.00 |
| Government Programs | 35.00 |

Estimated Expenses

| | | |
|-----------------------|--|-------------|
| Taxes | | \$ 8,621.98 |
| Fert. & Herbicide | | 2,241.45 |
| Lease (Perbix) | | 1,500.00 |
| Seed (grass & legume) | | 300.00 |
| Lumber | | 200.00 |
| Equipment Repairs | | 200.00 |
| Misc. Expenses | | 200.00 |
| Petty Cash | | 100.00 |

| | | |
|-------|-------------|-------------|
| Total | \$17,817.90 | \$13,363.43 |
|-------|-------------|-------------|

| | | |
|------------------|--|-------------|
| Expected Surplus | | \$ 4,454.47 |
|------------------|--|-------------|

Table 4. Revenue and disbursements as of 24 January 1985 for
 FY 85 from management of prairie-chicken sanctuaries
 owned by the Department of Conservation.

| | | |
|-------------------------------------|-----------|-------------|
| <u>Revenue</u> (Lease #, Sanctuary) | | |
| #494 Yeatter, Field, McGraw | \$ 756.00 | |
| <u>Disbursements</u> | | |
| Equipment repairs | | \$ 995.54 |
| Lime | | 756.00 |
| Gasoline & diesel | | 538.74 |
| Building maint. & Imprmts. | | 259.98 |
| Electricity | | 200.00 |
| LP Gas | | 200.00 |
| Equipment (tools) | | 41.25 |
| | <hr/> | <hr/> |
| Totals | \$ 756.00 | \$ 2,991.51 |
| | | <hr/> |
| Expenses after Lease Income | | \$ 2,235.51 |
