



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Recreational Leases as Means to Increase Landowner Income

By Phillip R. Eberle and Russ Wallace

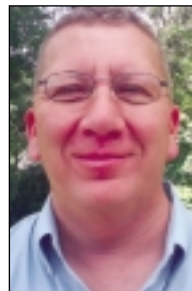
Abstract

Recreational leases for hunting, fishing, and wildlife watching provide a means by which landowners can supplement their income from land ownership. Illinois professional farm managers were surveyed regarding recreational leases held by their clients. Information was collected on lease rates, recreational uses, wildlife types, land management practices, and property characteristics. Results indicated that 38 percent of managers had recreational leases on about 6 percent of their managed properties. Lease rates ranged from \$1-75 per acre. Results of a hedonic lease rate model indicated adoption of land management practices and location positively affected lease rates.

Introduction

A recent trend in Illinois is an increase in property values as a result of properties purchased for recreational uses (ISPFMRA, 2006). Recreational buyers account for 10 percent of Illinois farmland buyers according to the annual survey by Illinois Society of Professional Farm Managers and Rural Appraisers (ISPFMRA, 2006, p. 51). Recreational buyers purchase farmland for recreational uses such as hunting, fishing, and wildlife watching. Prices for farmland being sold for recreational uses are increasing across the state. For example, Western Illinois reported recreational farms selling for \$1,800-3,000 per acre in 2005 compared to \$1,200-2,000 per acre in 2002 (ISPFMRA, 2006, p. 18). North Central Illinois reported a 10 percent increase in recreational land prices from 2004 to 2005 (ISPFMRA 2006, p. 23). Southern Illinois reported a 14 percent increase in recreational land values from 2004 to 2005 (ISPFMRA, 2006, p. 50). Eight of the ten regions in the ISPFMRA survey reported a strong demand for recreational tracts. Only Northeast and Central Illinois did not report activity for recreational sales.

One means for farmers and landowners to capture the increase in wealth from rising land values as a result of strong recreational demand is to sell the property to a recreational land buyer. An alternative to selling farmland with desirable recreational attributes is to lease the land for recreational uses. Recreational leases for hunting, fishing, or wildlife watching provide a means by which rural Illinois landowners can supplement income from their land and maintain land ownership.



Phillip R. Eberle is an associate professor and **Russ Wallace** is a former research assistant in the Department of Agribusiness Economics, Southern Illinois University Carbondale, Carbondale, Illinois. This research was sponsored by the State of Illinois through a grant from the Illinois Council on Food and Agricultural Research.

Note: An earlier version of this paper was contributed to the 16th International Farm Management Congress held in Cork, Ireland, July 15-20, 2007. ISBN 978-92-990038-6-2 on www.ifmaonline.org.

The opportunity exists for rural landowners to increase income through recreational leases by capturing more of the annual recreational dollars spent in Illinois. The 2001 National Survey of Fishing, Hunting and Wildlife-Associated Recreation reported that Illinois in 2001 had 1.2 million anglers spending \$598 million, 310 thousand hunters spending \$450 million, and 2.6 million wildlife-watching participants spending \$596 million (U.S Dept. of Interior, Fish & Wildlife Service – Illinois, 2003, p.5).

A minority of rural landowners have recreational leases. Although not inclusive of all rural landowners, the 2002 Census of Agriculture indicated that only 606 of the 73,027 farms in Illinois reported receiving income from recreational services (USDA-NASS, 2004, Table 7). Likely reasons why more landowners do not lease is a lack of information about appropriate lease rates for the type of habitat owned, length of lease to offer, lease associated expenses (brokerage fees, advertising, land management changes, and habitat enhancement expenses), as well as concerns about safety, liability, and damage to crops, timber, and other property. To illustrate the variability of leasing rates and terms consider the asking lease rates listed by a hunting lease broker. Annual leases range from \$10-40 per acre. Weekly leases range from \$16-27 per acre. Deer season-only leases range from \$18.75-31.25 per acre. A spring turkey hunting lease lists for \$5.50 per acre (Smith, 2006). The size of those properties ranged from 60 to 500 acres. This range of lease types and lease rates indicate a range of leasing opportunities for landowners. This also indicates why a landowner without prior recreational leasing experience might be reluctant to lease without knowing what type of lease, how much to charge, or what other expenses will be incurred. This reluctance to lease suggests a role for professional farm managers to provide recreational lease services to landowners.

Objective

The purpose of this study was to provide information to landowners, professional farm managers, and rural property appraisers about the recreational lease market in Illinois in order to enhance income and land use decisions, and improve valuation of recreational properties. The specific objectives were: (1) to determine the extent of recreational leasing activity among Illinois Professional Farm Managers (2) to determine the

lease terms and rents for recreational leases in Illinois; (3) to determine the land management practices, land characteristics, and other factors that affect recreational lease rates; and (4) to identify factors that deter landowners from offering recreational leases and problems encountered by those with recreational leases.

Research Method

The means to accomplish the first two objectives were to survey professional farm managers about the extent of recreational leasing, terms of leases, lease rates, land management practices, and characteristics about the property. The third objective was accomplished by a statistical model to estimate recreational lease rates as a function of land management practices, land characteristics, location factors, and other socioeconomic factors. The fourth objective was also accomplished by the survey of professional farm managers with and without recreational leases.

Survey

Previous recreational lease studies (McCurdy & Echelberger 1968; Baen, 1997; Hussain et al., 2005; and Buller et al., 2006) were reviewed prior to development of our survey instrument. The survey procedure outlined by Dillman (2000) was followed. The survey was sent to members of the Illinois Society of Professional Farm Managers and Rural Appraisers (ISPFMRA). An Internet based survey by QuestionPro.com (2006) was used to collect survey responses. Contact information consisted of current e-mail addresses from the 2006 ISPFMRA membership roster. The survey targeted Accredited Farm Managers (AFM) whose accreditation was conferred by the American Society of Farm Managers and Rural Appraisers (ASFMRA) and who manage real property within the state of Illinois. The initial e-mailing also included individuals with the Accredited Rural Appraiser (ARA) designation in case they also managed land.

The membership list consisted of 277 contacts, of which approximately 133 were designated AFMs. The initial survey was distributed on December 4, 2006 with three reminders occurring at approximately twelve day intervals. The survey was constructed in a manner that contained both specific and open ended responses to various questions. Questions were posed to managers who managed property with recreational leases and those who managed property without recreational

leases. Managers with recreational leases were asked questions that inquired about the overall terms, conditions, physical makeup of property, and land management practices. Managers without recreational leases were asked questions that provided insight to reasons and conditions why recreational leases may or may not be a viable option.

Responses were sorted by managers with and without recreational leases. Responses were grouped into five regions (Figure 1) within the state of Illinois (Region 1 Northwest, Region 2 Northeast, Region 3 East Central, Region 4 West Central, and Region 5 South) as defined by the Illinois Department of Natural Resource (IDNR, 2007). The criterion to assign a response to a region was based on which region contained the majority of the counties containing a respondent's managed properties. The objective for grouping responses into regions was to investigate the correlation between regions and recreational leasing and lease rates. Descriptive statistics were prepared by QuestionPro.com (2006) and SPSS for Windows (2004).

Hedonic lease rate model

A hedonic lease rate model was developed to determine the characteristics impacting lease rates. Hedonic models have been used in previous real estate valuation models because of non-uniform nature of each parcel of real estate and in-lease rate studies (Baen, 1997; Hussain et al., 2005; and Buller et al., 2006). A hedonic model assumes that there is a market for each characteristic of a property. The model developed for this analysis decomposed the contribution to the lease rate by each of the explanatory variables included in the model. The estimated model in general form is:

Lease rates per acre = f (regional location, size of tract, land composition, term of lease, land management practices, superior leases, and quality of wildlife).

Lease rate per acre is the dependent variable. Regional location variables refer to the five state regions defined by IDNR (Figure 1). Region 4 West Central Illinois was hypothesized to have a positive impact because of its reputation for fee hunting and large deer. Size of leased tract was hypothesized to have an inverse impact on lease rate per acre assuming less competition for larger tracts. Land composition variables capture the land

mix in terms of percent woods, cropland, etc. Properties with woods or a mixture of land classes were hypothesized to have greater recreational value. Term of lease refers to annual or seasonal leases. It was hypothesized that having recreational rights for the year would require a higher lease rate. Land management practices refer to establishing feed plots, ponds, or other practices that enhance wildlife. Landowners who adopt such land management practices were hypothesized to add to lease rates. Superior leases are those in which recreational lease rights take precedence over the crop lease rights. Superior leases were hypothesized to add value because the recreational tenant has preferential rights over the crop tenant. Quality of wildlife refers to the past presence of trophy wildlife on the property. Properties with a past record of trophy animals were hypothesized to have higher lease rates. The model was estimated by linear regression using SPSS for Windows (2004).

Results

The survey completion rate was 39 percent – 52 farm managers completed the survey out of 133 AFMs listed in the membership roster. A follow-up telephone survey was made of one-half (40 members) of the professional farm managers who did not respond to the e-mail survey about three months following the e-mail survey. Nine of the forty members did not respond to our follow-up survey because of bad phone numbers (4), chose not to participate (1), or were no longer managing farms in Illinois (4). Of the 31 active members who were phoned, 18 recalled receiving the survey and 13 did not. Of those who recalled receiving the survey, three attempted to answer the survey of which two thought they did not have enough experience, and one thought he had completed the survey. The remainder who recalled receiving the survey believed the survey was not relevant to them. Of the 31 active members contacted only 3 had clients with recreational leases, but indicated either they did not manage the recreational lease or recreation leasing was a new experience for them.

Respondents who completed the e-mail survey managed property in all five IDNR regions. The majority of respondents were from Region 3 East Central with 47 percent, followed by Region 4 West Central (26%), Region 1 Northwest (16%), Region 5 South (4%), and Region 2 Northeast (2%). Of the 52 respondents, 20 managers had clients with recreational leases. Those 20 managers were from Regions 1, 3, and 4 with 45

percent from Region 4. This was not surprising because as previously stated Region 4 is noted for deer hunting and fee hunting. The respondents managed a total of 585,000 acres, of which 18,300 acres (approximately 3%) were under some form of recreational lease. Recreational leases accounted for six percent of the total managed area for those twenty managers with recreational leases. The 20 managers with recreational leases averaged 3.6 recreational leases per manager. The number of leases per manager ranged from one to fourteen.

Terms and characteristics of recreational leases

The average tract size for a recreational lease was 960 acres, and the median tract size was 400 acres. The leased tracts ranged in size from 20 acres to a high of 4,000 acres. The managers indicated that 83 percent of the lease agreements were written. Managers were asked to indicate the annual recreational lease income per acre for low-, median-, and high-valued recreational properties. A definition of what is a low-, median-, or high-valued recreational properties was not provided and left to the interpretation of the responder. They were not asked to report the actual lease income received by clients. Conversations with managers with leasing experience prior to developing the survey instrument indicated that they had properties which receive high lease income and properties which receive low lease income, but that the reasons for differences in leasing income varied. Location differences and land composition differences were some of the reasons provided to explain lease income differences. Conversations with outfitters indicated some hunters pay more for aesthetics than a good hunting site. The respondents were also instructed that if lease income per acre is uniform in their area to report lease income as median-valued property. The average indicated value per acre for low-, median-, and high-valued recreational properties was respectively, \$8, \$16, and \$31. Lease income for low-valued recreational property ranged between \$1-15 per acre; lease income for median-valued recreational property ranged between \$5-30 per acre; and lease income for high-valued recreational property ranged between \$15-75 per acre.

Managers were asked to specify how the leasing fee was quoted with an open ended response. The most common response was "\$ per acre" (45%) followed by "\$ per season" (35%). Other responses were indicated as "\$ per farm" or stated that they use a mixture of quotes. Another question asked to specifically

indicate percent of leases of a given term. Managers indicated that 65 percent of the leases were contracted for a year while 35 percent were contracted for a season. Of the season leases, 88 percent were for deer hunting season.

Managers were asked if the recreational leases were superior, that is, whether the recreational lease superseded a crop lease. Twenty-five percent of the managers indicated all their leases were superior. The remainder did not respond to that question.

Clientele

Questions were asked about the leaseholders and the primary use of recreational property. The leaseholders were 55 percent individuals, 27 percent outfitters, 14 percent hunting clubs, and 4 percent classified as "other." Recreational leases were acquired primarily for deer hunting (75%), followed by small game (8%), turkey hunting (6%), goose and duck hunting (6%), and fishing (1%). There were no leases for bird watching, 4-wheeling, nor snowmobiling.

Land mix and land management practices

Questions on land mix, land management practices, and other services provided by the landlord were asked. The managers were asked to describe the typical composition of a recreationally leased property as a percentage of alternative land classes. The mean land mix for a typical lease consisted of 36 percent cropland, 5 percent pasture, 55 percentage woods, 1 percentage wetlands, and 2 percent streams and ponds. The range of responses describing a typical land mix varied. Woods, for example, ranged from zero to one-hundred percent. Land management practices enhancing wildlife habitat were practiced on 55 percent of the leased properties. Those practices included food plots (42%), permanent cover (27%), mowing (24%), establishing trails (15%), and developing ponds (4%). Additional services provided by landowners included the posting of property hunting signs (71%) and the provision of duck and goose blinds (24%). Managers indicated that 71 percent of the landowners with recreational leases carried additional liability insurance. Added coverage ranged from \$100,000-5,000,000.

Hedonic lease rate model results

The small number of managers with recreational leases and incomplete responses limited the number of explanatory

variables in the model. Two models were estimated with alternative dependent variables: the median-valued recreational property lease income and the high-valued recreational lease income.

The explanatory variables were: Region 4, a binary variable separating Region 4 from Regions 1 and 3; Size of Tract in acres, the midpoint of the range in size indicated by managers for median- and high-valued recreational properties; Cropland, the percent of cropland in a typical leased tract in manager's area; Woods, the percent of woodlands in a typical leased tract; Superior Lease, the percent of recreational leases held by manager which are superior to cropland leases (this was essentially a discrete variable in that managers either indicated 100% of their leases were superior, indicated 0%, or no response which was assumed to be 0%); Land Management Practices, the percent of landowners with leases adopting land management practices to enhance habitat; Annual Leases, the percent of leases managed that are annual; and Trophy Deer, the percent of leases as reported by the manager which previously harvested trophy deer based on Boone and Crocket or Pope and Young scores. Note that other than the size of tract variable, the other explanatory variables are the same for each model.

The results (Table 1) for the median-valued property lease rate model indicated that percentage of woods, annual leases, and trophy deer had a positive impact on lease rates and were significant at a 10 percent probability. Superior leases also had a positive impact on lease rates and was significant at a five percent probability. For the high-valued lease rate model location in Region 4, percentages of cropland and of land management practices had positive impacts on lease rates and were significant at 10 percent probability. The positive impact of the percent of cropland on lease rates is somewhat surprising. A possible explanation is that if there is excellent cropland near a good hunting site, the landowner may require a higher recreational lease rate to compensate for possible negative impacts on the cropping system.

Reasons for not having recreational leases and problems associated with leases

For those 32 respondents without recreational leases, 65 percent responded that they foresee no recreational leases for their clients within the next five years. Reasons checked for no

foreseeable leases included: property not suited for recreational purposes (61%); perceived problems (liability, damage to property, and conflicts with farm tenant) outweigh benefits of lease (39%); landowner and manager were not knowledgeable about recreational leases (13%); and insufficient demand for recreational leases (10%).

Those managers with recreational leases were asked to rate potential problems as "no problem," "minor problem," or "major problem." The items rated were boundary disputes, vandalism or property damage, trespassing or poaching, lease violations, Illinois hunting law violations, collecting rent, and insurance. Trespassing or poaching was indicated as the highest rated problem at 53 percent indicating a minor problem and 5 percent indicating a major problem (Table 2). Trespassing or poaching was the only item that more managers indicated as a minor or major problem than no problem. Trespassing or poaching was followed by boundary disputes, farm tenant conflicts, vandalism or property damage, leasing, collecting rent, and hunting law violations. One respondent also commented, "Recreational leases can consume a huge amount of time relative to the income generated both to the client and to the management firm."

Summary and Conclusions

Our first objective was to determine the extent of recreational leasing activity in Illinois professional farm managers. From our results, 38 percent of the managers had property with recreational leases. For those managers without recreational leases, 35 percent indicated that they would likely have recreational leases in the next 5 years. If this expectation is fulfilled, approximately 60 percent of the managers could have recreational leases. This would result in approximately an additional 12,500 acres with recreational leases if all of those managers maintained 6 percent of their managed land area in recreational leases.

Our second objective was to determine lease terms and rents for recreational leases in Illinois. Average lease rates ranged from \$8-31 per acre depending upon the quality of the recreational property. Cash rents for cropland of average productivity in Western Illinois ranged from \$100-140 per acre in 2005 (ISPMRA, 2006, p. 17). Thus, the addition of recreational lease income could increase lease income from six to thirty-one

percent. This assumes that adding the recreational lease does not diminish the value of the crop lease. This study did not explore the possibility that crop tenants would be less likely to lease property with a recreational lease that might interfere with farming operations.

Our third objective was to determine land management practices, land characteristics, and other factors that affect recreational lease rates. Our small number of observations and variation in lease terms and property characteristics limits a definitive statement on factors that impact lease rates. Our results suggest that location, cropland percent, and adoption of land management practices to enhance habitat had positive impacts on lease rates for high-valued recreational property. Locations in Region 4 added a little more than \$15 per acre to lease rates. If land management practices were 100 percent adopted (rather than 0%), lease rates would increase about \$20 per acre. For median-valued property, an increase from zero percent woods to one-hundred percent woods would result in a little over \$12 per acre increase in lease rates. Likewise, a superior lease would add \$12 an acre, annual leases would add \$10 per acre, and trophy deer would add \$16 per acre. In each of these cases, those results compare the extremes from zero to one-hundred percent.

Our final objective was to identify reasons for not having recreational leases and problems of leasing. Trespassing or poaching, boundary disputes, and farm tenant conflicts were the highest rated problems. One manager also commented that recreational leases were more time consuming for the income earned for client or manager.

We conclude that opportunities for recreational leasing provide a means to increase landowner income and provide professional farm managers the opportunity to provide additional services to their landowner clients. We also believe that this study provides useful information to rural property appraisers to increase their understanding of the recreational leasing market. Finally, there is need for further research to extract information about recreational leasing on a per lease basis rather than the per manager basis which was the unit of focus of this study. A per lease study would provide a more definitive statement as to the determinants of lease rates.

References

- Baen, J. S. (1997). The Growing Importance and Value Implications of Recreational Hunting Leases to Agricultural Land Investors. *Journal of Real Estate Research*, 14 (3), 399-414.
- Buller, V. M., Hudons, M. D., Parkhurst, G. M. Parkhurst, & Whittington, A. F. (2006). The Impact of Hunting Package Attributes on Hunting Package in Mississippi. *Mississippi State University Dept. Agricultural Economics Res. Report 2006-01*.
- Dillman, D. A. (2000). *Mail and Internet surveys: The tailored design method*. (2nd ed.). New York: J. Wiley.
- Hoppe, R. A. & Banker, D. E. (2006). *Structure and Finances of U.S. Farms: 2005 Family Farm Report*. United States Department of Agriculture-Economic Research Service, EIB-12.
- Hussain, A., Munn, I.A., Loden, E. K., Grado, S. C., & Jones, D.W. (2005). *Factors Influencing Lease Revenue and Non-industrial Landowners' Willingness to Allow Hunting Access*. Selected paper at American Agricultural Economics Association Annual Meeting, Providence, RI, July 24-27, 2005. Online: <http://agecon.lib.umn.edu/>.
- IDNR. (2007). *Regional Map*. Online: <http://www.dnr.state.il.us/Lands/Landmgt/Programs/gbhpa/RegionMap.htm>.
- ISPFMRA. (2006). *Illinois Farmland Values and Lease Trends*. Illinois Society of Professional Farm Managers and Rural Appraisers, Online: <http://www.ispfmra.org/pdfs/2006-Land-Values-Report.pdf>.
- McCurdy, D. R. & Echelberger, H. (1968). The Hunting Lease in Illinois. *Journal of Forestry* 66, 124-127.
- QuestionPro.com. (2006). Online: <http://www.questionpro.com>.
- Smith, D. (2006). *The Hunting Connection*. Online: <http://www.illinoishuntinglease.com/properties.php>. Retrieved June 21, 2006.
- SPSS for Windows, Rel. 13.0.1. (2004). Chicago: SPSS Inc.
- USDA-NASS. (2004). *2002 Census of Agriculture. Vol. 1 Geographic Area Series, Tables 1 and 7, US - State*. U.S. Dept. of Agriculture-National Agricultural Statistics Service.
- U.S. Dept. of Interior, Fish and Wildlife Service and U.S. Dept. of Commerce. (2003). *U.S. Census Bureau. 2003 revised. National Survey of Fishing, Hunting, and Wildlife-Associated Recreation-Illinois FHW/01-IL-Rev*.

Table 1. Hedonic lease income model

Variables:	Median-Valued Property Lease Income		High-Valued Property Lease Income	
	Estimates	Std. Error	Estimates	Std. Error
Intercept	-9.83	5.95	-16.54	13.13
Region 4	1.53	3.45	15.26 *	7.79
Size of tract (acres)	.001	.002	.000	.002
Cropland (%)	.044	.090	.300 *	.163
Woods (%)	.121 *	.063	.107	.143
Superior lease (%)	.123 **	.055	-.027	.093
Land management practices (%)	.029	.048	.199 **	.090
Annual leases (%)	.102 *	.054		
Trophy deer (%)	.162 *	.075		
Number of observations	20		20	
R ²	0.501		0.514	

*Significant at 10%; **Significant at 5%

Table 2. Percent of managers rating items as "no problem," "minor problem," or "major problem" (19 responders)

Items	No Problem	Minor Problem	Major Problem
Trespassing or poaching	42%	53%	5%
Boundary disputes	53%	42%	5%
Farm tenant conflicts	58%	42%	0%
Vandalism or property damage	74%	21%	5%
Lease violations	79%	21%	0%
Insurance	84%	16%	0%
Illinois hunting law violations	95%	0%	5%
Collecting rent	95%	5%	0%

*Significant at 10%; **Significant at 5%

Figure 1. Regions defined by Illinois Department of Natural Resources



Source: Illinois Dept. Natural Resources, <http://dnr.state.il.us/lands/Landmgt/PARKS/region.htm>