Retention and Development of Wildlife on Private Lands:

an Annotated Bibliography

T.J. Haney, E. Ewaschuk, W.E. Phillips, W.L. Adamowicz

Staff Paper No. 91-04

The authors are respectively: Senior Development Officer, Agri-Food Development Officer, Agriculture Canada, Edmonton; Senior Project Biologist, Alberta NAWMP Center, Edmonton; Professor and Chair, Department of Rural Economy, University of Alberta, and; Associate Professor, Department of Rural Economy, University of Alberta.

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FOREWORD

This paper is a by-product of an economic study of wildlife habitat on private lands in Alberta. The research project was conducted in cooperation with Alberta Fish and Wildlife Division and supported by funding from the Division and the Alberta Recreation, Parks and Wildlife Foundation. This support is gratefully acknowledged.

The results of the project, of which this paper is a supplemental part, is reported initially in a M.Sc. thesis by T.J. Haney entitled "Wildlife Habitat on Alberta Private Lands: An Analysis of Land Use Trade-Offs", Department of Rural Economy, University of Alberta, Spring 1991. There is also a companion document to this paper by T. Haney, W. Phillips and W. Adamowicz entitled "Wildlife Habitat Preservation Programs on Private Lands: A Selected Survey of Provinces, States, and Territories of Canada and the United States." Project Report 91-02, Department of Rural Economy, University of Alberta, 74 p.

The purpose of this annotated bibliography is to bring together in a single document relevant references and brief descriptions for use by researchers and the professionals with interests in wildlife habitat on private lands.
Department of Rural Economy

Annotated Bibliography


This paper presents a proposed methodology for studying problems of property rights imbalances. The divergence of public and private interests is characterized as a primary source of conflict.


This Act defines all rights and privileges, both public and private, accruing from land (real property) in Alberta. This Act was last amended in 1988.


This Act defines all rights and privileges, both public and private, accruing from wildlife in Alberta. This Act was last amended in 1990.


This discussion paper presents Alberta’s proposal for the 1983 revision of the Wildlife Act. The concepts presented include: wildlife definitions; trust funds; captive wildlife (game ranching); licensing provisions; public land management, and administration. This paper was circulated to interested parties in order to encourage public participation in the writing of the final Act.


This paper presents wildlife habitat loss statistics for two counties of the Parkland region of Alberta. This paper also presents descriptions, incentives, eligibility, and benefits of the pilot Landowner Habitat Program.

This report represents the main implementation plan of the North American Waterfowl Management Plan in Alberta. A survey of the wildlife and habitat resources is presented. Problems of agency coordination, proposed solutions, and proposed budgets are also presented.


This paper described habitat loss in twelve irrigation districts of Southern Alberta. The lack of coordination between wildlife and irrigation agencies was sited as a major cause of habitat declines. A process to rectify this problem was developed.


This paper presented the results of a digital LANDSAT survey of wildlife habitat in the County of Minburn. Changes to the habitat between 1977 and 1987 were documented.


This report presented the commission recommendations regarding the future of wetlands in the settled areas of Alberta. Specific recommendations were presented for: planning; education and awareness; wetland management, and legislative review.

Studies PNIF landowner responses to general scenarios concerning forest lands and wildlife. Non-consumptive and non-financial returns were primarily valued.


Farmers reclaim wetlands to improve efficiency of farming operations. Opportunity cost = Ag lease rates. More expensive for eventual irrigated cultivation; less expensive for eventual pasture, therefore less likely to reclaim methods for pasture. Highly susceptible to sensitivity analysis.


This paper analyzed factors affecting diversification/specialization decisions. (Tenure, off-farm work, educ., enviro. variables). Based in Kentucky. An extensive theoretical (decision making) discussion was included.


This paper presented an optimization approach to land use change based on maximizing private NPV. No consideration for Non-Market values was given.


Increasing Cassava production because of increasing prices. More intense cropping because of upward returns. Small farms on poor land, cause increased erosion = f (market prices, farm structure).

This paper presented the results of Alberta’s Use Respect program. This paper highlighted attitude surveys used in research.


Financial impacts of hypothetical cross-compliance program were presented. Compared with least-cost methods and net return from "Green Ticket/Red Ticket" compliance. Varying erosion - varying costs - varying participation were found.


This paper analyzed net return to development of wetlands when alternate housing development is/is not available. The development approach was studied because data is available generally.


This text presents the legal history and foundation of the present wildlife laws in the United States. Applications of these laws are presented as major themes of federal wildlife law. A view forward to comprehensive federal wildlife programs is also presented.

Public policies are the equilibrium of a cooperative game among interest groups and policy makers. This study stressed interdependence between policies and bargaining strengths. A behavioural model for bargaining was also presented. Results were applied to Senegal. Good short term predictions were achieved. No insight on structure of decision, therefore, no long-term benefit. Need good documentation on political economy.


This study used both linear OLS and logit to describe demand for marinas and compared results. Used simple calculations to estimate wetland demand (for conversion to dry land).


Contingent valuation of environmental amenities on farmland - not fully reflected in land markets: need for public intervention. Case of urban development. Also contains a guide to survey approaches. Provides conceptual basis for researching wildlife habitat with WTP approach.


Theoretical discussion comparing Baumol and Oates approach with compensation and Freeman’s competing approach.

Extolling the virtues of releasing wildlife rights to private land owners. Privately managed land produces more and better game with fewer negative actions (i.e. poaching, 4WD abuse).


This committee report presents a broad history and overview of wildlife habitat issues in Canada. Cross-purpose government programs and economic incentives to farmers are highlighted.


Alternate compensation methods under risk. Emphasis on institutional change in general equilibrium case.


This paper presents a historical perspective to land owner recreationist conflicts in New York State. Based upon the results of mail surveys, landowner attitudes toward land posting, hunting, hunters, and other recreational activities with respect to potential conflict. The study found
that landowners generally viewed public recreation on private lands as a
disruption to management. Increased communication and public
awareness were identified as possible solutions to conflict.


Five sequential management phases were presented: 1. Protection phase,
Sociological phase. Non-consumptive use is main target.


Not all CRP programs help wildlife. Trees are most likely left for long
periods - stand improvement expenses increase time in trees. Wildlife
hunting lease sales are only source of income of herbaceous vegetation.
CRP land: Government can buy leases - value of wildlife becomes
endogenous. Sunk costs in trees cause landowners to maintain land after
CRP expires.

Project*. Habitat Branch, Alberta Fish and Wildlife Division. Edmonton,
Alberta.

This study presents the findings of a survey of landowners regarding their
perceptions of the Landowner Habitat Program. A review of literature
regarding wildlife habitat losses and other private lands wildlife habitat
programs in North America is also presented.

Conservation* (10)2, Winnipeg, Manitoba.

This article presented the background and objectives of Ducks Unlimited
Canada's contribution to the Prairie Habitat Joint Venture. This program
offers private landowners financial incentives to convert marginal
croplands into permanent nesting cover, and to demonstrate wildlife
compatible farming systems. Marginal land may be acquired in fee title. Technical assistance is also offered to private landowners for a wide variety of development projects.


This article provided a chronological history leading to the development of Colorado's landowner preferential big game hunting license program, and Colorado's trespass regulations.


This paper presented an overview of wildlife's relationship to Alberta. Economic significant, management, land use interaction, and sustainable use were all presented and analyzed.


This study used welfare contingent evaluation estimations and large supply models to estimate social cost of programs in a conceptual approach.


Perception of soil erosion problem on own land was found to be the most important explanatory variable for bidding in land. Other variables included: believe land ineligible, rent too low, 10 years too long, can’t hay or graze, make more money by farming, don’t know about special (corn) incentives.

The loss of White-tailed deer habitat was documented in this paper for two wildlife management units in the parkland district of Alberta. General effects on the deer carrying capacity were also presented.


This project report presents the results of a review of Alberta’s first private lands habitat preservation pilot project. Previous habitat losses were reported. Recommendation for future pilot projects were given.


This paper is based upon a 1981 survey of 100,000 Canadians over the age of 15. Demographic and economic trends are used to estimate future demand for wildlife-related activities.


This paper is based on a 1987 survey of 55,173 Canadians. Comparisons to a 1981 survey are made. The involvement of Canadians in wildlife-based recreation activities is studied and presented.


This paper presents the economic benefits of recreational activities, and the personal value of wildlife-related recreational values in Canada. The results of this paper are meant to provide an incentive for public wildlife conservation activities.

Probit analysis of adopt/not adopt conservation decision was studied. Tobit analysis of intensity within adoptor group was also studied. Dependant variables for each analysis were described.


This study was based upon a survey of private and public land wildlife habitat programs in North America. Specific guidelines to the development of a program in Alberta are presented. Sources included the advice from existing habitat program managers. Results were presented in the form of quotes from program managers, and the author's summations.


This study was based in Wisconsin. A $3.00 per acre property tax reduction was offered to farmers who control all erosion on farm. Tax incentives were paid for by non-participants. Farmers chose own conservation techniques.


A detailed theoretical description of a permit trading mechanism to balance multiple objectives was studied. Could be applied to wildlife, but may not be socially acceptable.

This study presents the regulations, regulatory bodies, regulating actions, and preservation programs conducted by States, Provinces, and Territories in Canada and the United States.


This study related age, tenure, occupation, education, organizational structure, and size of holdings to CRP participation. Chi square test of independence was used most heavily.


Farm size was found not to be related to soil erosion. Direct parallel to government paying opportunity cost to landowners who decrease acreage in erodible crops.


Removing government support for highly erodible lands would remove an incentive to develop these lands but would not affect soil erosion (total) greatly. A budget/finance approach was used to estimate the variance of returns.

A grazing fee system induced multiple use compliance through incentives. (Upward fees cause upward grazing pressures). This paper described the 1978 Public Rangeland Improvement Act. Enrollment was limited only to "Exemplary range management practices". Addressed property rights of increasing wildlife population vs. "offsetting fee system". Profit maximization was used as the decision tool. Hamiltonian solution (MRAP) was presented.


This paper presented the findings of surveys of 218 landowners in selected Wisconsin Deer Management Units. The primary source of landowner-hunter conflict was reported by landowners to be unauthorized access on private lands. Wildlife managers reported that poaching was the primary management problem.


CRP may succeed because of link to farm policies, but 60% of farms are small and don’t currently participate. The Program must target the group. CRP may assist North American Waterfowl Management Plan. Benefits (economic) were recognized by farmers and government.


Survey questions were presented. Tax considerations were preferred form of assistance. Seeds, advice and plants were all good incentives. Cash payments rated quite low. Idea of wildlife for profit was foreign. Trespass fees uncommon. Farmers thought their food and cover conditions were better than they really were, therefore education was needed.

Program evaluation (extension) using a cost effective normative approach was found to be consistent with decision theory. Decreasing costs caused increasing program review which caused increasing program quality. Study used Bayes theories to estimate action.


This study included a good game section. A logit analysis of telephone interviews was completed. Landowners incorrectly perceived themselves to be ineligible. They didn’t know per-acre rent and were unaware of corn acreage bonuses. More outreach and $10/acre increased rents were estimated to increase participation.


This paper examined the selection of explanatory variables to study structure of Ag-Policy. Policy impacts were discussed.


This paper documented wildlife habitat changes in the Lethbridge Northern and Eastern Irrigation Districts for the period 1975 to 1981.


This paper presented model questions for conservation beliefs.

This report presented regulatory activities of the federal government and various provincial governments directed at the preservation of agricultural lands in Canada. Non agricultural use of land (i.e. urban sprawl) was specifically addressed.


This paper was based on a survey of 50 landowners in Southwestern Manitoba. Summaries of farming size and techniques, habitat preservation activity, and landowner attitudes toward alternative preservation program options were presented.


The purpose of this study was to obtain better measurements of attitude and behaviour consistency in sample survey data. Third party observation of erosion control activities prior to completion of survey was needed.


This study investigated levels of cooperation including data, training, targeting, demonstration farms, monitoring, between agencies. Private land specialists were used to promote habitat concerns with conservation farming projects.

The purpose of this study was to determine social net benefits. Market and extra-market benefits were studied. Social benefits were found to be greater than social costs. Further research was indicated.


This study developed a framework to assess the economic impact of Agricultural Management practices on wildlife habitats, and to determine effect on pheasants. Socio-economic and hunting variables were used to describe hunting decisions.


Through integrated land management policies, social and private returns from land could be increased.


Using a net return and mean-variance analysis, the effectiveness of cross-compliance was analysed. Producer risk aversion became significant.

This report presented the background physical causes of recent duck population decreases in North America. Suggested actions to reverse this decline included: restoration of small wetlands; enhance upland cover; agricultural extension; nonbreeding management; enhance wintering wetlands; landowner incentives, and; other cooperative programs.


Ten suggested improvements to targeting were presented. National planning with local flexibility was indicated for widely varying adoption factors. More local "board" level involvement was suggested.


Analysis of two surveys concluded that financial factors (income and debt) were the most important factors in conservation decisions. Age, race, and erosion potential also influenced conservation tillage use.


This study combined economic and extension factors to explain conservation adoption.


This paper presented the findings of a four year study (1984-1987) which documented wildlife habitat changes in the Eastern Irrigation District of Alberta.

Unambiguous bias toward preservation was not found when the environment produced non-consumptive value and when it was a production input. This situation was not mitigated with independent learning.


This study presented an analysis of attitudes to competing agricultural policies. Socio-economic explanatory variables were used with a multivariate regression. Farmer's financial situation strongly influenced choice of policy.


This study satisfied conditions necessary for economic efficient negotiated settlements of development proposals. The approach was hypothetical.


Regional differences were found to occur. Re-sampling farmers to detect "sociological" tolerance threshold to increased population was required to meet multiple goals.


Conservation compliance (*CRP, Sodbuster, Swampbuster, and Conservation easements*) may increase habitat quantity and quality (Decrease erosion and increase water quality). If farmers were aware of requirements, they would dual manage land for erosion control and wildlife habitat improvement.

This opinion paper suggested that Engle’s & Rutan’s laws cause land withdrawal programs to succeed in North America. Environmental quality concerns were suggested to be as important as quantity concerns.


This paper presented in general terms, the conflict between economic goals of private land ownership and social goals of public wildlife ownership in Canada. Various incentives to balance these rights were discussed. The lack of coordination between public fish and wildlife agencies, and public policy makers was highlighted. Recommendations include: inclusion of unimproved land for Wheat Board quota calculation; income and property tax incentives for wildlife habitat preservation, and preservation of private access fees for consumptive and non-consumptive purposes.


This study used logit analysis to estimate erosion control activities, weighted by erodibility of soil (USLE method).


This report presented the results of 1,300 personal interviews with private landowners in Saskatchewan, south of the Northern Provincial Forest. Landowner responses were summarized and presented under the headings: The Farmer and his Land; The Farmer and Wildlife; The
Farmer and Hunters, and; Farmer Options on Solution of Problems. Hunter access problems were cited as a major disincentive to wildlife habitat preservation and enhancement.


This study presented the results of a 1982 telephone survey of North American fish and wildlife agencies. Activities of those states preserving wildlife habitat through: acquisition; limited use agreements; technical assistance; public hunting; commercial hunting; property tax incentives; income tax incentives; regulatory approaches, and; land use programs were analyzed. Alternative funding methods were also investigated.


Substantial net savings were estimated by targeting and recognizing productivity impacts. When "Blanket" a subsidy was offered, only least erodible soils will be excluded.


Conservation agencies must work toward cooperating with landowners to meet their requirements and concerns - "Cooperation and Communication".


A finance approach found that increased cash returns to land causes increased land values (capitalized annuity). Regions were affected differently.

This study investigated the ecological and economic impacts of development in Southern Alberta. Decreasing fish population had been an important resource loss. Increasing private landowner compensation may improve fish and wildlife resources.


This paper presented the results of a survey of 5246 private landowners in Ohio. Attitudes toward deer depreciation, wildlife habitat programs, desirable deer densities and hunter conflict were presented and analysed.


Virtually all land use managers were found to be wildlife managers by default.


This study highlighted differences between RIM and CRP. RIM program goals included wildlife and agriculture value. RIM used multi-level targeting, and was more efficient. RIM used easements (more substantial) for property rights acquisition.

This study presented methods and results of investigations of the long-term relationship of waterfowl populations and habitat within the surveyed areas of Canada. The continental mallard population was found to be correlated to the number of "July" ponds. The overall waterfowl productivity of the prairie-parkland region was found to be impaired. "Identification of the factors which have caused waterfowl habitat loss is but the first step in resolving the problem."


This paper documented the agricultural impacts on 10,000 monitored water basins and margins in the prairie-pothole region of Canada. Possible causes of the continued agriculture expansion were presented.


This agreement presented the principles and objectives of the NAWMP. Habitat preservation and habitat priorities and goals were presented. The structure of implementation was also presented.


This discussion paper presented a comprehensive view of Alberta's wetlands, in order to analyze competing land uses. A review of existing federal and provincial legislation suggested a large degree of contradiction resulting in many cross purpose objectives.

This paper investigated whether the level of incentive payments offered landowners was sufficient to offset the cost of changing agronomic practices necessary to preserve waterfowl habitat in Saskatchewan.


Use of Fuzzy Pair-Wise comparisons allowed farmers to indicate preference between two alternate goal statements. This increased goodness of fit of the selected mode. Better fit was produced than single objective decision models. Risk and returns goals were analyzed.


Preferences of individuals to government financial support to farmers were studied. Explanatory variables included socio-economic and regional data. Findings indicated initial support for aid, decreased support with increasing prices, and the existence of regional differences.


This paper presented the background and proposed components of a Canadian Soil Erosion control program. Similarities between this reserve program and the current wildlife reserve program offered in Alberta were highlighted. Coordination between soil erosion and wildlife habitat concerns were noted.

This study quantified the social and financial "cost" of wildlife conservation through decreasing cultivation in the U.K. Great care was taken with pricing (net of subsidies) of outputs and (world price) of inputs.


The option of free hunting (no permits) to landowners for "in-season" take was studied. Increased permits for large holdings was made contingent upon increased food and cover.


The CRP was found to increase net farm income and increase environmental quality at the cost of government administration, input sectors, increased food costs, and other local economic activity.