

EVALUATION OF A WEB-BASED TOOL FOR UNGULATE HARVEST
MANAGEMENT

by

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ABSTRACT

Hunting the female segment of a wild ungulate population is an effective wildlife management tool to control overpopulation. Most hunters prefer to harvest males however, limiting success in controlling overpopulation. Landowners attempting to manage wild ungulate overpopulation have expressed difficulty with finding hunters who wish to harvest female ungulates. Likewise, some hunters willing to harvest female ungulates have difficulty locating private landowners seeking hunters. The Montana State University Wildlife Extension Program created the DoeCowHunt website to help remedy this situation (www.DoeCowHunt.montana.edu). This website is a tool to facilitate contact between landowners and hunters for harvesting doe deer (*Odocoileus spp.*), doe pronghorn (*Antilocapra americana*) and cow elk (*Cervus elaphus*). The website has been available for the Montana 2003, 2004 and 2005 big-game hunting seasons, with over 40,000 visits and 2,500 registered users. The objectives of this study were to evaluate this website's effectiveness in providing an avenue for contact between landowners and hunters and to make any necessary improvements to the website. Measures of the website's effectiveness and improvements were identified from electronic mail questionnaires sent to the registered users of the website over three years. Surveys identified problems with the search and registration processes and low landowner use. After modifying the website, no differences in hunters' reported numbers of invitations to hunt, antlerless deer, elk and pronghorn harvested or the proportion of hunters planning to use the website the following year were detected. However, reported numbers of contacts by hunters differed across years ($\chi^2 = 7.578, 2 \text{ df}$), as well as the numbers of successful hunts ($\chi^2 = 7.107, 2 \text{ df}$) and the numbers of antlerless ungulates harvested ($\chi^2 = 14.115, 2 \text{ df}$). Therefore, the modifications of the search and registration processes appear to have increased the capacity of the website to achieve its objectives. Recommendations for other management agencies developing similar programs are provided.

CHAPTER 1

INTRODUCTION

Many state wildlife agencies are attempting to alleviate the problems associated with overabundant ungulate populations. One such problem is excessive monetary losses to agricultural producers across the United States (Conover 1994). State and Federal agencies use many methods to lessen ungulate impacts, including fencing, female contraception, male sterilization, compensation for incurred losses, providing noisemakers and other diversionary materials, and issuing hunting permits to remove the depredating animals (Conover and Decker 1991). Currently, hunting is the most economically and socially acceptable method for reducing population densities (Brown et al. 2000). Furthermore, systematic removal of female ungulates effectively reduces population densities (McCullough 1979, Garrott 1995, Kilpatrick et al. 2004). Moreover, it is impossible to achieve statewide population objectives without the recreational harvest of female ungulates, which is the most effective means to reduce population densities in overpopulated areas (McCullough 1979, Wallmo 1981).

Two problems exist with continuing to use hunting as a population control tool. First, hunter numbers are declining throughout the United States (U.S. Dept. Inter. and U.S. Dept Comm. 2001). Private landowners closing their land to unfamiliar hunters may cause low hunter retention and recruitment rates (Rounds 1975). Secondly, many landowners who allow hunting are having a difficult time finding hunters willing to harvest females (Decker and Connelly 1989). Wildlife administrators across the United

States perceive hunter access as a major problem, and most feel that their respective organizations' goals would be difficult to meet with decreasing private land access (Wright and Kaiser 1986, Benson 2001).

State and Federal governments have created innovative solutions to address decreasing private land access for recreational hunting. Montana Department of Fish, Wildlife and Parks (MFWP), for example, created the Hunter Access Enhancement Program (Block Management). Block Management is a cooperative management system, wherein landowners are compensated to enroll in the program and hunters search through listings and maps of coordinating parcels to find places to hunt. Additionally, the United States Senate recently introduced Senate Bill 548 to the 109th Congress. This "Voluntary Public Access and Wildlife Habitat Incentive Program Act of 2005" would amend the Food Security Act of 1985 to encourage private landowners to voluntarily make their lands available for public access under programs administered by State and tribal governments. Although these programs provide private land access to hunters and therefore increase overall harvest, few of the hunters using these means for land access specifically harvest females.

Based on this background, the Montana State University Extension Wildlife Program created a program to address this situation (Knight et al. 2005). Since October 2003 the DoeCowHunt website, (www.doecowhunt.montana.edu) has provided an avenue to facilitate hunter-landowner communication and wild ungulate population control. The website provides means for Montana hunters and landowners to contact each other by providing individual information (email addresses, physical addresses and-or

telephone numbers). Landowners using the site who wish to increase female harvest on their land can contact registered hunters who are willing to harvest antlerless big game. Registering on the website is free. Under this program, landowners have a more active role in managing wild ungulate populations on their lands because they are able to affect female survival directly. In addition, landowners have direct access to hunters, allowing landowners the ability to regulate hunting pressures.

The DoeCowHunt website is a tool to help wildlife managers achieve female ungulate harvest objectives on private lands. Specifically, the objectives of the website are: 1) to provide an avenue for landowners to contact hunters willing to harvest antlerless ungulates, and 2) to provide an avenue for hunters willing to harvest antlerless ungulates to contact landowners willing to provide private land access for such purposes.

The objectives of this study were to perform formative and summative evaluations of the DoeCowHunt website during the three years following the website's inception in order to further the development of this program and to provide recommendations for other resource agencies interested in developing similar programs.

CHAPTER 2

LITERATURE REVIEW

Hunting as a Population Control Tool

Recreational hunting is widely used as a tool to control wild ungulate populations (Diefenbach and Palmer 1997, Woolf and Roseberry 1998, Canfield et al. 1999, Carpenter 2000) although most hunters do not recognize themselves in this capacity (Decker and Connelly, 1990). Hunting is still used today because it has been shown to be a primary mechanism to control population numbers at broad scales, a cost-effective tool, and able to increase landowner tolerance toward wildlife (Brown et al. 2000, Conover 2001). Additionally, recreational hunting is the most socially and economically acceptable method of regulating wild ungulate populations across broad scales (Brown et al. 2000).

Four basic demographic processes govern wildlife population dynamics: births, deaths, immigration and emigration. Traditionally, wildlife managers regulate ungulate populations by affecting survival rates, and thus subsequent recruitment into the population (Garrott 1995, Woolf and Roseberry 1998). Selective female harvests effectively reduce ungulate population densities (McCullough 1979, Garrott 1995, Kilpatrick et al. 2004). It is impossible to achieve harvest objectives on a statewide basis without the recreational harvest of female ungulates, which is the most effective practice for reducing population size in overpopulated areas (McCullough 1979, Wallmo 1981). However, hunters may need to be convinced that populations need to be controlled before

they agree to increase female harvest (Diefenbach et al. 1997, Decker and Connelly, 1990, Riley et al. 2003).

Managers can regulate deer (*Odocoileus spp.*) populations on a local scale by harvesting females. Systematic female removals from philopatric social groups resulted in lower white-tailed deer (*O. virginianus*) densities in the removal areas for up to five years in northern hardwood forests (McNulty et al. 1997, Kilpatrick et al. 2001, Sage et al. 2003, Oyer and Porter 2004, Porter et al. 2004). Selectively harvesting does reduced black-tailed deer (*O. hemionus*) densities on Fort Hunter Liggett, California (McCullough et al. 1990). However, these removals increased fawn recruitment in subsequent years (McCullough et al. 1990). This may substantiate the conclusions of Adkins and Irby (1994) and Erickson and Giessman (1989), who contend that localized hunting is ineffective at controlling ungulate populations. As Giles and Findlay (2004) contend though, doe removals must occur at levels great enough to facilitate additive mortality in order to have strong, long-term, regulatory effects on population densities.

Decreasing Private Land Access for Recreational Hunting

To guarantee the continued effectiveness of hunting as a population management tool, two criteria need to be met: 1) adequate number of hunters afield each hunting season and 2) adequate hunter accessibility to private lands, thereby enabling management across broad landscapes. The future of meeting these criteria is currently in question. Hunters' responses to surveys indicate that decreasing levels of access to private lands for hunting is a major problem (Knight et al. 1987, Swensson 1996, Swensson and Knight 1998). Additionally, hunter numbers are declining throughout the

United States (Enck et al. 2000, U.S. Dept. Inter. and U.S. Dept Comm. 2001, Riley et al. 2003). A reduction in hunter numbers may result from the difficulty associated with finding places to hunt (Rounds 1975).

Wildlife officials acknowledge the problems associated with diminishing private land access. Wright and Kaiser (1986) surveyed wildlife administrators across the United States and reported that hunter access was a problem in all 50 states, even those in the western U.S. with abundant public lands. Benson (2001) also surveyed wildlife administrators, of which 96% felt that their respective organizations' goals would be difficult to meet with decreasing private land access. Additionally, wildlife administrators suggested some of the most important management issues for landowners were hunter access and hunter management (Benson 2001).

Montana Department of Fish, Wildlife, and Parks recognizes the importance of private land access for elk (*Cervus elaphus*) population control. Despite increases in the numbers of antlerless elk permits issued across Montana, nearly 60% of Montana's 35 Elk Management Units exceeded elk population objectives in 2002, which corresponded with increased game damage complaints (Wildlife Division 2004). Montana's Elk Management Plan discusses the need for increased public access to private lands (Wildlife Division 2004).

Reasons for Posting Lands

Numerous reasons have been proposed to why private land access by hunters is decreasing. Conflicts between hunters and ranchers have escalated to the point where private landowners have and are increasingly denying hunter access to their lands (Brown et al. 1984, Guynn and Schmidt 1984, Wright and Kaiser 1986). Landowners' experiences with previous hunters' misconduct, specifically trespass and property damage, have been reported as the main reason for access denial (Guynn and Schmidt 1984, Wright and Kaiser 1986, Knight et al. 1987, Wright et al. 1988, Adkins 1991, Swensson 1996, Swensson and Knight 2001). In New Mexico, 25% of ranchers reported hunters to have caused problems on their lands (Knight et al. 1987). Landowners' perceptions of hunter misconduct may differ from actual, but may still influence future decisions regarding hunter access.

Additional reasons why private land access by hunters is decreasing may include: 1) hunters have not always helped landowners and agencies achieve harvest objectives because the vast majority of hunters specifically target bulls and bucks, 2) outfitting enterprises restrict private land access to only a few hunters, and 3) there is a general lack of public appreciation for landowners' contributions to wildlife management and habitat improvement (Brence and Knight 1998). However, as Brown et al. (1984) illustrated, posting may not be an accurate measure of private lands closed to hunting. Posting may only be a means to regulate hunters' inquiries regarding access or hunter numbers (Wright et al. 1988).

Agricultural Perceptions of High Ungulate Densities

Although some landowners are restricting hunter access, many landowners are frustrated with the damage caused by inflated ungulate densities on their lands. A survey of United States wildlife and agricultural professionals revealed that most believe deer caused more damage to agricultural producers than any other wildlife species (Conover and Decker 1991). Additionally, a survey of southwestern Montana landowners revealed that more than 50% thought big game damaged forage and crop yields, and 32% to 44% of respondents desired fewer deer, elk and pronghorn (*Antilocapra americana*) on their lands (Lacey et al. 1993). Moreover, as landowner's dependence on agricultural income increased, so did their perception of big game causing harmful impacts on forage and crop yields (Lacey et al. 1993). Additionally, Lacey et al. (1993) contended that as the size of the landholding increased, the landowner's willingness to allow public hunting increased. Another survey of grass-roots agricultural leaders revealed that most (56%) felt that wildlife damage was more than they were willing to tolerate, and 67% of respondents blamed deer for most of the damage (Conover 1994). When United States agricultural producers were surveyed regarding wildlife damage, 53% reported problems with deer, and 80% reported some type of wildlife-caused damage (Conover 1998). Conover (1994, 1998) also reported that roughly 80% of landowners allowed some type of hunting. In a survey of United States agricultural producers, 34% of field crop producers reported hoofed mammals as the main cause of losses, and listed deer as the main cause, followed by pronghorn antelope and elk (Wywialowski 1994). Although some of these surveys found that landowners allowed some type of hunting (Lacey et al.

1993, Conover 1994, 1998), none reported if landowners were obtaining the numbers of hunters needed to decrease ungulate densities, nor did they explain if the majority of hunters hunted males or females. Some of these landowners with high ungulate densities perceive their depredation problems may result from adjacent landowners who post their land and create 'refugia,' or localized non-hunted areas where animals can congregate during hunting seasons (Adkins and Irby 1994, Conover 1998), and simply increasing hunter numbers may not alleviate these problems. These landowners may need to strategically manage the hunters they do obtain with an understanding of herd dynamics during the hunting season.

Current Private Land Access Solutions

Many state agencies have created private land access programs because of the concern with private land hunter access. In 1985, 38 states sponsored programs to enhance public access to private lands (Wigley and Melenchiors 1987). Current examples of these are Montana's Hunter Access Enhancement Program (Block Management), California's Private Land Management Program, Wyoming's Hunter Management Area Program, North Dakota's Private Land Initiative and Idaho's Access Yes Program. Some of these are cooperative area programs, in which landowners collectively enroll their lands to form cooperative areas (Wigley and Melenchiors 1987, Messmer et al. 1998, Butler et al 2005). In 1985, 21 states managed cooperative areas that offered free public access, seven offered often-contentious fee-based access cooperative areas (Easton 2000, Eliason 2000), and four states offered both types (Wigley and Melenchiors 1987).

The federal government is attempting to help states alleviate public access problems. The United States Senate recently considered Senate Bill 548. This bill, entitled the “Voluntary Public Access and Wildlife Habitat Incentive Program Act of 2005,” would amend the Food Security Act of 1985 to encourage private landowners to voluntarily allow public access under programs administered by state and tribal governments. This bill would appropriate \$20,000,000 annually from 2005 to 2009 to state and tribal governments to help administer these programs.

Among various other objectives, these programs intend to increase wildlife habitat management by landowners and increase public access to private landholdings. Although these programs provide private land access to public hunters and therefore increase overall harvest on private lands, none specifically target female ungulates. Therefore, landowners with depredation concerns cannot rely on these programs to control ungulate populations.

Current Depredation Solution Programs

Most states have developed programs to alleviate localized depredation (Wigley and Melchior 1987, Decker and Connelly 1989, Erickson and Giessman 1989, Conover and Decker 1991, Horton and Craven 1997). Although some variation exists between these programs, they generally rely on landowners filing damage complaints with wildlife agency personnel. Wildlife managers then use these complaints in a decision process usually resulting in deer licenses or permits issued to the landowner or sold to the public to be used on the claimants’ property. This process is cumbersome and requires extra personnel-hours to handle these claims (Erickson and Giessman 1989).

CHAPTER 3

MATERIALS AND METHODS

The DoeCowHunt Website

The DoeCowHunt website was created in August 2003, and is constructed as follows. The website is a searchable Microsoft® Structured Query Language (SQL) Server 2000™ database, developed with Microsoft Visual Studio™, and hosted on a clustered server running Microsoft Windows Advanced Server™. The website is continuously monitored with Webtrends®, a website analytics program which can provide usage statistics and reports. The website consists of a home page, which allows visitors to choose between three options: 1) find a landowner or hunter registered on the website, 2) register, or 3) sign-in as a previously registered user. Option (1) directs visitors to the SQL based search webpage. Once on this webpage, visitors choose between listed hunters and listed landowners, which then directs them to a subsequent webpage listing all the hunter/landowner search criteria. At this time, visitors are allowed to perform a limited search which provides the results for individual species by hunting district. Initially, individuals could not search across more broad geographic regions, such as MFWP administrative region. They had to run individual searches for each district contained therein. When a search produces a match, the contact information (email address, telephone number and physical address) and any comments regarding the individual are displayed. Option (2) directs visitors to the registration page where they may input their contact information. Once this page is completed, visitors are directed to

a page allowing them to input their listing criteria, such as specie requested and hunting district. Initially, registering visitors wanting to request more than one hunting district or more than one specie had to submit each request individually, much the same as the search process. Option (3) directs visitors to a page requesting user sign-in and allows them to update their registration listing criteria found in option (2). This was initially deemed useful for individuals wanting to view their information without having to provide contact information again. This page also allowed individuals to provide comments. Initially, this comments section was to serve as a forum to provide input about interactions among individuals using the website, such as a landowner's favorable or less than favorable interaction with a hunter or vice-versa. This page also provides a means for individuals to remove their contact information from display for an indefinite period. This is useful if landowners have made contact with all the hunters they can accommodate for the year, and therefore do not wish to be contacted until the next hunting season. Also provided are pages containing hunting district maps to assist users to register and search as well as hyperlinks allowing website visitors to immediately contact the website maintainers by email. The numbers of visitors and registered users are presented in Table 1.

Table 1. Numbers of DoeCowHunt website users.

Year	Total Visitors	Registered Hunters	Registered Landowners
2004	7480	1334	11
2005	3259	1970	16
2006	3215	2445	18

Evaluation

Two approaches were used for this program evaluation: a formative evaluation and a summative evaluation. Formative evaluations prepare programs for summative evaluation by improving processes and providing feedback about strengths and weaknesses that appear to affect a program's ability to achieve its intended objectives (Patton 1994, Chen 2005). A formative evaluation approach was used to identify and implement possible improvements to the DoeCowHunt website. Following the formative evaluation, a summative evaluation was initiated. Summative evaluations judge the extent to which programs' goals have been met and usually follow some type of intervention (Patton 1994). Although summative evaluations are traditionally used in medical research to measure the effectiveness of an intervention, they can be applied in other research (Chen 2005). In this instance, a summative evaluation was used to measure the effectiveness of modifications to the website identified by the formative evaluation. To accomplish these evaluations, a survey of registered users of the DoeCowHunt website was implemented. Human subjects testing approval exemption was obtained from the Montana State University Institutional Review Board for the Protection of Human Subjects in accordance with the Code of Federal Regulations 46.101.b.2.

Formative Evaluation

A self-administered electronic mail (email) questionnaire was used as the vehicle for the formative evaluation (Chen 2005). Email addresses from the website's database were used for the survey. Email surveys have been shown to have acceptable response rates and little bias (Dillman 2000). It was important to survey registered website users

because their email addresses were easily accessible and they had experience with the website's search and registration processes.

Prior to administering this 'improvement survey' in August 2004, an 'evaluation survey' was sent to all users registered on the website during the 2003 MFWP hunting season as part of the summative evaluation. The evaluation survey's final question asked respondents if they would be willing to complete the improvement survey. Respondents who agreed to complete the improvement survey were then pooled, from which a random sample of 183 hunters and three landowners were selected to receive the improvement survey. The improvement survey was administered following Dillman (2000).

The improvement survey contained a cover letter and a questionnaire (Appendices A and B). Cover letters help establish credibility and build trust on behalf of the respondents, thereby increasing response rates (Dillman 2000). The cover letter explained the survey's purpose, who was sponsoring the project and the directions for responding to the questionnaire. In addition, the cover letters were worded to match each website user category, landowners or hunters. The questionnaires were designed to identify perceived problems with and possible solutions to the DoeCowHunt website following Dillman (2000) (Appendices A and B). Open-ended questions allowed respondents to report how the website came to their attention, if they had any trouble viewing the website, if the registration process was cumbersome, if a 'frequently asked question' page to provide instructions to using the website would be convenient, if the website should be available year-round, and a final question which asked them to provide additional ideas to improve the website. Since the search and registration processes are

different for hunters and landowners, some questions were unique to each respondent group. Hunters were asked if registering for all Montana's hunting districts and/or all big game species would be convenient and if the search function should include searching for landowners by region, district, and/or statewide. Finally, landowners were asked if a personalized webpage should be provided which would include a list of hunters requesting their respective hunting district and species each time landowners logged onto the DoeCowHunt website. Survey responses were tabulated into and stored in a spreadsheet program.

In addition to the surveys, website usage statistics compiled by Webtrends were examined to provide recommendations for future use of this and potentially similar programs. For example, annual patterns of website visitation were reviewed by compiling visit reports; information pertaining to visitors' computer preferences, such as computer operating systems and web browsers were also included. In addition, reports pertaining to top referrers and keywords, specifically the top referring websites and Universal Resource Locators (URL's) and top search engines were reviewed. This information is useful in determining websites' proper compatibility with other computers and therefore website usability (Tierney 2000, Benbunan-Fich 2001). Benbunan-Fich (2001) defines usability as how well and how easily a user, without formal training, can interact with an information system or a website.

Summative Evaluation

A self-administered electronic mail (email) questionnaire was used as the vehicle for the summative evaluation (Chen 2005). An email survey was possible because the

website's database contains email addresses for all hunters and landowners registered on the website. Email surveys have been shown to have acceptable response rates and little bias (Dillman 2000). Registered website users were surveyed because their email addresses were easily accessible and they had experience with the website's search and registration processes. The 'evaluation' survey was administered to all the website's registered users (Table 1.) between June and July 2004, 2005 and 2006 following Dillman (2000). The 2004 survey was designed to capture baseline information regarding the website's ability to meet its intended objectives. The 2005 and 2006 surveys were to measure the effect of the modifications to the website following the recommendations provided by the formative evaluation.

The evaluation survey contained a cover letter and a questionnaire (Appendices C and D). Cover letters help establish credibility and build trust on behalf of the respondents, thereby increasing response rates (Dillman 2000). The cover letters explained the survey's purpose, who was sponsoring the project and the directions for responding to the questionnaire. In addition, the cover letters were worded to match each website user category, landowners or hunters. The questionnaires were designed to evaluate the website's ability to meet its intended objective, which was to provide an avenue for Montana landowners and hunters to contact each other. Consequently, landowners and hunters were asked to report the number of contacts and invitations to hunt which resulted from using the DoeCowHunt website. These parameters appear to be the most meaningful and measurable indices of the website's ability to meet its intended objectives (Tierney 2000). A contact was defined as an email, telephone call or other

correspondence between the two website user groups. Additional questions were included to identify any relationship between website use and actual harvest reports. Hence, landowners and hunters were asked to report the number of deer, elk and pronghorn harvested resulting from using the DoeCowHunt website. As a measure of repeat visits and general satisfaction with the website, respondents were asked to report if they were planning to use the website the following hunting season and to provide reasons if not. To define the populations of interest, respondents were asked to indicate if they were registered on the website the hunting season preceding the survey. This question was necessary because it is possible for users to register after the hunting season of interest and before email addresses were compiled for the survey. The final question of the 2004 evaluation survey was willingness to respond to a follow-up improvement survey, which was part of the formative evaluation process. Survey responses were tabulated and stored in a spreadsheet program.

Website Modifications

The results of the formative evaluation provided information regarding potential improvements to the DoeCowHunt website. The website modifications took place across two years (2004, 2005). The 2004 modifications were to: 1) allow hunters to select “all districts” within a MFWP region when registering, 2) allow hunters to select “all districts” within a MFWP region when searching for landowners, 3) create a “Frequently Asked Question” page providing a tutorial of the Dowcowhunt website, 4) provide a method for hunters and landowners to verify email addresses and passwords they provided while registering to avoid errors which prevent users from viewing their

information, and 5) removal of the “comments” section of the website. The comments section was removed because visitors were not using it as intended. The comments section was created as a forum for individuals to rate other hunters or landowners they were encountering on the website. Instead, users (especially hunters) were advertising themselves, usually by providing reasons why they should be chosen by landowners. The 2005 modifications were to allow hunters to select MFWP districts, regions, or statewide for each specie when searching for landowners or registering. These modifications collectively removed the redundancy of searching and registering for each district individually. Each modification was in place prior to the onset of the respective year’s MFWP general big game hunting season.

Statistical Analyses

Landowner response to the improvement survey was low (three), therefore only group averages are reported for the improvement survey. For the evaluation surveys, landowner response was low as well (three, one and six for 2003, 2004 and 2005, respectively) and therefore not subjected to statistical analyses. Since hunter survey data did not meet the assumptions of normality, Kruskal-Wallis tests were used to detect differences in hunters’ individual responses of the numbers of contacts, number of invitations to hunt and numbers of animals harvested across years using the NPAR1WAY procedure of SAS (2004). A Chi-square analysis was used to detect differences across years of hunters’ willingness to use the DoeCowHunt website in subsequent years using the PROC FREQ procedure of SAS (2004). Differences with $P \leq 0.05$ were considered significant.

CHAPTER 4

RESULTS

Formative EvaluationLandowner Improvement Survey

Of the three landowner improvement surveys sent to registered DoeCowHunt landowners, three were properly completed and returned (100% response rate). Two landowners (67%) discovered the DoeCowHunt website via the MFWP website, and one (33%) discovered the website via the Montana Stockgrowers Association newsletter. Two landowners (67%) had no trouble viewing the website, whereas one (33%) did. One landowner having no trouble viewing the website reported trouble finding it, even though they indicated they had viewed the website multiple times before. The landowner reporting trouble viewing the website had problems with the results of the search and provided additional comment: “It would be nice to view all hunters interested in all animal types (deer, pronghorn, and elk) for a particular hunting district instead of having to click on each different animal type.” No responding landowners had trouble with the registration process, although one landowner reported difficulty finding the area where he/she could update their information once registered. All responding landowners thought it would be helpful to have a personalized webpage, which would automatically provide a list of all hunters fitting his/her criteria as soon as he/she logged onto the website. Two landowners (67%) thought we should provide a FAQ page, which would serve as a tutorial about the workings of the website. All landowners thought we should keep the

website running all-year. One landowner provided additional improvement ideas relating to the search and registration processes: “A sort program where hunters or ranchers can list the county or area they are interested in hunting and have a full list of candidates pop up. Maps associated with the website so people can look up where the ranch is located and how hard it would be to get there. This may have to be done by legal descriptions of the land, etc.”

Hunter Improvement Survey

Of 180 hunter improvement surveys sent to registered DoeCowHunt hunters, 67 were properly completed and returned (37.2% response rate). Hunters reported numerous methods of discovering the DoeCowHunt website (Figure 1.). The most common methods were via the MFWP website (38%), newspaper articles (20%), friends/relatives (14%), and other internet, including internet searches (14%) (Figure 1.). Eighty-nine percent of responding hunters had no trouble viewing the website (Figure 2.). Eighty-one percent of hunter responses indicated that the registration process was not cumbersome (Figure 2.), although some respondents noted that picking hunting districts individually for each species was time consuming. Eighty-three percent of responding hunters wanted to register statewide, by hunting region as well as by district (Figure 2.). Eighty-six percent of hunters indicated they wanted to be able to register for all species at one time, rather than by each species by MFWP hunting district (Figure 2.). Eighty percent of hunters responding indicated a ‘Frequently Asked Question’ page would be useful as a tutorial about the registration and search functions of the website (Figure 2.). Eighty-seven percent of hunters responding wanted the website available year-round (Figure 2.).

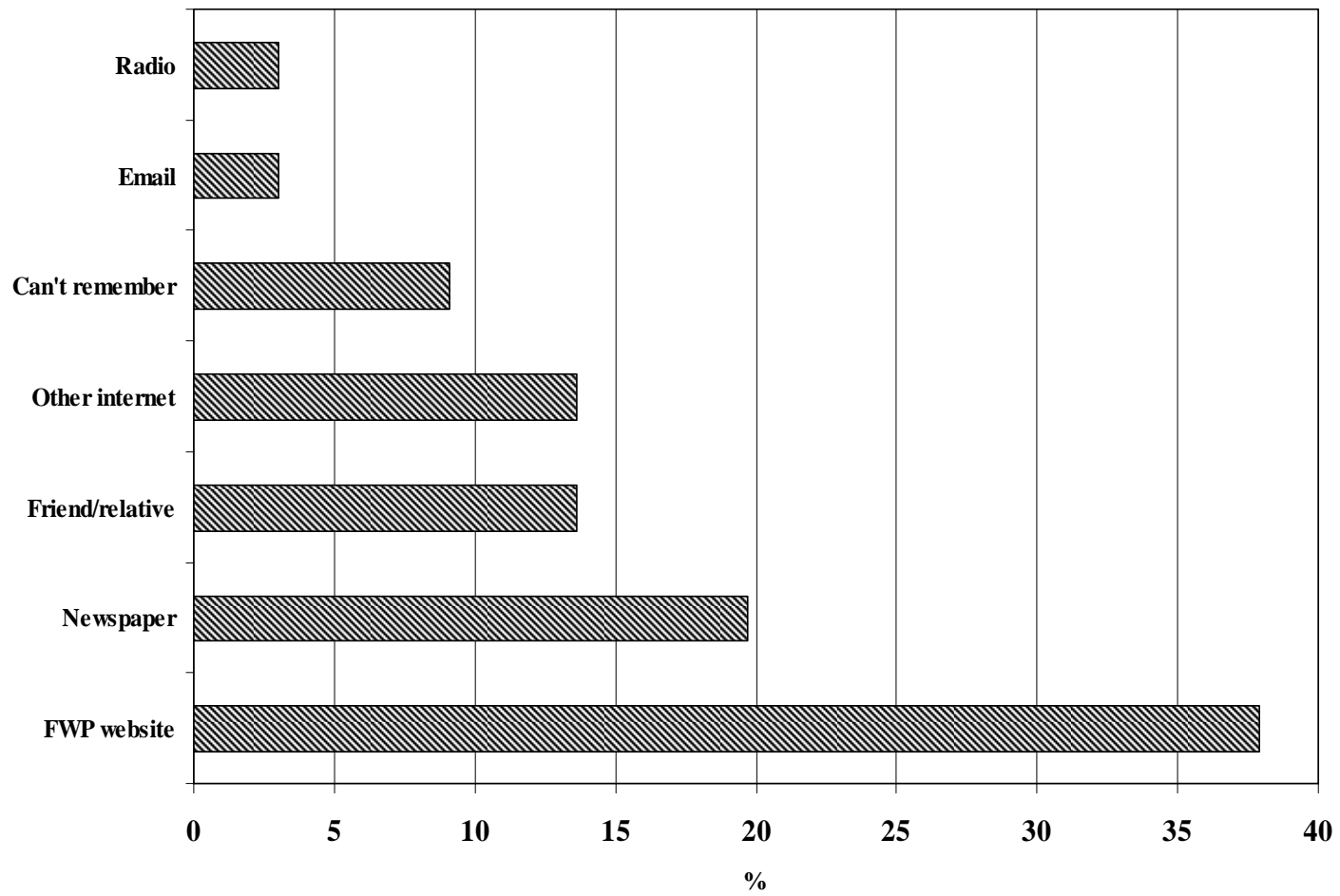


Figure 1. Hunters' explanations of how they discovered the DoeCowHunt website.

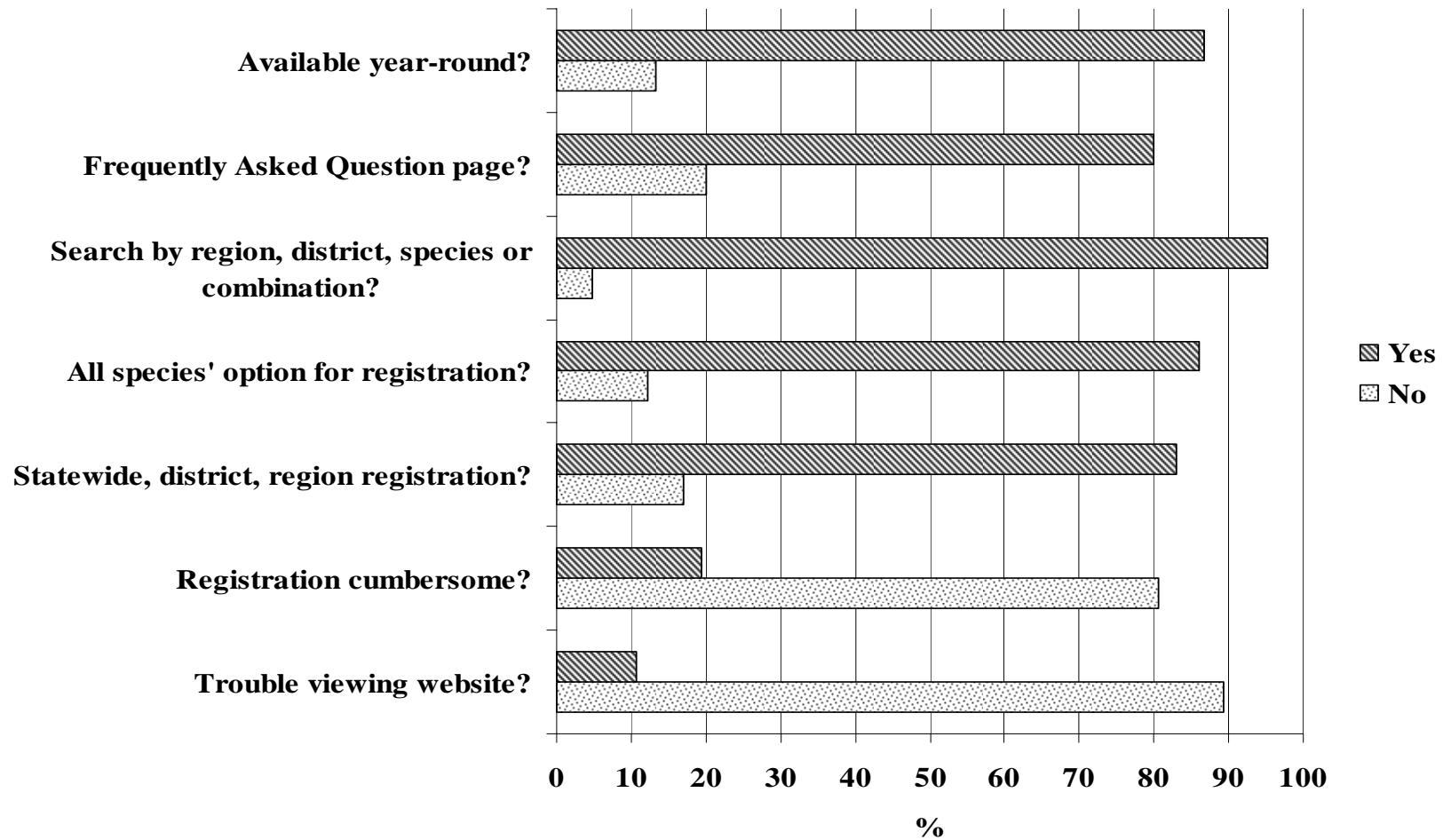


Figure 2. Hunter Improvement Survey responses (N = 66).

Hunters presented additional suggestions for improving the website. Many (25) said they wanted more landowner involvement in the program. Some provided ideas about how to accomplish this, such as: 1) approach MFWP about a program offering some sort of incentive to landowners, like Block Management, 2) allow landowners without internet access to register through a third party, such as MFWP, 3) provide a mailing to Montana landowners explaining the DoeCowHunt program to get them involved, 4) somehow get more publicity, and 5) achieve better outreach to obtain landowner involvement. Comments from 17 hunters indicated they wanted landowners to provide more information about themselves, such as: 1) if the landowner is willing to let hunters harvest bucks and bulls as well as does and cows, 2) information regarding accessibility, game retrieval and any possible fees, 3) if the landowner is willing to meet prior to the hunting season to establish ground rules and personal preferences regarding hunter behavior or allow the hunter to work on the ranch as a way to show appreciation, 4) have the landowner specify hunter type preferences (archery, muzzleloader, rifle, shotgun, disabled, youth, etc.), 5) specify hunter-day limitations, 6) if the landowner is enrolled in MFWP's Block Management program, and 8) a downloadable permission slip. Moreover, hunters' comments generated ideas to improve the search function and output. Select hunter comments were: 1) provide statewide searches, 2) list all possible landowners on one page, 3) have a quick reference page for fast connection to landowners currently looking for hunters, 4) show all landowners in a region, regardless of species, 5) provide a search of multiple MFWP administrative regions via a drop-down menu, and 6) have an automated notification sent to hunters/landowners when there is a

match. Additionally, five hunters wanted maps of landowners' property, four wanted a forum for discussion or a way to display more personal information, three wanted outfitters and solicitors restricted from using the site, two wanted to make signing in easier, two wanted to view year-end results of the website (i.e. number of successful contacts). Additional comments were: 1) update the website regularly, 2) provide additional species (i.e. coyotes, turkeys), 3) find a way to get some feedback to see if there is any interest in the program at all, and 4) provide hyperlinks to MFWP for easy access to general hunting information (i.e. hunting season dates, hunting district regulations, license prices, etc.).

Website Statistics

DoeCowHunt website maintainers used Webtrends, a website analytics tool, to examine visitors' use of the DoeCowHunt website. However, the dates for inclusion in reports were inflexible. The program requires input dates along a 14-increment scale (i.e. 14 days, 14 weeks, 14 months, etc.). Therefore, it was difficult to generate several reports encompassing easily comparable timeframes. Additionally, the raw data necessary to perform separate analyses was not accessible, and therefore made it impossible to calculate defensible inferences about tendencies regarding website usage. The following are generalized tendencies reflected by the reports.

Website visits tend to be greater in the months corresponding with the Montana big game hunting seasons. The general pronghorn hunting season begins the second week of October, and the general deer and elk hunting seasons begin the final week in October.

Visits started to increase in or around August, and started to decrease in or around late December for all years (Figure 3).

The most common computer operating systems were Microsoft Windows™ based, with Windows XP™ being the most frequent. The most frequent web browser used by visitors was Microsoft Internet Explorer™. Consistently, the top referring websites were: 1) the DoeCowHunt website (visitors directly typing the website's address (URL) into the browser's address bar), 2) the MFWP website (we had a hyperlink on MFWP's private land access webpage), and 3) a Montana State University webpage (we had a hyperlink on their website as well). The three most commonly used search engines were Microsoft Network®, Google®, and Yahoo®.

Summative Evaluation

Landowner Evaluation Surveys

Of the 11 evaluation surveys sent to DoeCowHunt registered landowners in 2004, three were properly completed and returned (27% response rate). Of the 16 evaluation surveys sent to DoeCowHunt registered landowners in 2005, four were undeliverable, and because of a computer malfunction, only one response was received, resulting in an eight percent response rate. Of the 18 evaluation surveys sent to DoeCowHunt registered landowners in 2006, four were undeliverable and six were properly completed and returned, resulting in a corrected response rate of 43%. Landowner sample sizes were too small to perform inferential statistics; therefore, only group averages are reported.

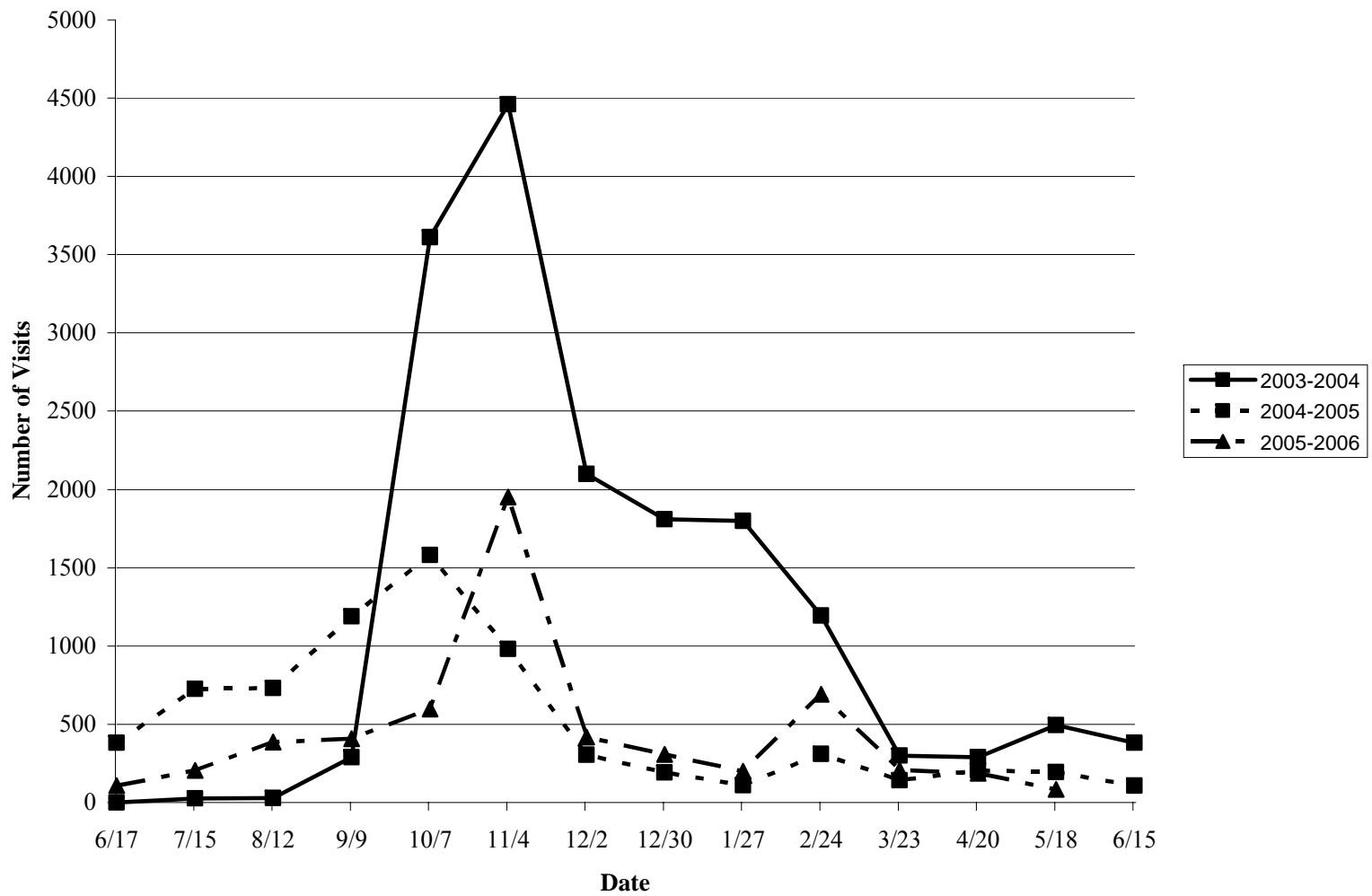


Figure 3. DoeCowHunt website visitations (June 17, 2003 to June 15, 2006).

Two out of three landowners completing the 2004 landowner evaluation survey were registered on the website for the 2003 MFWP big game hunting season. These landowners reported an average of 11 contacts with hunters, seven invitations, five accepted invitations, and one successful hunt, resulting in an average four deer, no elk and one pronghorn harvested. One landowner reported 30 contacts, 20 hunter invitations, ten of which were accepted, resulting in a harvest of eight deer and two pronghorn. One landowner was not willing to use the website the subsequent year because they were looking for economic incentives, which the website was not providing. The remaining two landowners were planning to use the website for the 2004 MFWP big game hunting season.

The single landowner completing the 2005 landowner evaluation survey was registered for the 2004 big game hunting season. This landowner reported five contacts with hunters and extended three invitations to hunt, none of which were accepted. Therefore, this landowner reported no animal harvest, although they were willing to use the website for the 2005 MFWP big game hunting season.

All six landowners completing the 2006 landowner evaluation survey were registered on the website for the 2005 MFWP big game hunting season. These landowners reported an average of 3.5 contacts with hunters, 2.2 invitations, one accepted invitation, and one successful hunt, resulting in an average 3.7 deer and no elk or pronghorn harvested. One landowner was not willing to use the website the subsequent year because they were looking for economic incentives, which the website was not providing.

Hunter Evaluation Surveys

Of the 1,334 evaluation surveys sent to DoeCowHunt registered hunters in 2004, 143 were undeliverable, 250 were properly completed and returned, resulting in a 22% corrected response rate. Of the 1,970 evaluation surveys sent to DoeCowHunt registered hunters in 2005, 307 were undeliverable. A computer malfunction resulted in a loss of an undeterminable number of responses. Two hundred sixty-four usable responses were recovered, resulting in a 16% percent corrected response rate. Of the 2,445 evaluation surveys sent to DoeCowHunt registered hunters in 2006, 511 were undeliverable and 422 were properly completed and returned, resulting in a corrected response rate of 25%.

The results of the hunter evaluation surveys are presented in Table 2. Two hundred forty-eight, 263 and 389 responding hunters indicated that they were registered on the website in 2003, 2004 and 2005, respectively. Therefore, these were the maximum sample sizes for analyses. The number of contacts reported by hunters differed across years ($\chi^2 = 7.58$, 2 df, $P = 0.0226$, Table 3.). The number of successful hunts reported by hunters also differed across years ($\chi^2 = 7.11$, 2 df, $P = 0.0268$, Table 3.). Similarly, the number of animals harvested reported by hunters differed across years ($\chi^2 = 14.11$, 2 df, $P = 0.0009$, Table 3.). In contrast, when analyzed across years, no differences in the number of invitations to hunt reported by hunters, accepted invitations to hunt reported by hunters or percent of hunters planning to use the website the following year were observed (Table 3).

Table 2. Mean hunter responses to DoeCowHunt evaluation surveys.

	2004		2005		2006	
	n	\bar{X}	n	\bar{X}	n	\bar{X}
Contacts	248	0.38	263	0.27	389	0.46
Invitations	248	0.03	263	0.02	389	0.02
Accepted invitations	248	0.02	263	0.07	389	0.01
Successful hunts	248	0.02	263	0	389	0.01
Animals harvested	248	0.04	263	0.02	389	0.11
% using website subsequent year ^a	248	0.72	249	0.73	357	0.74

^a Sample sizes differed due to differences in response.

Table 3. Kruskal-Wallis and Chi-square tests of hunters' responses to DoeCowHunt Evaluation Surveys across 2004, 2005 and 2006.

	χ^2	df	P-value
Kruskal-Wallis ^a			
Contacts	7.5780	2	0.0226
Hunting invitations	1.5996	2	0.4494
Accepted invitations	3.6624	2	0.1602
Successful hunts	7.1073	2	0.0286
Animals harvested	14.1148	2	0.0009
Chi-square ^b			
% hunters using website subsequent year	0.1826	2	0.9127

^a N = 248 in 2004, 263 in 2005 and 389 in 2006.

^b N = 248 in 2004, 249 in 2005 and 358 in 2006. Sample sizes differed from Kruskal-Wallis tests due to differences in response.

CHAPTER 5

DISCUSSION

Formative Evaluation

Landowners and hunters registered on the DoeCowHunt website collectively indicated room for program improvement, as is consistent with all new programs (Tierney 2000). Most responses indicated initial problems with the search and registration processes. Hunters especially believed the search and registration processes could be improved by providing broad query criteria. The low numbers of landowners registered on the website may reflect this. The probability of finding matching landowners, when there are few, is quite low. This problem is exacerbated by the large number of hunting districts when multiplied by the number of species involved in the program (three). As the number of landowners registered on the website increases, the query criteria may not necessarily need to be narrowed, since hunters may benefit from many matches. Greater matches allow hunters more flexibility when choosing places to hunt as well as choosing what hunting districts to apply for special permits (if required). Additionally, if landowners are trying to maximize hunter numbers, broad search criteria will yield the greatest number of hunter matches, which landowners can then use to organize hunts.

A major problem with the DoeCowHunt website as perceived by hunters was a lack of landowner involvement. Of 84 hunters providing additional comments on the improvement survey, 30% requested increased landowner involvement. Three conditions may account for low landowner website registration. First, and most probable, many

landowners may not be aware of this program. Even if they are, resolving depredation problems may not be a high priority for them. Secondly, Montana landowners are traditionally conservative, and may require a long time to build confidence in a new program. Third, some landowners may be scanning the website to locate and contact hunters without registering; therefore, their website use is not visible to hunters and is difficult to evaluate.

Increasing landowner awareness of the website may be possible through public outreach. Possible outreach methods include, but are not limited to, increased conveyance through county extension agents, press releases, and presentations to special interest groups. Additionally, website administrators may wish to provide a hyperlink to the DoeCowHunt website on other websites frequently visited by landowners, such as the Montana Stockgrowers Association website (www.mtbeef.org).

If landowners continue to prefer making direct contact with registered hunters without registering themselves, website administrators may decide to create a hunter registry program instead, listing only hunters and their specific criteria. Landowners could then query the website for hunters matching their requirements. Under the current DoeCowHunt program, a large number of hunters may use the website to search for landowners and never register. If this is true, it is safe to assume hunters expect to find many landowners registered on the website. If creating a hunter registry website eliminates this expectation, more hunters may be inclined to register. However, this would not remove the need for landowner outreach.

In order for landowners to use a website, they need to be aware of its existence. For example, of 389 registered hunters in 2006 who responded to the evaluation survey, hunters reported 12 occurrences of landowners contacting them. Assuming a different landowner made each contact and no survey response bias, it is possible that a maximum of 45 different landowners contacted hunters during the 2006 hunting season. However, only 18 landowners were registered on the website in 2006. Therefore, if these assumptions are valid, only 33% of landowners using the website are actually registered. Conversely, the maximum number of contacts initiated by landowners, as reported by hunters in the 2006 evaluation survey, was three. Using this as a conservative estimate, a range of 3-45 landowners were actively using the website by initiating contacts with hunters after three years of this program's existence.

Conversely, extensive outreach directed to recruit hunters is less warranted. Currently, 2445 hunters and 18 landowners are registered on the DoeCowHunt website. This was achieved by providing a hyperlink on the MFWP's private land access webpage and with popular media news releases. These outreach efforts not only targeted hunters, but also landowners. However, given the difference between the numbers of registered hunters and landowners, these efforts effectively recruited hunters but not landowners. It is possible that any outreach targeting landowners will recruit adequate numbers of hunters and therefore further efforts to recruit only hunters is preempted by efforts to recruit landowners.

The DoeCowHunt website was designed to be self-operating with minimum web-master involvement to minimize costs, thereby ensuring the website's longevity.

However, all responding landowners suggested a personalized webpage would be beneficial, which would present all hunters matching the landowner's criteria upon logging-on. Additionally, two hunters suggested the same, or some type of system that would automatically contact website users once a new match has been made. Although these ideas would eliminate the search process and streamline the program, such technologies are currently expensive and difficult to maintain. As the costs associated with such innovations decrease, the possibility of such implementation should be further examined.

Most respondents to the improvement survey (67% of landowners, 80% of hunters) indicated that a 'Frequently Asked Question' page would be beneficial to provide a tutorial about the website. Following this, such a webpage was incorporated, which was composed by copying actual questions emailed to the website maintainers and their respective answers. The contents of this page describe how matches are made, how to perform a search, how to register, and how to view and change personal information once logged in. Since this was initiated, the DoeCowHunt website maintainers have received reduced numbers of emails.

Hunters' additional comments on the improvement survey indicated they wanted more information regarding landowners, such as if the landowner would be willing to allow male harvest as well, land accessibility, the possibility of meeting with the landowner prior to the hunting season to establish a working relationship, if the landowner would be willing to allow hunters to work as a way to show appreciation for access and hunter type preference. Some of this demonstrates that some hunters

appreciate landowners' complexities with allowing hunters access for recreational hunting and understand a need to establish and maintain good working relationships with landowners. Knight et al. (1987) reported that most hunters, as well as ranchers, sincerely desired to improve relationships with each other. Similarly, Swensson (1996) identified hunters' and landowners' solutions to potential problems as greater communication, greater consideration and appreciation of the other group. Montana sportsmen may be becoming aware of this and are attempting to develop an appreciation for and consideration toward Montana landowners.

All websites require routine maintenance, such as software, hardware and security updates. Additionally, the DoeCowHunt website contains hunting district maps which may change depending on MFWP commission rules. These maps should be updated yearly to reflect any changes to hunting district boundaries. Since users visited DoeCowHunt most around the hunting season, all website maintenance should be completed before the hunting season. Website visitation is often high prior to the date when license applications are due (Figure 3.). In Montana, these dates are March 15 and June 1 for nonresidents and residents, respectively. Therefore, the website should be available on and around these dates as well.

Website analytics programs may provide useful insights related to visitors' requirements. The website analytics program also provided useful information regarding technical matters. In order for a website to maintain usability, it must be designed to adequately meet the technical requirements of its potential users, such as proper web browser and platform compatibility (Tierney 2000, Benbunan-Fich 2001). New internet

technologies are developed at an amazing pace. Website maintainers must keep up. Website analytics programs may help maintainers accomplish this by reporting most frequently used technologies.

Summative Evaluation

While discussing this program with Montana landowners, some expressed concern about being inundated with telephone calls by hunters wanting access. This was not the case according to landowner evaluation survey results in this study. One landowner in 2004 reported being contacted by ten hunters during the 2003 MFWP big game hunting season. This was the most any one landowner reported being contacted by hunters. In 2006, the most any landowner was contacted was five times, and two landowners were never contacted. The threshold for a perception of being inundated with telephone calls exists, but this threshold is probably highly variable among landowners. Additionally, landowners always have the option to remove their contact information from view on the website.

The number of contacts, successful hunts and animals harvested differed across the three years examined. Two factors may have accounted for this. First, the website modifications may have increased users' understanding and usability of the website, and therefore increased contacts. Secondly, and just as important, time may have been a factor. As the website's timeline progressed, more individuals may have become aware of the website, which could have increased website use. Simply as the number of users increased, the numbers of contacts may have followed. Conversely, time since inception may have decreased the reported numbers on the evaluation survey. For example,

landowners and hunters who made contact with each other the first year may have perpetuated that contact in subsequent years. These landowners and hunters may then have accurately answered the questions posed, which asked only about the prior hunting season. They would have failed to report any contacts that perpetuated across years. Assuming that landowners have a maximum capacity for hunters, they would have logically needed fewer contacts in years subsequent to the first, if they invited the hunters back. This would have decreased the number of reported contacts. Possibly these two factors worked contradictorily. Considering these sources of error, it cannot definitively be stated that the modifications to the website improved the website's ability to meet its intended objectives. However, the 2005 DoeCowHunt website was better at meeting its objectives since the number of contacts for hunters was greater in 2006.

According to the landowner and hunter evaluation survey responses, animals are harvested because of the DoeCowHunt website. This is not a direct objective of the website; it is secondary to providing an avenue for contact between hunters and landowners. However, in terms of ungulate depredation management, this is a logical progression from the contacts provided by the website.

The DoeCowHunt's registrant retention did not change throughout the study. Although hunters expressed concern regarding the lack of participating landowners, they seem to be staying with the program. Hunters apparently are either waiting for more landowners to register in the future or are staying registered because there is no cost associated with a possible reward. The only cost associated with this program is the time to update their information and/or perform a search.

Some landowners, however, are looking elsewhere for economic incentives, such as outfitting and Block Management. These landowners may not realize the indirect effect of decreasing ungulate damage on economic gain. Similarly, the economic loss due to ungulates is not a strong enough stimulus for them to put forth the efforts associated with actively managing the ungulate population on their land.

CHAPTER 6

SUMMARY

The results of this study may provide resource managers in other states a template of the DoeCowHunt website, as well as some points to consider before initiating such a program. Landowner outreach is probably the most important aspect of starting such a project. If limited landowner registration is a concern, resource managers may consider altering their website such that it becomes a hunter registry website that landowners may access to find hunters. Early in the design process, resource managers considering a similar website need to establish clear objectives of stakeholder involvement. These objectives can subsequently be evaluated to measure the website's merit.

Additionally, resource managers considering a similar website should consider an automated system that contacts website registrants once a new match is created, or a technician to manually match landowners with hunters. The costs and benefits associated with these options should be weighed against a self-operating website, such as the DoeCowHunt website.

Most respondents to the improvement survey indicated a need for a 'Frequently Asked Question' (FAQ) page, which acts as a tutorial for the website. The FAQ page helped interested parties understand how the website was designed to provide contacts, and therefore this better understanding may have increased the website's use by hunters and landowners, instead of waiting for someone else to make the contact for them. The FAQ page also lessened the time that website maintainers devoted to responding to visitors' emails pertaining to the website.

Furthermore, resource managers need to assess the scope of the registration and search processes. Initially, broad searches should prevail. As more individuals register on the website, however, the search functions should narrow focus.

The website should be available year-round. Maintenance should be completed prior to deadlines for hunting permit applications and the general hunting season. Additionally, if maps of hunting districts are provided, they should be updated yearly, as they frequently change. Although unreliable for rigorous analyses, website analytics programs should be considered by the website maintainers to ensure compatibility with users' computer system requirements. A means to perform critical evaluations should be incorporated into the program. These evaluations should examine the program's ability to achieve its objectives to warrant continuing funding.

Finally, the Webtrends website analytics program is not recommended to critically evaluate users' technical preferences for such a website. The reports compiled by this analytics program were difficult to generate and did not allow easy visual comparisons to be made because of an inflexible report generating scale. However, a similar program is recommended, as long as the raw data are available for analysis and the report generating scales are flexible.

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APPENDICES

APPENDIX A

LANDOWNER IMPROVEMENT SURVEY

Dear Montana Landowner,

I am currently working with Dr. Jim Knight in the Animal and Range Sciences Department at Montana State University. We developed the DoeCowHunt website (www.doecowhunt.montana.edu) and are currently interested in your ideas on how the website could be made easier to use.

Your response to an earlier survey indicated that you would be willing to complete another questionnaire to help us identify improvements to the website. As a registrant of the DoeCowHunt website, your input is requested in order to evaluate how certain changes would affect the website's ease of use while providing an avenue for hunters and private landowners to contact each other for the purpose of harvesting antlerless deer, elk, and antelope. Versions of this questionnaire are being sent to hunters and landowners registered on the DoeCowHunt website in an attempt to identify needed improvements to the website. This will eventually lead to an improved web site for the 2004-2005 Montana big-game hunting season. It will take less than five minutes for you to fill out this questionnaire.

Please complete the following questionnaire in as much detail as possible by clicking on 'reply' or 'reply to sender' in your email toolbar, then type your responses in the space provided after each question. Following completion of the questionnaire, please click 'send.' For individuals who have a Mac computer with a Mac OS installed, click on 'Forward' in the email toolbar, type your responses in the space provided after each question, then click 'Send Now' to dispatch the reply. You need only to respond once. Your answers will only be reported as a group average and your individual responses will remain anonymous except to me.

Please return the questionnaire as soon as possible. Thank you for your assistance.

Respectfully,

Marc W. Kenyon, Jr.
Wildlife/Range Extension Associate
MSU Extension Service

Questions:

How did you hear about the DoeCowHunt website?

•

Have you experienced any trouble viewing the website?

•

If so, please explain.

•

Do you feel the registration system is cumbersome?

•

How so?

•

If so, please list any ideas you may have to improve this function.

•

Would it be helpful if a personalized web-page which automatically provided a list of all hunters fitting your criteria (district, species) as soon as you logged onto the website?

•

Would it be helpful to you to provide a tutorial page explaining how the registration process works, how to contact a hunter, and how to find contact information for a hunter as part of a “frequently asked question” page?

•

Would it be beneficial if the website were made available the entire year, instead of only during the hunting season?

•

Please list three ideas to improve the website, other than the ones listed above.

•

•

•

APPENDIX B

HUNTER IMPROVEMENT SURVEY

Dear Montana Hunter,

I am currently a Range/Wildlife graduate student at Montana State University. The Wildlife Extension Program at MSU developed the DoeCowHunt website (www.doecowhunt.montana.edu) and we are currently interested in your ideas on how the website could be made easier to use.

Your response to an earlier survey indicated that you would be willing to complete another questionnaire to help us identify improvements to the website. As a registrant of the DoeCowHunt website, your input is requested in order to evaluate how certain changes would affect the website's ease of use while providing an avenue for hunters and private landowners to contact each other for the purpose of harvesting antlerless deer, elk, and antelope. Versions of this questionnaire are being sent to hunters and landowners registered on the DoeCowHunt website in an attempt to identify needed improvements to the website. This will eventually lead to an improved web site for the 2004-2005 Montana big-game hunting season. It will take less than five minutes for you to fill out this questionnaire.

Please complete the following questionnaire in as much detail as possible by clicking on 'reply' or 'reply to sender' in your email toolbar, then type your responses in the space provided after each question. Following completion of the questionnaire, please click 'send.' For individuals who have a Mac computer with a Mac OS installed, click on 'Forward' in the email toolbar, type your responses in the space provided after each question, then click 'Send Now' to dispatch the reply. You need only to respond once. Your answers will only be reported as a group average and your individual responses will remain anonymous except to me.

Please return the questionnaire as soon as possible. Thank you for your assistance.

Respectfully,

Marc W. Kenyon, Jr.
Wildlife/Range Extension Associate
MSU Extension Service

Questions:

How did you hear about the DoeCowHunt website?

•

Have you experienced any trouble viewing the website?

•

If so, please explain.

•

Do you feel the registration system is cumbersome?

•

How so?

•

Should we provide an option for hunters to register statewide, rather than solely by district?

•

Should we provide an ‘all species’ (deer, elk, and antelope) option for hunter registration?

•

Do you feel the search process would be made easier for you if we provide a means by which you could search by region, district, species, or any combination thereof to find participating landowners matching your criteria?

•

Would it be helpful to you to provide a tutorial page explaining how the registration process works, how to contact a landowner, and how to find contact information for a landowner as part of a “frequently asked question” page?

•

Would it be beneficial if the website were made available the entire year, instead of only during the hunting season?

•

Please list three ideas to improve the website, other than the ones listed above.

•

•

•

APPENDIX C

LANDOWNER EVALUATION SURVEY

Dear Montana Landowner,

I am currently working with Dr. Jim Knight in the Animal and Range Sciences Department at Montana State University. We developed the DoeCowHunt website (www.doecowhunt.montana.edu) and are currently interested in how the website helped you. This survey is the second installment of a multi-year study aimed at providing a refined and innovative tool for wildlife management and increasing hunting opportunities.

As a registrant of the DoeCowHunt website, your input is requested in order to evaluate how effective the website is at providing an avenue for hunters and private landowners to contact each other in Montana for the purpose of harvesting antlerless deer, elk, and antelope. Versions of this questionnaire are being sent to hunters and landowners registered on the DoeCowHunt website in an attempt to better understand how effective the website is and will eventually lead to an improved web site. It will take less than five minutes for you to fill out this questionnaire.

Please complete the following questionnaire in as much detail as possible by clicking on 'reply' or 'reply to sender' in your email toolbar, then type your responses in the space provided after each question. Following completion of the questionnaire, please click 'send.' For individuals who have a Mac computer with a Mac OS installed, click on 'Forward' in the email toolbar, type your responses in the space provided after each question, then click 'Send Now' to dispatch the reply. You need only to respond once. Your answers will only be reported as a group average and your individual responses will remain anonymous except to me.

Please return the questionnaire as soon as possible. Thank you for your help.

Respectfully,

Marc W. Kenyon, Jr.
Wildlife/Range Extension Associate
MSU Extension Service

Questions:

Were you registered on the DoeCowHunt web site at any time during the 2004-2005 big-game hunting season?

•

How many different hunters contacted you regarding the 2004-2005 big-game hunting season as a result of you being registered on the DoeCowHunt web site?

•

How many different hunters did you contact regarding the 2004-2005 big-game hunting season through the DoeCowHunt web site?

•

During the 2004-2005 big-game hunting season, how many invitations to hunt on your property did you offer to hunters as a result of using the DoeCowHunt web site?

•

How many of these invitations were accepted?

•

If your invitations were accepted, did the hunts result in harvesting antlerless big-game?

•

If known, please report the following harvest data resulting from the use of the DoeCowHunt website:

Number of antlerless deer taken:

•

Number of antlerless elk taken:

•

Number of antlerless antelope taken:

•

Do you plan to use the DoeCowHunt web site for the 2005-2006 hunting season?

•

If not, why?

•

May we contact you to complete a more detailed survey (approximately 20 minutes to complete) designed to identify changes you feel are necessary to improve the use of the DoeCowHunt web site?

•

APPENDIX D

HUNTER EVALUATION SURVEY

Dear Montana Hunter,

I am currently a Range/Wildlife graduate student at Montana State University. The Wildlife Extension Service at MSU developed the DoeCowHunt website (www.doecowhunt.montana.edu) and we are currently interested in how the website helped you. This survey is the second installment of a multi-year study aimed at providing a refined and innovative tool for wildlife management and increasing hunting opportunities.

As a registrant of the DoeCowHunt website, your input is requested in order to evaluate how effective the website is at providing an avenue for hunters and private landowners to contact each other in Montana for the purpose of harvesting antlerless deer, elk, and antelope. Versions of this questionnaire are being sent to hunters and landowners registered on the DoeCowHunt website in an attempt to better understand how effective the website is and will eventually lead to an improved web site. It will take less than five minutes for you to fill out this questionnaire.

Please complete the following questionnaire in as much detail as possible by clicking on 'reply' or 'reply to sender' in your email toolbar, then type your responses in the space provided after each question. Following completion of the questionnaire, please click 'send.' For individuals who have a Mac computer with a Mac OS installed, click on 'Forward' in the email toolbar, type your responses in the space provided after each question, then click 'Send Now' to dispatch the reply. You need only to respond once. Your answers will only be reported as a group average and your individual responses will remain anonymous except to me.

Please return the questionnaire as soon as possible. Thank you for your help.

Respectfully,

Marc W. Kenyon, Jr.
Wildlife/Range Extension Associate
MSU Extension Service

Questions:

Were you registered on the DoeCowHunt web site at any time during the 2004-2005 big-game hunting season?

-

How many different landowners contacted you regarding the 2004-2005 big-game hunting season as a result of you being registered on the DoeCowHunt web site?

-

How many different landowners did you contact regarding the 2004-2005 big-game hunting season through the DoeCowHunt web site?

-

During the 2004-2005 big-game hunting season, how many invitations to hunt on private property did you receive from private landowners as a result of being registered on the DoeCowHunt web site?

-

How many of these invitations did you accept?

-

If you accepted these invitations, were your hunts successful in harvesting antlerless big-game?

-

If applicable, please report the following harvest data resulting from the use of the DoeCowHunt website:

Number of antlerless deer taken:

-

Number of antlerless elk taken:

-

Number of antlerless antelope taken:

-

Do you plan to use the DoeCowHunt web site for the 2005-2006 hunting season?

-

If not, why?

-

May we contact you to complete a more detailed survey (approximately 20 minutes to complete) designed to identify changes you feel are necessary to improve the use of the DoeCowHunt web site?

-