

Highlights of Key Access Research

Hunting Heritage Action Plan Project



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The term “access” has many meanings depending on the user and the context of the term’s use. For this literature review, the term “access” has been broadly defined as: activities that influence the ability of hunters to hunt on a piece of public or private land. Numerous issues are captured by the generic term “activities.” Each of these issues is further explored within the subsequent sections of this literature review. In general, these issues are divided along the lines of public land issues and private lands issues. However, some issues transcend this division and apply to both land types. In those cases, the issue is treated independently and given a separate heading.

Comments made in some sections of various issues are observations made by D. J. Case and Associates (DJCA) staff. Some of these comments may be contrary to generally held views, and are provided in the interest of exploring the full spectrum of *potential* options available in meeting the goal of increasing access to land for hunting by hunters.

This review represents the highlights and selected results from the literature regarding access to land by hunters. The citations used in this document are provided at the end of the document. However, in addition, a more comprehensive bibliography on access has been developed as a separate document.

Hunters’ use of various land-types

The following tables depict hunter usage of public and private lands:

- The percentage of hunters using public lands exclusively appears to be remarkably stable during the selected time frame.
- However, there is a declining trend in hunters using a combination of public and private lands.
- The percentage of hunters using private lands exclusively is increasing.
- No research has been conducted to determine the “churn rate” of hunters using various land types, i.e. whether hunters who previously used a combination of public and private lands are shifting to exclusive use of private lands.

Table 1. Percentage of hunters using public and private lands, 1985–2006.

Year	Public land hunters	Hunters using both public and private lands	Private lands hunters
1985	16 %	31%	51%
1991	15%	29%	54%
1996	17%	30%	51%
2001	14%	25%	57%
2006	15%	24%	58%

(Compiled from: U.S. Department of the Interior, Fish and Wildlife Service, U.S. Department of Commerce, and U.S. Census Bureau 1985, 1991, 1996, 2001 and 2006 *National Survey of Fishing Hunting and Wildlife–Associated Recreation*.)

These numbers are generally corroborated by Cordell et al. (1999) who reported that 54% of hunters hunted on private lands and 31% hunted on “government” lands; and Mozumder et al. (2007) who conducted an independent review of hunting trends on public and private lands.

The estimated numbers of hunters and hunter-use days are depicted in the following two tables:

- The overwhelming trend is for fewer hunters to participate in fewer days of hunting.
- This trend is most severe for hunters using a combination of both public and private lands. It is important to note that a hunter using both public and private land on a single day is counted as a “user day” in each category.
- No data exist to determine the “hunter-use days” pattern of these “combination hunters.” However, the number of hunters using public lands has declined at a rate roughly twice that of hunters using private lands.

Table 2. Numbers of hunters using public and private lands, 1985–2006.

Year	Public land hunters	Hunters using both public and private lands	Private lands hunters
1985	2,629	5,224	8,522
1991	2,115	4,073	7,587
1996	2,344	4,188	7,195
2001	1,879	3,277	7,447
2006	1,888	3,013	7,193
Trend	(-28.2%)	(-41.8%)	(-15.6%)

(Numbers in thousands. Compiled from: U.S. Department of the Interior, Fish and Wildlife Service, U.S. Department of Commerce, and U.S. Census Bureau 1985, 1991, 1996, 2001 and 2006 *National Survey of Fishing Hunting and Wildlife–Associated Recreation*.)

- Total use of public lands, while also declining at a greater rate than private lands, has not declined at the same relative rate as use of private lands. In other words, a 28.2% decline in hunter numbers on public lands has resulted in a 42.4% decline in the number of hunter-use days. While on private lands, a 15.6% decline in the number of hunters resulted in a 35.7% decline in the number of hunter-use days.

The ability to access both public and private lands likely plays a significant role in the estimated declines reported. However, the precise nature of the role that lack of access plays is difficult to determine.

Table 3. Number of hunter-use days on public and private lands, 1985–2006.

Year	Public land hunter use-days	Private land hunter use-days
1985	94,388	255,703
1991	64,707 (-32.5%)	178,990 (-28.5%)
1996	77,018 (+19%)	198,165 (+10.7%)
2001	60,454 (-23.5%)	169,795 (-14.6%)
2006	54,435 (-10%)	164,319 (-3.3%)
Trend	-42.4%	-35.7%

(Numbers in thousands. Compiled from: U.S. Department of the Interior, Fish and Wildlife Service, U.S. Department of Commerce, and U.S. Census Bureau 1985, 1991, 1996, 2001 and 2006 *National Survey of Fishing Hunting and Wildlife–Associated Recreation*.)

Role of access in hunter satisfaction and desertion

Numerous studies have identified lack of access as an issue in hunter dissatisfaction and desertion (Hayslette, 2008; Stedman, et al. 2008; Mozumder et al. (2007); Miller, et al. 2002; Responsive Management 2004a; Responsive Management 2004b; Responsive Management 2003a; Lauber and Brown 2000; Messmer, et al., 1998; Cordell et al. 1999).

- For the purposes of this review, “lack of access” has been liberally interpreted to include a range of issues related to having a convenient place to hunt. These are:
 1. lack of physical means to access to a particular property (such as a road or trail; this is generally a public lands issue);
 2. lack of psychological access (i.e., the physical access to the land exists, but permission to access it for hunting cannot be obtained; this is generally a private lands issue);
 3. perceived crowding on public lands (which causes public land users to seek out other areas or other activities);
 4. perceived safety issues on public lands (which causes public land users to seek out other areas or other activities);
 5. posting of private lands (which causes private land users to seek out other areas or other activities);
 6. leasing of private lands by other hunters for their exclusive use (which often displaces current hunters or causes equity issues);
 7. the sale or transfer of private lands (which often displaces current hunters);
 8. not having a “place to go” hunting; and
 9. distance traveled or time required to get to a place to hunt.

Technically, not all of these are “access issues,” per se. However, they all influence the “availability” of a “place to go” hunting.

In all of the studies cited, this list of issues was cited by hunters as significant reasons that they either participated in hunting less frequently or stopped hunting completely.

- Generally, one item on this list was cited as the top issue in which agencies or organizations had some degree of control over.
- Agencies and organizations have virtually no control over issues such as, “not enough time;” or “conflicts with family or work obligations.”

In a broader sense, these issues are also connected to having a convenient place available to go hunting: if such places existed, hunting might be able to compete more effectively with other demands on a hunter’s time.

Access issues on public lands

The term “access” when used in conjunction with federal public lands often has many connotations, including access to timber, grazing, oil, gas or other resources.

- The focus of this review is on *hunter access*. This distinction was critical in the opening discussions of a workshop hosted by the Congressional Sportsmen’s Foundation and the Wildlife

Management Institute (Congressional Sportsmen's Foundation 2002). This workshop further defined modes of transportation to help further clarify the issues as:

- foot;
 - horse;
 - Off-road Vehicle (ORV); and
 - vehicle
- Concern about access to public lands has been expressed in various forms for more than 40 years.
 - A report issued by the General Accounting Office (GAO 1992) indicated that approximately 50 million acres of USDA Forest Service (USDA-FS) and Bureau of Land Management (BLM) land had inadequate public access (Congressional Sportsmen's Foundation 2002).

The workshop (Congressional Sportsmen's Foundation 2002) identified 24 issues of concern, eight of which were critical:

- Public Land Management Agency Planning Process: How are access issues incorporated into the agency land-use planning processes?
- Wildlife Resource's Impact on Recreational Access: How do wildlife and habitat management decisions affect hunter access and hunter satisfaction?
- Awareness of Land Ownership Patterns: Do checkerboard ownership patterns and inadequate signage affect hunter access to public lands?
- Lack of Hunter Knowledge of Access Opportunities: Do agencies provide hunters with enough information regarding access, and do they provide it through effective channels?
- Hunter Access through Private Property: What are the trends, impacts of, and solutions to access problems caused by public lands that are "landlocked" by private property?
- Inventory of Road Ownership: Is there a need for an inventory of road ownership so hunters can be certain which roads can be legally used for access to public lands?
- Increased Demand for Public Land as a Result of Decreased Availability of Private Land: What is the trend for hunter use of public land, and the relationship between access to private lands and access to public lands?
- Assessing Impacts of Land Exchanges, Disposal, etc. on Hunting Access: Is there a need for a centralized clearinghouse that can be used to assess both the quantitative and qualitative impacts of these actions on hunter access?

Progress, and improved awareness on the importance of each of these issues, has likely been made, but is difficult to quantify. Many of these issues can best be addressed through the various land management planning processes. However, this review did not examine how these issues are being incorporated into the new management plans.

Several additional issues identified at this workshop, but not identified as critical issues, deserve mention (for a complete list of issues, see Congressional Sportsmen's Foundation 2002):

- Importance and value of increasing access to hunters: How much do hunters care about this issue and how willing are they to become involved?

This is a critical question regarding future efforts for providing access. At present, little evidence has emerged that indicates this issue has "caught-on" or occupies much attention with the hunting public.

However, within the broader context of improving recruitment and retention of hunters, this issue appears to have become important to state wildlife management agencies and the NGO conservation community (Miller et al., 2002; Benson 2001; Messmer et al. 1998; Wigley and Melchioris 1987; Wright & Kaiser 1986; and Guynn and Schmidt 1984).

Another issue raised at the workshop is:

- Access as a function of quality of existing opportunities: Do some hunters prefer that certain public lands not have additional access or specific types of access because it reduces the quality of their experience (limited pressure, quality of animals, etc)?

A few studies (discussed in detail later) indicate that at least some hunters are aware of this issue, as well as the delicate balance between too much/too easy access and a quality hunting experience.

- Increased demand for public lands: Is there an increase in demand for access to public land as access to private land for hunting decreases or comes with a fee?

As indicated in the preceding tables (*National Survey of Fishing, Hunting and Wildlife-Associated Recreation* 1985, 1991, 1996, 2001 and 2006), the numbers of hunters and the number of hunter-use days has declined precipitously during the past 20 years. Bowker (1999) predicted declines in hunter numbers, but estimated hunter-use days on public lands would grow modestly in most regions. Most of these estimates were optimistic and have not materialized.

- Reported numbers and trends seem to indicate that capacity already exists to accommodate additional hunters. However, raw numbers likely do not tell the whole story and have to be placed in context with existing on-the-ground management actions and changes in society.

Hunter access to federal land

The following table contains results from a study of hunters in Colorado regarding their opinions on access to federal lands (Responsive Management 2003a).

Ratings of Access of All Types of Land in Colorado

Land Type	Percent Rating Excellent	Percent Rating Good	Percent Rating Fair	Percent Rating Poor	Percent Rating Excellent or Good	Percent Rating Fair or Poor
National Forest/Grassland Land	20	53	17	7	73	24
Federal Public Land	20	51	20	8	71	28
Public Land	21	48	19	8	69	27
BLM Land	15	46	25	12	61	37
National Wildlife Refuge Land	9	43	23	8	52	31
Private Land	15	26	23	31	41	54

- Generally, hunters believed that access to federal public lands was excellent or good (Responsive Management 2003a; Responsive Management 2004a).
- In the 2003 study, more than three times the number of hunters rated federal land access as excellent or good than fair or poor.

However, specific access-types were identified as problematic for various land-types. Specifically, hunters identified:

- Private lands blocking access was identified as a concern for 66% of hunters using BLM lands; 40% of hunters using national forests; and 28% of hunters using National Wildlife Refuges;
- Road closures caused concerns for 45% of hunters using national forest lands and 28% of hunters using BLM lands;
- Twenty-five percent of hunters using National Wildlife Refuges identified having the refuge *closed* to hunting as a concern. While this issue affects hunting, it is not, technically, a “hunting access” issue. In addition, numerous refuges have expanded hunting opportunities since this study was completed.

For all land types — federal and private — the percentages of hunters saying access is getting worse exceed the percentages saying access is getting better.

However, in a Virginia study (Responsive Management 2004a):

- 23% of hunters believed that access to federal lands had gotten worse in the past five years.
- In Texas, only 12% of hunters believed that access to federal lands had gotten worse during the previous five years (Responsive Management 2004a).

Modes of access

As mentioned earlier, all modes of access are not equally supported.

- When asked about increasing access, hunters expressed support for more access by foot (49%) and by horse (32%) (Responsive Management 2003a).
- Hunters did not support more motorized access:
 - 70% favored *less access* for motorbikes
 - 56% favored *less access* by ATVs
 - 29% favored *less access* by truck
- Conflicts with ATV users were identified by 18% of the hunters using national forest lands and 17% of hunters using BLM lands (Responsive Management 2004a).

Wilderness and roadless areas

Widespread support for roadless areas among hunters (Responsive Management 2003a) appears to be corroborated by their desire to have more access by foot and horse (Responsive Management 2004a).

State owned or leased lands

Many states have invested heavily in owning or leasing lands available for hunting (Responsive Management 2003b):

- Approximately 76.6 million acres are owned by states and open for hunting. Approximately 21 percent of these lands are in Alaska.
- An additional 35.7 million acres are leased by states and open for hunting. Approximately, 46% of this land is in two states: New Mexico and Montana.

Clear trends and patterns are difficult to discern in this study (Responsive Management 2003b). However, it appears that:

- States which have historically invested in hunting lands either through purchase or lease are less likely to be experiencing declines in license sales.
- A corollary statement: states that have relatively recently recognized the importance of expanding hunting lands *are* generally experiencing license declines. In other words, states that have invested over the long-term in making hunting lands available are generally not as concerned with expanding these lands (because they already have invested in them) and are less likely to be experiencing declines in license sales.

This study also looked at the ratio of resident hunting licenses to non-resident licenses.

Those with the highest ratios are considered “destination hunting locations” because they are attractive to non-resident hunters.

- In comparing these “destination” states with other tabulations made in this study, a speculative (and untested) correlation may exist: states that are noted for upland/waterfowl/small game hunting *and* have invested in making hunting lands available through ownership or leasing are less likely to be experiencing declines in license sales. (Note: annual license sales are not necessarily a good measure of recruitment or retention of hunters.)

State Access programs

Wright and Kaiser (1986) reported that access was considered to be a major problem by 55% of the states. Interestingly, most of these were Western states. Fifty-seven percent of the “non-public land” states did not consider it to be a major concern. It is likely that these numbers will have changed considerably during the past 20 years.

Numerous states have developed private lands access programs. However, their effectiveness and long-term viability are variable: in 1985, 38 states reported that they had public access to private lands programs and 16 had plans for new programs (Wigley and Melchioris 1987).

- Wright and Kaiser (1986) reported 32 states had access programs.
- In 1994, only 20 states reported having access programs (Benson 2001). Benson (1999) reported the same number in 1999 indicating little program growth. However, in an appendix to the 1999 report, Benson provided a state-by-state listing of various access programs which will provide a useful reference for changes in access programs.
- The Wildlife Management Institute (unpublished data, 2007) identified 20 states having “walk-in” access programs; 31 with cooperative management access programs; and 13 states that held public access easements to or across private land.

An assessment of Washington State’s access programs (Responsive Management 2004b) determined that the three different private land access programs opened 6% more land to hunting.

It is important to note that most of these private land access programs were judged to be, at best, only moderately effective (Miller et al. 2002; Wigley and Melchoirs 1987; Guynn and Schmidt 1984).

- Messmer et al. (1998) reported on a cooperative wildlife management program developed in Utah. It was designed to open *big game* hunting opportunities on private land. Big game tags were allocated to either the public (via a drawing) or the landowner (which they could sell) according to a formula selected by the landowner. The number and types of tags (antlered or antlerless) varied depending on the allocation formula chosen. The landowner could sell their tags while the

public tags were distributed by drawing. The program opened up 400,000 hectares of private land that was previously closed to public hunting. The agency, landowners and the hunting public gave the program high marks.

- Miller et al. (2002) evaluated an access program in Illinois. This program was designed to provide improved access for *small game* and pheasant hunting to *resident* hunters. The evaluation determined that the program actually functioned as providing access primarily for *non-resident deer* hunters. Resident hunters did not rate the program highly, while landowners were very satisfied.

Trends in private land ownership

With few exceptions, hunting generally takes place in rural landscapes. Changes in rural land ownership patterns potentially can have a significant impact on hunter access to land (Stedman, et al. 2008; Conover and Messmer 2001; Teasley et al. 1999; Conover 1994):

- Roughly 60% of the United States is privately owned.
- The total amount of land being farmed is relatively stable.
- Occupational farming operations have grown in size; while the “family owned farm” has become a rarity.
- In 1880, the average farm consisted of 134 acres; in 1986, the size increased to 456 acres. The average size of farms owned by occupational farmers participating in a survey in 1992 was 1,380 acres. This trend is continuing as corporate farms and mechanization has increased consolidation of land holdings.

The trend for forested land holdings are just the opposite (Conover and Messmer 2001).

- Forest cover has increased dramatically during the past century, especially east of the Mississippi River.
- The number of private non-industrial forest land owners has increased from 7.8 million people in 1982 to 9.9 million people in 1996.
- These owners controlled approximately 113 million acres in 1982. The size of the total holdings is projected to be approximately 150 million acres in 2010.
- While the trends in number of owners and the total amount of forested land are increasing, the average size of their holding is declining.
- In 1994, more than 90% of forest landowners owned parcels less than 100 acres and average size was 24 acres. By 2010, average size is projected to be 17 acres.

These trends are exacerbated near urban areas, but their impact is not limited to urban areas:

- The population of “rural people” and their corresponding cultural roots are diminished.
- Larger corporate farms and ranches likely have different goals and motivations than owners of small holdings and may not be as fully integrated into the local socio-culture than family-owned operations (Zhang et al. 2006; Brown, et al., 2001; Adams et al. 2000; Baen 1997; Raedeke et al. 1996; Siemer and Brown 1996; Butler and Workman, 1993; Marsinko et al. 1992).
- Smaller forested land holdings make it difficult for hunters to find a suitable hunting location, even if the landowner were amenable to allowing hunters to use their property (Stedman et al. 2008; Conover and Messmer 2001; Teasley et al. 1999).

Impact of private land sales

The rural culture is also changing as rural lands are “parcel-ized” (Brown et al. 2001). New residents are generally from more urban areas, and likely bring with them attitudes and values that reflect their previous residence (Jones et al. 1999; Bliss et al. 1997). While these researchers did not specifically delve into attitudes toward hunting, the changing demographics documented in these studies were generally more aligned with people who are not active hunters, nor likely have an interest in participating in hunting.

While these smaller parcels of land, theoretically, could support hunting, obtaining access to them will likely be extremely difficult for the average hunter (English et al. 1999). The attitudes and values of the new landowner may be an additional obstacle that hunters trying to access this land will have to negotiate (Jones et al. 1999; Bliss et al. 1997).

- Land transfers, regardless of the sizes of the parcels involved, often are disruptive to the rural culture, and the new owners likely will not recognize previous access agreements (Stedman et al. 2008; Izaak Walton League of America 1999).

English, et al. (1999) also note that:

- There will be an increasing challenge of having and keeping access to desirable recreational areas.
- There is a reduction of privately owned lands available because of conversion to other uses.
- There is a reduction in the per-capita public land base; the human population is increasing while the public land base is not [or growing slowly compared to human population].
- There is a widening gap between the very rich and the very poor; the “middle-class” has gotten considerably smaller.

The transient nature of current society is also adversely impacting access. Hayslette (2008) indicated that moving to an urban area reduced Alabama dove hunters’ opportunities to hunt. This research indicated that for hunting attrition, *current residence was a more important determinant of participation than age of initiation*. Part of this attrition was related to loss of contact with rural land owners.

Teasley et al. (1999) stated, “Without potentially large incomes to support leasing, most urbanites will not be able to acquire access to private land.” In addition, these authors paint a sobering picture by stating that, “most city dwellers do not have the means or the time to spend traveling past urban areas to take advantage of recreational opportunities, even if those opportunities were available.”

Access to private lands

Access problems to *private land* appears to be greater than those on federal lands and is considered to be getting worse (Hayslette 2008; Stedman et al., 2008; Responsive Management 2004a; Responsive Management 2004b; Responsive Management, 2003a; Miller et al. 2002; Benson 2001; Lauber and Brown, 2000; Izaak Walton League of America 1999; English et al. 1999; Teasley et al. 1999):

- Benson (2001) reported that 96% of state wildlife administrators believed that access to hunting had gotten worse in the past five years and *free access* had declined by 45 percent.
- Miller et al. (2002) reported that hunters identified access to private lands as their number one concern. Forty-eight percent had lost access to private lands in the past five years and 63% had been refused permission.
- Lauber and Brown (2000) reported that improvement in access was *unlikely*. This conclusion was based on the fact that landowners were already experiencing deer damage and yet chose to restrict access.

- The Izaak Walton League of America (1999) noted that “landowners have little to gain by letting strangers hunt their land.”
- Smith, et al. (1992) reported that 58% of small game hunters in Minnesota found it difficult or very difficult to find a place to hunt.

Numerous researchers have determined that many hunters hunt on private, posted lands (Stedman et al. 2008; Miller et al. 2002; Brown et al. 2001; Lauber and Brown 2000; Teasley et al. 1999; Radaeke, 1996; Butler and Workman. 1993; Smith et al. 1992; Wright et al. 1988):

- Hunters primarily gain access through friendship or kinship relations.
- The inner working of kinship and friendship relations to gain hunting access is described by Raedake (1996), where he theorizes that granting access is best viewed as a “social commodity” that often defines the strength of relationship between the landowner and hunter. Similar, complex access granting processes were also identified by other researchers (Hayslette 2008; Brown et al. 2001; Lauber and Brown 2000; Butler and Workman 1993).

Granting access to strangers is a less frequent occurrence:

- Teasley et al. (1999) determined that approximately 15% of landowners have some land completely open to hunters. This varied by region with the North having the highest rate at 19%, and the South having the lowest rate at 8 percent.
- Having land open to “others that the landowners don’t know” was reported at a higher rate by Teasley et al. (1999) than other researchers. These rates were between 50% for the Pacific Coast; and 26% in the North. However, it is unclear if these “strangers” included people who leased the hunting rights but were not known by the landowner.
- Other researchers (Lauber and Brown 2000) reported that 15% of landowners would allow access to strangers; while Wright et al. (1988) determined that only 8% of East Texas landowners fell into the “open” category.

Landowner perspectives on access

Several researchers have examined landowner perspectives on hunting access. Each of the issues identified will be discussed in greater detail. However, in general, landowners were concerned with:

- Control of who is on the property. To a lesser extent, they also may want to control when people use their property and what they may be hunting.
- Hunter behavior
- Personal safety
- Liability
- Damage, vandalism and litter
- Personal use of property

Leasing land for hunting also will be addressed in detail later. *However, getting paid for access was not determined to be a primary motivation for most landowners.* Most of the studies which examined landowner perspectives were conducted in the 1990s. This attitude may have changed and this motivation may have become more important in recent years; however, no studies were found to test this hypothesis.

Wright et al. (1988) identified five different landowner types in Texas, based on their willingness to provide hunting access:

- Exclusive – Property is used for exclusive personal use. This use is a major motivation in owning the property.
- Restrictive – Property is used for family and friends. This was the most common landowner type. This land-type is the one that most hunters have access to. This land is also commonly posted.
- Open – Property that is open to any hunter or anyone who asks. This is the least common landowner type that allows hunting.
- Fee – Property is open for a fee. There are great regional differences in the frequency of this landowner type.
- Closed – Property is not open to hunting at all. Often these landowners have protectionist attitudes.

While this study was conducted in Texas, it is important to remember that these archetypes likely exist in other regions of the country. Findings by Teasley et al. (1999) generally support these categories. However, generalizations about private lands access programs need to be placed within the context that these categories likely exist.

- It is also important to note that the Izaak Walton League of America (1999) reported that many landowners, “already let as many hunters on their land as possible.” The hunter “carrying capacity” appears to be determined by the landowner and likely varies by species. However no studies have documented this hypothesis.

Animal damage and access

Conover (1994) reported that 89% of landowners experienced wildlife damage, yet only 79% allowed hunting. Nine percent of these landowners charged a fee to hunt.

Hewett and Messmer (1997) reported that excessive wildlife damage may cause landowners to *reduce recreation access*. The authors speculated that this action may be related to the feeling of some landowners that allowing hunter access to their land was a “favor” to the agency. Landowners may close their lands to hunting and reduce any wildlife management activities in retaliation to their belief that the agency is unresponsive to excessive wildlife damage.

Lauber and Brown (2000) found that, in New York, landowners experiencing high rates of wildlife damage were less likely to post their lands and more likely to grant access permission to strangers.

Posting private property

The prevalence of posting private property has been used as a surrogate to measure availability of hunter access (Brown et al. 2001; Siemer and Brown 1993; Guynn & Schmidt 1984). The validity of this metric is questionable because the motivations for posting are complex, and the act of posting property against *trespass* is not the same as prohibiting hunting.

Several researchers have examined the motivations of landowners to post their property (Responsive Management 2004a; Brown et al., 2001; Lauber & Brown 2000; Izaak Walton League of America 1999; Teasley et al. 1999; Messmer et al. 1998; Wright et al. 1988 ; Guynn and Schmidt 1984). The list of concerns is the same as those identified in the previous “**Landowner perspectives on access**” section. However, by far, the most important motivation to post private property was:

- Control of who uses the property. This was the most frequently cited motivation in *all* of the studies conducted. However, this may be driven by landowner perceptions that if they do not post their property, they cannot eject trespassers and may be exposed to greater liability.

The trend in posting private property has been reasonably well documented (Stedman et al. 2008; Brown, et al. 2001; Teasley et al. 1999; Guynn and Schmidt 1984):

- In New York, private lands were posted at a 25% rate in 1962; this increased to 42% in 1973. Areas of land under posting increased by 72% in the same time period.
- Oregon determined that 45% of private land was “closed” (Guynn and Schmidt 1984).
- Lands in eastern Colorado were posted at a rate of 53%, while those in western Colorado were posted at a rate of 82% (Guynn and Schmidt 1984).
- Teasley et al. (1999) reported posting rates by region of the country. The Pacific Coast region was the highest with a 46% rate, while the Rocky Mountain region was the lowest with a 31% rate.
- All regions of the country reported that 15-16% of landowners expected to post more land in the future. Less than 3% indicated that they would likely post less land Teasley et al. (1999).
- Lauber and Brown (2000) reported 82% of the landowners in their study posted their land. Only 15% granted access to strangers.

It is important to restate that posting is not a good measure of access to a particular parcel of land for hunting. It is more accurately a measure of the landowner’s desire for control of the property.

Hunter behavior

Poor hunter behavior was frequently cited by landowners as a reason to post land or deny access (Zhang et al. 2006; Responsive Management 2004a; Brown et al. 2001; Lauber and Brown 2000; Izaak Walton League of America 1999; Teasley et al. 1999; Messmer et al. 1998; Siemer and Brown 1996; Wright et al. 1988; Wright and Kaiser, 1986; Guynn and Schmidt 1984).

Several authors recommended that access initiatives developed by state wildlife agencies include a hunter education ethics component (Izaak Walton League of America 1999; Wright et al. 1988; Guynn and Schmidt 1984).

Personal safety

Landowner concerns about personal safety as a result of careless hunters was cited in several studies, but less frequently or given less weight than other issues. Nonetheless, it is an important consideration and part of the landowner access decision-making process (Brown et al. 2001; Lauber and Brown 2000; Izaak Walton League of America, 1999; Teasley et al. 1999; Wright et al. 1988; Wright and Kaiser 1986; Guynn and Schmidt 1984).

Liability concerns

Landowner liability concerns were also frequently cited as reasons to post land or deny access (Brown et al. 2001; Lauber and Brown, 2000; Izaak Walton League of America 1999; Teasley et al. 1999; Radaeke 1996; Taff 1991; Wright et al. 1988; Wright and Kaiser 1986; Guynn and Schmidt 1984).

Kaiser (1996) reviewed liability statutes and concluded that, in reality, landowner liability was very small. However, the perception of this risk among landowners was very different than the reality. Zhang et al. (2006) indicated that many landowners saw no reason to “take a risk” and let people use their land.

- However, liability concerns were less frequently cited as a concern by landowners who were knowledgeable about recreational liability statutes (Responsive Management 2004a; Kaiser 1996; Siemer and Brown 1993).

- Unfortunately, Kaiser (1996) and Wright et al. (1988) determined that most landowners were not knowledgeable about liability protection granted by these statutes.
- Kaiser (1996) also indicated that liability concerns may have been an issue that was easy to point to by landowners, but may have served as surrogate for more complex reasons for landowners not to open their land.

Reducing liability was also cited as a reason by landowners to *lease* their land to hunters (Zhang et al. 2006; Miller et al. 2002; Messmer et al. 1998).

- Knowles (1982) determined that 42 states had enacted recreational liability statutes that limited landowner liability; two states eliminated all liability. Brown and Daigle (2009, in press) reported that all states have enacted recreational liability statutes and many are in the process of updating these statutes.

Several authors (Brown and Daigle, 2009, in press) Miller et al. 2002; Brown et al. 2001; Wright and Kaiser 1986; Guynn and Schmidt 1984) recommended that access initiatives include updating and aggressively publicizing the protections afforded by recreational liability statutes.

Damage, vandalism and litter

Damage, vandalism and litter were all identified by landowners as concerns, but to a lesser extent than other issues (Zhang et al., 2006; Responsive Management 2004a; Izaak Walton League of America 1999; Teasley et al. 1999; Wright and Kaiser 1986; Guynn and Schmidt 1984).

Reducing damage, vandalism and litter were also cited as a reason by landowners to *lease* their land to hunters (Zhang et al. 2006; Miller et al. 2002; Messmer et al. 1998).

Personal use of property

Personal use by the owners was cited as an important reason not to allow hunting access (Hussain et al. 2007; Zhang et al. 2006; Responsive Management 2004a; Brown et al. 2001; Lauber and Brown 2000; Izaak Walton League of America 1999; Teasley et al. 1999; Messmer et al. 1998; Baen 1997; Raedeke et al. 1996; Siemer and Brown, 1996; Butler and Workman 1993; Wright and Kaiser 1986). This may be because landowners want to hunt themselves, or allow their families to hunt, or have other interests that may conflict with hunting.

- Wright et al. (1988) indicated that 19% of landowners in east Texas fell into the “exclusive” category.
- Butler and Workman (1993) reported that 56% of ranchers in the Trans-Pecos area of Texas who *did not* participate in a hunting lease program did so because they wanted to keep the land for family and friends.
- Raedeke et al. (1996) reported that personal use of property as well as allowing friends and family access was an important reason landowners did not participate in leasing. Access to land for hunting was important ‘social capital’ within rural culture.

Loss of privacy

Loss of privacy by the owner was specifically cited by only a few landowners as an important reason not to allow hunting access (Teasley et al. 1999; Butler and Workman 1993).

However, this issue may become more important as rural areas are developed by ex-urbanites seeking more solitude.

Leasing hunting rights

Leasing of hunting rights has undergone “explosive growth” and “rapid spread” (Baen 1997) in Texas and other areas of the country (Hussain et al. 2004; Benson 2001; Butler and Workman 1993; Stribling et al. 1992).

Benson (2001) reported that 69% of wildlife agency administrators believed that leasing had increase in the past five years.

Providing additional income was generally not the major factor for landowners in their decision to lease their lands (Benson 2001; Teasley et al. 1999; Raedeke et al. 1996; Wright et al. 1988; Wright and Kaiser 1986; Guynn and Schmidt 1984).

- It is important to note that these studies did not take into account the added value that “trophy” hunting can provide landowners. Income may be a more important motivation in some regions of the country, or for some landowners engaged in trophy hunting operations.

Leasing was considered by many landowners as a mechanism *to solve the problems* that they have had with hunters in the past (Hussain et al. 2007; Zhang et al. 2006; Responsive Management 2004a; Miller et al. 2002; Benson 2001; Brown et al. 2001; Lauber and Brown 2000; Izaak Walton League of America 1999; Teasley et al. 1999; Messmer et al. 1998; Kaiser 1996; Raedeke et al. 1996; Siemer and Brown, 1993; Butler and Workman 1993; Marsinko et al. 1992; Taff 1991; Wright et al. 1988; Wigley and Melchior 1987; Wright and Kaiser 1986; Guynn and Schmidt 1984). Leasing solved these problems by providing:

- Greater control of who is on their property
- Limiting numbers of hunters
- Greater accountability from the people using the property
- Improved hunter behavior and cooperation
- Improved perception of safety
- Less damage, vandalism and litter
- Reduced liability because the lessees often carried their own liability coverage
- Reduced interpersonal strife because the landowner no longer had to deny hunter access; stating that the property was leased was not taken as a personal affront by the requesting hunter in the same manner as directly denying access.

Teasley et al. (1999) concluded that while reduced participation in hunting was likely, the demand for high-quality lease hunting opportunities would remain high.

State lease programs

Kilgore et al. (2008) modeled Minnesota forest landowner’s willingness to accept (WTA) payments from the government to allow unrestricted public access to their land for hunting (a hypothetical program in Minnesota at present). Interest in such a program was modest. The model predicted that in order to obtain a 50% landowner interest in a program the calculated payment would need to be approximately \$50 per acre per year. This amount was equal to approximately 90% of the fee title cost. Absentee owners were more likely (and at a slightly lower cost) to enroll in such a program than resident owners. Several variables were determined to be predictors of landowner’s interest. However, structuring a program to take these variables into consideration would prove to be challenging.

Poudyal, et al., (2008) suggests that a program that increases public lands or possibly increases public access to private lands could mitigate some of the forecast decline in hunting demand.

Hunter willingness to pay for access

Numerous studies have been conducted on the value of leased hunting operations (Hussain et al. 2007; Zhang et al. 2006; Responsive Management 2004a; Miller et al. 2002; Brown et al. 2001; Teasley et al. 1999; Messmer et al. 1998; Kaiser 1996; Butler and Workman 1993; Marsinko et al. 1992; Taff 1991; Wright et al. 1988; Guynn and Schmidt. 1984):

- Miller et al. (2002) reported that 42% of Illinois hunters were willing to pay for access.
- Guynn and Schmidt (1984) reported that 57% of hunters in Colorado were willing to pay for access.
- Baen (1997) indicated that in Texas, leasing land for hunting may be the highest and best use of the property and this income stream should be calculated into the land appraisal process.
- Marsinko et al. (1992) calculated the value of hunting leases for timber companies in the Southeast. This added value was rarely included in the company's financial analysis, even though lease prices had gone up by 60% in previous five years. Operators had predicted that that lease prices would remain stable during that time frame.
- Smith et al. (1992) reported that 42% of small game hunters were willing to pay to join an "association" that provided hunting opportunities.
- Butler and Workman (1993) reported that the average lease was worth \$7,900 to the landowner. This income made up for loss of productivity from grazing operations.
- Livengood (1983) reported that deer hunters were willing to pay \$25 for the first deer taken and \$13 for each subsequent deer. Even at these low values (by 2008 standards), the income generated from deer hunting was more than that generated from livestock operations.
- Fried et al. (1995) calculated the mean value of elk hunting on a limited entry *public land* hunt in Oregon at \$287, but the median value was only \$90. This equated to \$1,063 per harvested elk. The authors concluded that there was additional opportunity to generate income from this hunt.
- Hussain et al. (2004) calculated the theoretical willingness to pay for deer hunting leases in Alabama as being twice the price currently paid. However, most hunters were already at their maximum price. Actual lease costs averaged \$827 per hunter.

Concerns about the trend in lease hunting

Lease hunting is clearly an activity here to stay. However, it is not universally supported and has several aspects that may be detrimental to perpetuation of rural culture, recruitment of new hunters, social acceptability of hunting, long-term conservation and perpetuation of the North American Conservation Model (Adams et al. 2000; English et al. 1999; Izaak Walton League of America 1999; Raedeke et al. 1996; Siemer and Brown 1996; Taff 1991; Adams et al. 1989; Swenson 1983).

- Raedeke et al. (1996) explores the complex reasons why landowners were reluctant to lease their properties for hunting. An important reason cited was that the local cultural norm was to use access to land for hunting as a "social commodity" that was part of a complex system in which "payments," "reciprocal payments" and "ritualistic aspects" of granting permission were made. This non-monetary "value" of access was more valuable to the landowner than money, which made leasing contrary to the local culture. Hunters "inside" the complex system obtained access, while those "outside" of it did not. This system reinforced the local social community, resulted in high "stewardship values" and a greater willingness of the landowner to invest in wildlife conservation. The author cautions that, *"Overemphasis on economic exchange as a solution [to conservation and hunting access] may lead to lower regard for wildlife and less management, especially of species and ecosystems that have little value in a market-oriented system."*

- Taff (1991) discussed fee hunting as both a property right of the landowner and a policy tool for achieving conservation. However, the author cautioned that habitat and conservation investments were generally not being made by landowners; and there could be a dangerous shift in the focus of species management, whereby owners and operators would only focus on species in demand to the detriment of ecosystems and other species.
- Swenson (1983) used Norway as an example of what could happen when *free* hunting changes to *fee* hunting. This example documents a dramatic decline in hunting participation, a decrease in public concern about wildlife, a major shift in species emphasis, and observes that habitat improvements were generally not conducted. The author cited Montana as an example where free or low cost hunting access was the norm and that the citizens had a high degree of “public pride” and interest in wildlife issues.
- Miller et al. (2002), in evaluating Illinois’ access program, expressed concern that the state access program may devolve into a private leasing program which would result in less overall access. In addition, while this program was initially designed to provide improved access for resident pheasant hunters, it actually functioned as providing improved access for non-resident deer hunters.
- Marsinko et al. (1992) reported that access fees paid to commercial forest property owners would likely cause a shift in forest management practices in favor of desirable hunting species.
- Adams et al. (1989) highlighted equity issues related to imposing a new fee on pheasant hunters on a public, pheasant-release hunting area in Oregon. The optimum fee resulted in a 75% dropout rate, mostly from lower income level hunters. Because of dropout rates, no pricing structure was developed that would cover the cost of the program. The author cautions, “...*the reduction and shift in participation rates arising from increasing fees has implications for future hunter participation.*” And, “[*equity issues are a*] long-term policy issue for wildlife managers [*that*] may involve general hunter participation.”
- Adams et al. (2000) used Texas as a case study to explore agency-hunter-landowner relationships. The author concluded that trophy hunting:
 1. had dramatically changed this relationship
 2. was driving landowners to maximize their income with a minimum number of hunters
 3. had caused traditional youth-initiation processes [via small game hunting] to virtually disappear
 4. this loss of recruitment boded ill for the future of hunting
 5. the emphasis on trophies was undermining the general public’s support for hunting as well as fundamentally changing the aesthetics of hunting
 6. the emphasis on trophies was impacting the biodiversity on intensely managed lands

Other Access Opportunities

Including public access and attaching this “right” while negotiating conservation easements has proved to be a successful strategy in some regions of the country, most notably the Northeast (Davis et al. 2005). The author provides examples where thousands of acres have been “opened” using this process. Developing alliances between hunting advocate organizations and the 1,500 currently existing land trust organizations could be an important strategy.

Final thoughts

Unfortunately, numerous trends will likely make accessing land for hunting even more difficult in the future. However, there are actions that agencies and NGOs can take that may make this prospect less onerous:

- Improve the management of public lands, especially federal lands. There appears to be additional capacity for hunters on federal public lands. Improved management might include:
 - Better management of roads and ORVs.
 - Improved management for small game species. However, this management should not be at the expense of big game management.
 - Greater cooperation between federal and state managers. Support by the NGO community is critical.
 - Improved communication with hunters on opportunities on federal lands. Messages about safety will be critical in the effort.
- Programs to improve access on private lands should continue to be developed and enhanced. In developing these programs agencies and NGOs should:
 - Obtain input from landowners. It is especially important that these programs recognize that landowners have different motivations and expectations. Providing flexible programs that can meet a broad spectrum of landowner needs will be critical components.
 - Be cognizant of the potential impacts that public access programs may have on existing, local socio-cultural norms.
 - Focus on providing small game hunting opportunities. Trend data indicate that the majority of lost hunting participants were from the ranks of small game hunters. Rebuilding these ranks is critical and providing access to reasonable small game hunting opportunities is the fastest way to achieve this.
 - Raise agency awareness on the importance of providing access for hunters as a long-term conservation strategy.
 - Develop alliances with land trust organizations so that public access is included in conservation easements.

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