

LAYING THE GROUNDWORK FOR PUBLIC PARTICIPATION IN
COUGAR MANAGEMENT: A CASE STUDY OF
SOUTHWESTERN OREGON

by

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A THESIS

Presented to the Department of Planning, Public Policy and Management
and the Graduate School of the University of Oregon
in partial fulfillment of the requirements
for the degree of
Master of Community and Regional Planning

December 2002

"Laying the Groundwork for Public Participation in Cougar Management: A Case Study of Southwestern Oregon," a thesis prepared by Amy E. Chinitz in partial fulfillment of the requirements for the Master of Community and Regional Planning degree in the Department of Planning, Public Policy and Management. This thesis has been approved and accepted by:



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An Abstract of the Thesis of
Amy E. Chinitz for the degree of
Master of Community and Regional Planning
in the Department of Planning, Public Policy and Management
to be taken December 2002
Title: LAYING THE GROUNDWORK FOR PUBLIC PARTICIPATION IN COUGAR
MANAGEMENT: A CASE STUDY OF SOUTHWESTERN OREGON

Approved: _____

Dr. Bart Johnson

Oregon's cougar (*Puma concolor*) population is the subject of ongoing statewide controversy. Human dimensions of wildlife research suggests that wildlife conflicts are best addressed by incorporating public involvement strategies into wildlife management. This study used traditional survey research to lay the groundwork for more extensive public involvement in cougar management. Questionnaires were mailed to 800 randomly-selected households in southwestern Oregon. The adjusted response rate was 58% (N = 360). The majority of respondents believed that major decisions about cougar management should be made by experts and citizens together. Respondents who had greater prior experience with cougars, higher concern regarding cougars as a potential threat to people, pets, or livestock, or who did not trust wildlife managers to make the best possible decisions were more likely

to take part in a public involvement process. The survey results are discussed in terms of their implications for designing inclusive and effective public participation.

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ACKNOWLEDGEMENTS

Many people made this project possible. I would like express sincere gratitude to the faculty and professionals who provided consultation, to my friends and relatives who helped prepare the mailings, to my co-workers and acquaintances who reviewed the survey instrument, and to the 364 Oregonians who took the time to fill out the questionnaire. I would also like to thank the Barker Foundation for providing funding for the research.

Special thanks goes to my committee members, Drs. Bart Johnson, Rob Ribe, and Peter Walker, whose belief in the value of interdisciplinary work and dedication to student research guided me through an invaluable learning process. I am especially grateful to my committee chair, Dr. Bart Johnson, for three years of mentorship and support. He spent many long hours helping me develop my ideas into a research project. Neither the process nor the product would have been the same without his conceptual guidance, constructive feedback, and enthusiasm.

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CHAPTER I

INTRODUCTION

The management of Oregon's cougar (*Puma concolor*) population, estimated at between 3,000 and 5,000 individuals (Don Whittaker, personal communication, May 16, 2001), is a source of ongoing statewide controversy. The actors in the controversy have ranged from average citizens to legislators to special interest groups. The debate has engaged fundamental policy questions regarding the nature of the relationship between humans and cougars. Other states have experienced similar conflicts over the management of cougars or other large predators (Mansfield 1991; Moore 1997; Minnesota DNR 1999; Utah Division of Wildlife Resources 1999), and successful resolution typically requires innovative problem solving (Chase et al. 2000).

One problem-solving approach discussed in the relatively new field of human dimensions of wildlife¹ is to invite public participation in wildlife management decision-making (Decker & Chase 1997). In the field of planning and public policy, however, public participation is not a new concept. Through a case study of southwestern Oregon, this study examines how insights from both fields can be combined to work toward integrating public participation into cougar management planning. More specifically, the

¹ As cited in Decker and Chase (1997), "Decker and Lipscomb (1991) described human dimensions of wildlife management as identifying what people think and do regarding wildlife, understanding why, and incorporating that insight into policy and management decision-making processes and programs" (p. 788).

study used a mail-back questionnaire to investigate how knowledge of human attitudes toward cougar management can lay the groundwork for a public participation process that simultaneously mitigates against conflict and informs management policy.

Project Background

The controversy over cougar management in Oregon fits into the category of “people-wildlife problems.” Decker and Chase (1997) describe a people-wildlife problem as

...any situation where: (1) the behavior of people negatively impacts wildlife (this includes human impacts on habitat); (2) the behavior of wildlife creates a negative impact for some stakeholders, or is perceived by some stakeholders to impact themselves or others adversely; or (3) the wildlife-focused behavior of some people creates a negative interaction with other people, often in the form of a values clash. Thus, a people-wildlife problem can involve a people-wildlife interaction or a people-people interaction (i.e., a controversy), or both (p. 789).

Though the cougar problem in Oregon can be considered to match all three criteria above, this paper will focus on the third point, where cougar-focused behavior has generated controversy among people.

Oregon's Cougar Controversy

Oregon's cougar controversy peaked in 1994 with statewide debate over Ballot Measure 18 (Bagett 1994; Novak 1994), which proposed to ban the hunting of bears with bait and the hunting of bears and cougars with dogs. The ban passed by 52%, indicating that Oregon voters were almost evenly divided on the baiting and hound-hunting issue. Support for the ban came primarily from the metropolitan areas associated with Oregon's

three largest cities, Portland, Salem, and Eugene. Opponents to the ban, represented by several sportsmen's organizations, responded by initiating and campaigning for Measure 34, which appeared on the 1996 ballot and attempted to overturn Measure 18. Despite Measure 18's slim margin of approval, Oregon voters defeated Measure 34 by 57%, and the hound-hunting ban has remained in place ever since (see Appendix A for county-by-county results for both ballot measures).

The conflict over cougar management has entered the legislative arena as well. About three months after the passage of Measure 18 in 1994, a bill written to repeal the hound-hunting ban was introduced in the House of Representatives.² A series of house and senate bills designed to suspend or weaken restrictions on cougar control measures and hunting regulations then followed. These legislative debates continued into the 2001 legislative session, and the bills have met varying levels of success.³

Opponents in the cougar controversy have faced off most recently in reaction to an Oregon Department of Fish and Wildlife (ODFW) study that proposes to experimentally remove cougars (Animal Protection Institute 2002; Oregon Hunter's Association 2002). The study, which began in the winter of 2001-2002, aims to assess

² House Bill 2584 was first read in the Oregon House of Representatives on February 7, 1995. The language of the bill is as follows: "Relating to methods of taking wildlife; repealing section 1, chapter 4, Oregon Laws 1995 (Measure No. 18); and declaring an emergency. Be It Enacted by the People of the State of Oregon: SECTION 1. { + Section 1, chapter 4, Oregon Laws 1995 (Measure No. 18), is repealed. + } SECTION 2. { + This Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this Act takes effect on its passage." For more information on house and senate bills introduced during the 1995 legislative session, see the Oregon State Legislature web site at <http://www.leg.state.or.us/billsset.htm>.

³ For example, SB 716, introduced in February of 2001, would overturn Measure 18 but has not made it out of committee. In contrast, HB 2967, which allowed "cougars or bears posing threat to human safety to be taken without license or tag," was signed by the governor in June 2001 and became law in January of 2002.

the "...recruitment of elk (*Cervus elaphus*) as a function of their nutritional status and cougar (*Puma concolor*) densities" (Johnson & Jackson 2001, p. 1). Both sides of the conflict rallied public comment about the study, though the majority of comment on record expressed opposition (USFWS 2001). In February of 2002, a coalition of conservation and animal rights groups attempted to halt the project by filing a lawsuit (Milstein 2002). The ruling judge eventually denied their request (Associated Press 2002). However, a federal judge has since halted the cougar-removal portion of the study until an environmental impact statement is prepared, illustrating that the debate continues (Associated Press 2002a).

The cougar controversy, including the debate over the cougar-elk study, has received considerable newspaper coverage. Along with covering the legislative and special interest debates, newspapers have devoted attention to the rise in human-cougar encounters and the resulting concerns and fears of local residents (Figure 1.1). This

"Learning to Live with the Big Cats" (The Oregonian, May 14, 2000)
"Calls from Residents Rise as Cougars Grow in Number" (The Oregonian, May 26, 2000)
"Close Encounters of the Cougar Kind on the Rise" (Associated Press, April 5, 2001)
"Officials Shoot Motel-Prowling Cougar" (Associated Press, July 13, 2001)
"Cougar Population Raises Concerns" (The Oregonian, March 5, 2002)

FIGURE 1.1. Headlines from selected newspaper articles related to human-cougar encounters in Oregon.

media attention has occurred consistently in southwestern Oregon, the study area for this project. The following excerpt from a newspaper article about reported cougar sightings in Ashland (Jackson County) illustrates the sense of fear that can be portrayed by newspaper accounts:

Once-elusive cougars are turning up in town, and residents are taking notice. "Up in our neighborhood, it's like 'Don't let your kids out at dusk, and don't go out at dawn unless you're prepared to see a big cat,' " Hoy said. Dave Zaklan saw one strolling down the street when he glanced out the window of his Ashland home one night in February. "A lot of people see them, and most people don't even bother calling anymore," he said. "It's just like - 'Oh, our cougar.' " Calls to state game officials from Jackson and Josephine county residents who fear for their safety have increased 300 percent since 1994. A Shady Cove caller expressed a common concern last year: "Deer have almost disappeared. Landowners are concerned that when deer are all gone, will cougar start eating children" (Quinn 2000)?

Accounts of increased concerns about cougars in southwestern Oregon echo the trend across the state, where cougar-related damage complaints have increased dramatically since 1992 (Figure 1.2). Whether the newspaper coverage is a partial cause (Karlberg 1997) or simply an indication (Wolch et al. 1997) of this increase in cougar-related concern among average citizens, it nevertheless demonstrates that the cougar dialogue in Oregon extends beyond the halls of the legislature and the battlegrounds of special interest groups.

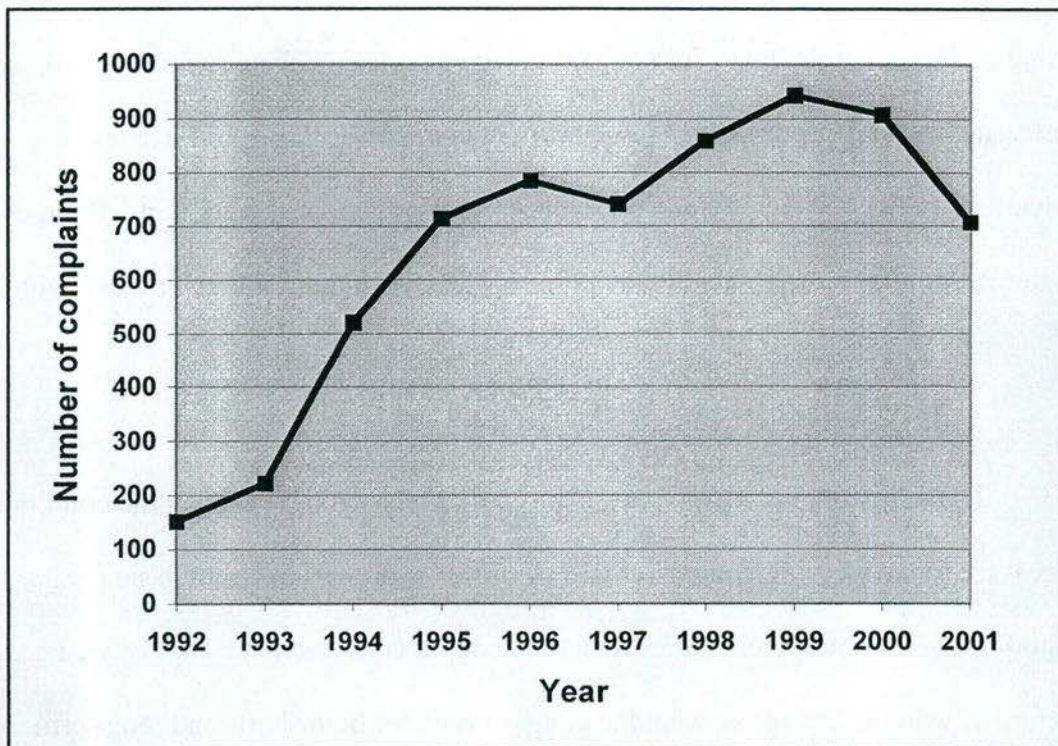


FIGURE 1.2. Number of cougar-related damage complaints in Oregon received during the calendar year (1992 – 2001). *Data obtained from ODFW (Don Whittaker, personal communication, November 25, 2002).*

I propose that Oregon's controversy over cougar management, like most wildlife management conflicts, would benefit from a well-crafted public participation process (Decker & Chase 1997). However, an important assumption is that cougar management policies cannot be determined by public opinion alone. Successful wildlife management requires an integration of human and biological dimensions (Decker et al. 1992). My goal is to ensure that both dimensions are considered and that any effort to reduce human conflict over cougar management does not compromise ODFW's commitment to its

stated goal of maintaining healthy cougar populations (ODFW 1993). In other words, acting on human preferences for cougar management becomes unacceptable if those preferences would compromise the viability of cougar populations. To assess the potential conflict between human preferences and cougar conservation, it will be useful to frame the survey results within the context of basic cougar biology and behavior.

Cougar Biology and Behavior

To compare human preferences for cougar management against the conditions necessary for conserving cougars, it will be useful to understand both basic cougar life history as well as biological issues related to cougar conservation. That is, we need a picture of who the cougar is, what the cougar needs for both short- and long-term survival, and how wildlife managers make use of that information. In addition, because so much of the controversy over cougars centers around increases in reported interactions between humans and cougars, it will be important to understand how cougars move about the landscape and how that movement relates to human use of the land.

Moreover, cougar biology has a political dimension that has figured into the controversy over cougar management. Though cougars have been studied extensively in the western United States (Seidensticker et al. 1973; Ackerman et al. 1984; Hemker et al. 1984; Logan & Irwin 1985; Cunningham et al. 1999; Hayes et al. 2000; Riley & Malecki 2001), relatively little of that research has taken place in Oregon (Ebert 1971; Toweill & Meslow 1977; Ingram 1984; Toweill et al. 1984; Toweill & Maser 1985; Toweill 1986; Toweill et al. 1988; Nowak 1999; Nowak et al. 2000; Keister & Van Dyke 2002).

Researchers regularly admit that, because of cougars' elusiveness and tendency to range over large areas, they are difficult animals to study (Toweill et al. 1984; Toweill et al. 1988; Utah Division of Wildlife Resources 1999). For example, population estimates of cougars in Oregon⁴ are based on statistical modeling (ODFW 1993; Keister et al. 2002), as censusing is incredibly difficult (Keister et al. 2002). The need for more information about cougars in Oregon is one source of the larger controversy, as animal rights activists have claimed that management decisions are based on questionable biological data (Predator Defense Institute 1996). For the purposes of this study, however, substantial data exist from the western United States, including some from Oregon, to provide the necessary background information.

Range and Territory

Cougars once had the most extensive range of any wild mammal in the western hemisphere, spanning from the Pacific to the Atlantic and from northern British Columbia to the tip of Chile. Today, with a substantially smaller range, cougars can be found in British Columbia, Alberta, California, Oregon, Washington, Idaho, Montana, Utah, Nevada, New Mexico, Arizona, Colorado, Texas, Wyoming, and Florida (Busch 1996). The species has been considered extinct from the eastern United States, with the exception of the Florida panther (Danz 1999). However, occasional reports of cougar

⁴ As mentioned earlier, the cougar population in Oregon is estimated at between 3,000 and 5,000 individuals (Don Whittaker, personal communication, May 16, 2001).

sightings in the east⁵ and a confirmed documentation in Nebraska (Genoways & Freeman 1996) suggest that the species may be re-colonizing its former range. Cougars are widely distributed throughout Oregon, with greatest densities in the southwestern and northeastern regions (ODFW 1999).

How cougars use the land and the amount of land that they require is an important consideration both for managing interactions between humans and cougars and conserving cougar habitat. Size estimates of cougar home ranges⁶ can vary considerably depending on the geographic area, the local conditions, and the measurement techniques (Dickson 2001). ODFW (1999) reports home range sizes of up to 65 square miles for an adult female and greater than 150 to 200 square miles for males. Hansen (1992) reports that female cougars with kittens maintain home ranges that vary in size from 25 to 400 square miles. Male home ranges are substantially larger than those of females, and "...a resident male with a large home range typically overlaps or encompasses the home range of several resident females" (Hansen 1992, p. 12) but only occasionally overlaps those of other resident males. A study of cougars in southeastern British Columbia documented

⁵ The Eastern Cougar Foundation, "a non-profit organization dedicated to scientific documentation of cougars in the east and advocacy for their protection" (Lester 2001, p. 15) reports confirmed evidence of cougars in Illinois, Kentucky, West Virginia, Missouri, Ontario, New Brunswick, Vermont, Massachusetts, Maryland, Maine, North Carolina, and Virginia. Sightings have been reported in Michigan as well (Harden 2002; Sharp 2002).

⁶ A home range is the total area "in which an animal roams about" (Campbell 1987, p. 1154). A cougar's home range consists of the resources needed for survival, such as hunting and resting areas and denning sites.

low amounts of overlap among female home ranges and no overlap among male home ranges (Spreadbury et al. 1996).⁷

Male and female cougars disperse across the landscape differently.⁸ Male cougars in New Mexico dispersed significantly farther than females and were more likely to travel across large expanses of non-cougar habitat (Sweaner et al. 2000). Monitoring of cougar replacement patterns in southern Utah found that the vacated ranges of resident females were filled either by the resident's own independent-age daughters or by the daughters of adjacent resident females. In contrast, vacated ranges of resident males were filled by transient immigrating males (Laing & Lindzey 1993).

Because they depend on expansive home ranges and the need to travel across long distances, cougar populations, like those of other larger predators, require large habitat areas for long-term survival (Noss & Cooperider 1994; Primm & Clark 1996). For example, through a simulation of population dynamics, Beier (1993) found that a small cougar population—15 to 20 adult cougars—in the Santa Ana Mountains of California needed a minimum habitat area of 386 to 849 square miles in order to have a 98% chance of surviving for 100 years.

⁷ Male cougars are territorial and defend their territories from other male cougars (Hansen 1992). The data on overlap of cougar home ranges provide an indication of how much land an individual cougar maintains for its exclusive use.

⁸ "Dispersal refers to movements by juvenile animals when leaving their natal range after reaching the age of independence..." (Weaver et al. 1996, p. 966).

Size and Reproduction

A headline from one article about the increasing number of cougar sightings in Oregon reads “Learning to Live with the Big Cats” (Monroe 2000), reminding us that the animal’s large size is central to the debate over human interactions with cougars. Typical male cougars weigh between 110 and 180 pounds, and typical females weigh between 80 and 130 pounds (Hansen 1992). Male cougars in the Oregon Cascades weighed an average of 1.5 times more than females (Toweill et al. 1984). The heaviest cougar on record, shot in Arizona in 1917, weighed 276 pounds (Busch 1996).

Wildlife managers use information about cougar reproductive rates to determine how many breeding females a population needs to sustain itself (Utah Division of Wildlife Resources 1999). Reproductive rates are also one of the factors that determine a species’ ability to mitigate demographic fluctuations by compensating for increased rates of mortality (Weaver et al. 1996). Male and female cougars reach sexual maturity at around 24 months (Hansen 1992). Though breeding can occur at any time during the year, most females give birth between April and July (ODFW 1999). Litter sizes in Oregon average 2.6 (ODFW 1993) to 2.8 (Toweill et al. 1984) kittens per litter. Through an analysis of multiple demographic data, Weaver et al. (1996) concluded that the average female cougar, like female grizzly bears, would have a lifetime production of three to four female young. In this regard, cougar and grizzly bear populations may rebound less rapidly than those of wolves, whose females produce an average of six female pups. Knowledge of cougars’ ability to rebound from increased rates of mortality

has implications for management decisions such as determining the harvest quota for the hunting season.

Young cougars typically remain with their mothers for 12 to 18 months before dispersing (Hansen 1992). More specifically, "Oregon data suggest litters generally disperse at 15 months of age" (ODFW 1993, p. 4). It is rare for cougars to live beyond 10 to 12 years in the wild (Hansen 1992), and some research suggests that the average age of death may be closer to five or six years (Busch 1996).

Cougar Habitat Needs

An educational brochure published by ODFW (1999) provides the following description of cougar habitat in Oregon:

In western Oregon, the most productive [cougar] habitat is Douglas fir forest. In southwestern Oregon, [cougar] habitat consists of hardwood, mixed conifer and agricultural lands. The best eastern Oregon habitat is the open mixed conifer type of the Blue and Wallowa mountains, including the pine bunchgrass and canyon country of northeastern Oregon. All of these habitats are productive deer and elk areas. Most locations used by [cougars] during the day are characterized by rock outcroppings or downed logs in forests. Cover is important to [cougars] for bedding sites and when hunting prey. Cougars have also been found living in drain ditches and culverts in subdivisions (p. 2).

Though cougars may live in areas of human habitation, research in Utah and Arizona suggest that most resident cougars, as opposed to transient or dispersing individuals, reside in areas that are generally free of human disturbance: "Areas that are disturbed by habitat alteration associated with human activities or by human presence appear to be less acceptable to lions" (Van Dyke et al. 1986, p. 101) and are typically occupied by younger individuals. When human disturbance is associated with cougar

mortality, it is more likely to affect the young, transient cohort. Because transient cougars replace vacant home ranges, their survival can enhance persistence of the cougar population. On the other hand, "If mortality of the transient cohort exceeds a certain critical value, then the entire resident population may begin to decline" (Van Dyke et al. 1986, p. 101). These findings suggest that, though cougars may be found living in areas of human habitation, long-term survival of the population requires maintenance of intact high quality habitat with low levels of human presence (Torres et al. 1996).

Food Habits

Cougars tend to exhibit a high degree of adaptability in food acquisition, a factor that can contribute to the species' resiliency (Weaver et al. 1996). Cougars typically kill large animals such as deer, elk, and bighorn sheep, though they can survive on smaller animals such as raccoons (ODFW 1999). In a study of the digestive tracts of cougars from the western slopes of the Oregon Cascades, black-tailed deer (*Odocoileus hemionus columbianus*) occurred as the primary food item. Porcupines and grass also appeared with regularity (Toweill & Maser 1985). An earlier study also found black-tailed deer and porcupine, as well as elk (*Cervus elaphus*), in cougar stomachs (Toweill & Meslow 1977). The absence of elk from cougar diets in the first study, though "puzzling," may have been a product of methodological limitations (Toweill & Maser 1985). If the current ODFW study to examine the effects of cougar predation on elk recruitment (Johnson & Jackson 2001) continues, it may provide clearer information about the rate of elk predation by cougars in Oregon. Lastly, an adult female cougar has been observed

scavenging elk carrion in northeastern Oregon, adding to previous, yet rare, findings that cougars will eat meat that they do not kill themselves (Nowak et al. 2000) and offering more evidence of their behavioral plasticity in food acquisition.

Profile of the Cougar

From the information presented above, a picture of the cougar emerges as a large, elusive, and wide-ranging predator who maintains an expansive home range. Cougars have varied and adaptable diets, and individual cougars can survive in areas of human habitation. However, long-term survival of cougar populations depends on the availability of habitat undisturbed by humans.

Although cougars are difficult to study, knowledge of their basic needs and characteristics can help wildlife managers determine conservation strategies. For example, based on the resiliency profile of the cougar, Weaver et al. (1996) concluded that a successful conservation strategy for cougars in the Rocky Mountains might include "...refugia⁹ that are well distributed in several units across the landscape at distances scaled to successful dispersal..." (p. 972). The size and number of refugia depend on the level of pressure—primarily through habitat loss and harvest—placed on the cougar population.

The recommendations of Weaver et al. (1996) apply specifically to cougars of the Rocky Mountains. However, their strategy illustrates that successful cougar conservation

⁹ Weaver et al. (1996) define refugia as "safety nets from habitat loss and overexploitation" (p. 972).

in any region requires an understanding of how cougars use the landscape, how humans use the landscape, and how those uses interact. Many human uses of the landscape place pressure on cougar populations. Some of those pressures, such as hunting and killing of cougars, are controlled through the practice of cougar management.

Cougar Management in Oregon

Oregon's cougar controversy revolves around questions about the nature of the relationship between humans and cougars. How many cougars do we want in the state? How many can be harvested by hunters each year? Should hound-hunting be legal? How do we respond to cougars that enter areas of human habitation? Should a rancher be permitted to protect his or her livestock from a threatening cougar? These questions all fall within the domain of cougar management policy. Therefore, though the controversy over cougars in Oregon may stem from a clash of values (Decker & Chase 1997), it is manifested as a debate over cougar management policy. To better understand the debate, it will be useful to review historical and current approaches to cougar management in Oregon.

Early cougar management in Oregon was guided by the same attitudes toward predators that dominated wildlife management throughout the United States from the 18th to the early part of the 20th centuries. Predators such as wolves, cougars, bears, and coyotes were considered "vermin" or "murderers," threats to people and livestock, and competition for common prey such as deer (Danz 1999; Kellert 1985). The single prevailing management approach was to kill as many predators as possible, and local,

state, and federal governments encouraged this practice by offering bounties (Kellert et al. 1996; ODFW 1993). In response to petitioning by the agricultural and timber industries (Danz 1999), the Oregon Territorial Government implemented the first cougar bounty in 1843. Bounties remained in place in some Oregon counties until 1961 (see Figure 1.3 for a chronology of cougar management in Oregon). By the time the legislature repealed the bounty system in 1961, the number of cougars in Oregon had been reduced to an estimated 200 individuals and was close to extirpation from the state (ODFW 1993). This dramatic decline led to the next phase in cougar management in Oregon, involving a shift in both policy and practice.

“[O]ut of concern for maintenance of the population” (ODFW 1993, p. 10), the legislature allowed the cougar’s classification to change from “predator” to game mammal¹⁰ in 1967, and the Oregon State Game Commission, now ODFW, became responsible for managing cougars. With the exception of individuals taken because of damage complaints, cougars were then protected until the first controlled hunt in 1970 (Figure 1.3). At that point, the practice of cougar management became primarily “harvest management”: determining the number of tags for and duration of the hunting season. With a regulated management system in place, as opposed to the earlier bounty system, cougar numbers began to rise steadily.

As in the past, contemporary cougar management in Oregon focuses primarily on harvest management. However, it has broadened in scope to include additional concerns

¹⁰According to ORS 496.004(b), “‘Game mammal’ means antelope, black bear, cougar, deer, elk, moose, mountain goat, mountain sheep and silver gray squirrel.”

History of Cougar Management in Oregon

1843 – 1912: Territorial government offers first bounty in 1843. Bounty in 1911 was \$10.

1913 – 1961: Cooperative government hunter program begins in 1915. Between 1915 and 1961, federal hunters kill 442 cougars. Bounty increases from \$10 to \$25 in 1925. The depression forces a reduction to \$20 in 1933. Bounty increases to \$50 in 1939 and is paid until 1961.

1962 – 1967: Government hunters take 31 cougars on damage complaints. Sport hunting becomes more popular as road construction increases and more efficient snow travel equipment is developed. The 1967 Oregon Legislature grants the Oregon State Game Commission authority to declare cougar a game mammal in areas where damage was not expected. Bounties no longer in effect (ORS 610.205).

1968 – 1969: Sport hunting for cougar closed. A total of 26 cougars taken on damage complaints.

1970: Twenty-five controlled season tags available from December 1 – 31 in parts of Wallowa County. The price of a cougar tag is \$5.

1971 – 1974: Controlled hunts continue with all or varying portions of the state open to hunting. In 1974, the bag limit is changed from one cougar to "one cougar except kittens and females with spotted kittens are protected."

1975: Cougar tag increases to \$10.

1975 – 1987: Controlled hunts continue. Varying parts of the state open.

1987: Cougar Management Plan developed and adopted. Oregon Legislature approves legislation that increased the price of a cougar tag to \$50 (effective 1/1/88).

1987 – 1992: Controlled hunts continue. Number of hunts and tags increase in response to an expanding cougar population and increasing cougar damage complaints. ODFW initiates two cougar studies: Catherine Creek (1989) and the Southwest Oregon Cougar Study (1992).

1993: The Department and Fish and Wildlife Commission revise the Cougar Management Plan to guide management through 1998.

Figure 1.3. History of Cougar Management in Oregon. *Modified from Oregon Department of Fish and Wildlife, "Oregon's Cougar Management Plan: 1993 – 1998."*

such as habitat planning, livestock damage, illegal harvest, and human-cougar conflicts.

ODFW developed its first official cougar management plan in 1987, which it has since updated. The most recent cougar management plan (ODFW 1993), designated for the years 1993 – 1998, lists the following three program goals:

1. Recognize the cougar as an important part of Oregon's wildlife fauna, valued by many Oregonians.
2. Maintain healthy cougar populations within the state into the future.
3. Conduct a management program that maintains healthy populations of cougar and recognizes the desires of the public and the statutory obligations of the Department (ODFW 1993, p. 1).

Oregon Revised Statute 496.012 (Figure 1.4) is the principal law that guides ODFW's cougar management program (ODFW 1993). The agency identifies control methods as a primary means of meeting the obligations dictated by that statute:

Hunting seasons for cougar and the removal of specific animals in conflict with human interests are two ways the Department meets its statutory obligation to provide recreational opportunities, address public safety, and maintain cougar populations at levels compatible with the primary land use and to provide for future generations (ODFW 1993, p. 3).

In 2002, ODFW addressed the rise in human-cougar conflicts by creating extended cougar season hunting areas, "...designed to address high levels of damage complaints and damage-related cougar mortality" (ODFW 2002, p. 38), which have increased substantially since 1992 (Table 1.1). The extended hunting season occurs in four designated regions in western and southwestern Oregon, including five of the six counties included in the present study.

496.012 Wildlife policy. It is the policy of the State of Oregon that wildlife shall be managed to prevent serious depletion of any indigenous species and to provide the optimum recreational and aesthetic benefits for present and future generations of the citizens of this state. In furtherance of this policy, the State Fish and Wildlife Commission shall represent the public interest of the State of Oregon and implement the following coequal goals of wildlife management:

- (1) To maintain all species of wildlife at optimum levels.
- (2) To develop and manage the lands and waters of this state in a manner that will enhance the production and public enjoyment of wildlife.
- (3) To permit an orderly and equitable utilization of available wildlife.
- (4) To develop and maintain public access to the lands and waters of the state and the wildlife resources thereon.
- (5) To regulate wildlife populations and the public enjoyment of wildlife in a manner that is compatible with primary uses of the lands and waters of the state.
- (6) To provide optimum recreational benefits.
- (7) To make decisions that affect wildlife resources of the state for the benefit of the wildlife resources and to make decisions that allow for the best social, economic and recreational utilization of wildlife resources by all user groups.

FIGURE 1.4. Oregon Revised Statute 496.012, which guides ODFW's cougar management program.

TABLE 1.1. Harvest and mortality trends for cougars in Oregon (1992 – 2001). *Data obtained from ODFW (Don Whittaker, personal communication, November 25, 2002).*

Year	Number of cougar hunting tags sold	Number of cougars harvested by hunters	Number of cougars killed as a result of damage	Number of cougars killed as a result of real or perceived threat to humans or pets
1992	517	187	17	3
1993	560	160	21	6
1994	588	144	30	9
1995	385	31	41	22
1996	779	45	66	32
1997	935	61	82	20
1998	11,761	152	94	19
1999	14,564	157	95	35
2000	22,386	135	116	25
2001	28,447	219	92	23

In addition to using lethal control methods, ODFW has addressed the human-cougar conflict through educational programs. The agency distributes a factual brochure that provides guidelines for avoiding encounters with cougars. ODFW also collaborates with other agencies and non-profit organizations to present a traveling workshop titled, "Living with Carnivores." The workshop is "...a public service designed to increase knowledge of our region's major carnivores, reduce fear through better understanding, and minimize conflict between us and our carnivore neighbors" (Wolf Haven International 2002).

ODFW's focus on addressing human-cougar conflict is consistent with the dictates of its management plan, which lists the increase in human-cougar conflicts and the resulting "fear among some citizens" (ODFW 1993, p. 26)¹¹ as a key concern. With the exception of its two educational programs, ODFW addresses this concern primarily through lethal control methods. However, the Measure 18 experience illustrates that the public will not always accept such methods and serves as a reminder that ODFW does not have autonomous decision-making authority.

Because of the political climate created by Measure 18 and the growing concern over human encounters with cougars, cougar management in Oregon has entered a new era. Managing the hunting season, while still a focal point of management, is just one of many responsibilities for ODFW officials. The agency no longer serves just hunters but must respond to a broader set of stakeholders, ranging from affected livestock owners to

¹¹ ODFW attributes this increase both to human expansion into cougar territory and increases in cougar numbers (ODFW 1993).

animal rights activists (Decker et al. 1996). The continuous battles over cougar management practices make it conceivable that another cougar-related ballot initiative will surface. Loker et al. (1998) argue that wildlife management agencies can avert citizen ballot initiatives by systematically seeking public input and involvement before an issue becomes politically entrenched. With an identified need to update its cougar management plan (Ann Pressentin-Young, personal communication, October 14, 2002), ODFW now has an opportune time to take the advice of Loker et al. (1998) and integrate public participation into the planning process.

Framework of the Thesis

As illustrated by the almost even split over Measure 18, the legislative debates over cougar control methods, and the battle over ODFW's cougar-elk study, there exists an ongoing people-people controversy over cougar management in Oregon. Wildlife managers need techniques for minimizing conflict among people so that the time and energy devoted to cougars focuses on establishing positive coexistence between humans and cougars and conservation of the species rather than on conflict among humans.

The purpose of this study is to lay the groundwork for one approach to minimizing conflict—public participation. By examining how data from a mail-back questionnaire can inform the design and implementation of a more extensive public participation process, this project aims to provide wildlife managers with alternative options for engaging the public and reducing conflict. Secondly, the project strives to

bridge disciplines by applying theory and experience from the field of planning and public policy to the human dimensions of wildlife management.

Questions to Be Answered

Public participation literature and human dimensions of wildlife literature were synthesized to frame eight key questions that address the preliminary information needed before launching a public participation process for cougar management. Those questions, which are listed at the end of Chapter II, guided the design of the questionnaire. They can be summarized by two overarching issues:

1. What are the opinions toward cougars and cougar management of Oregonians living in a region with high cougar concentrations?
2. How can knowledge of public opinion inform the design and implementation of a public participation process?

Methodology

This study focuses on six counties in southwestern Oregon (Figure 1.5), a region with some of the highest cougar densities and the most reported cougar-related damage complaints in the state (ODFW 1993). Data were collected through a mail-back questionnaire distributed to 800 randomly-selected households in southwestern Oregon in January and February of 2002. See Chapter III for details of the methods used.

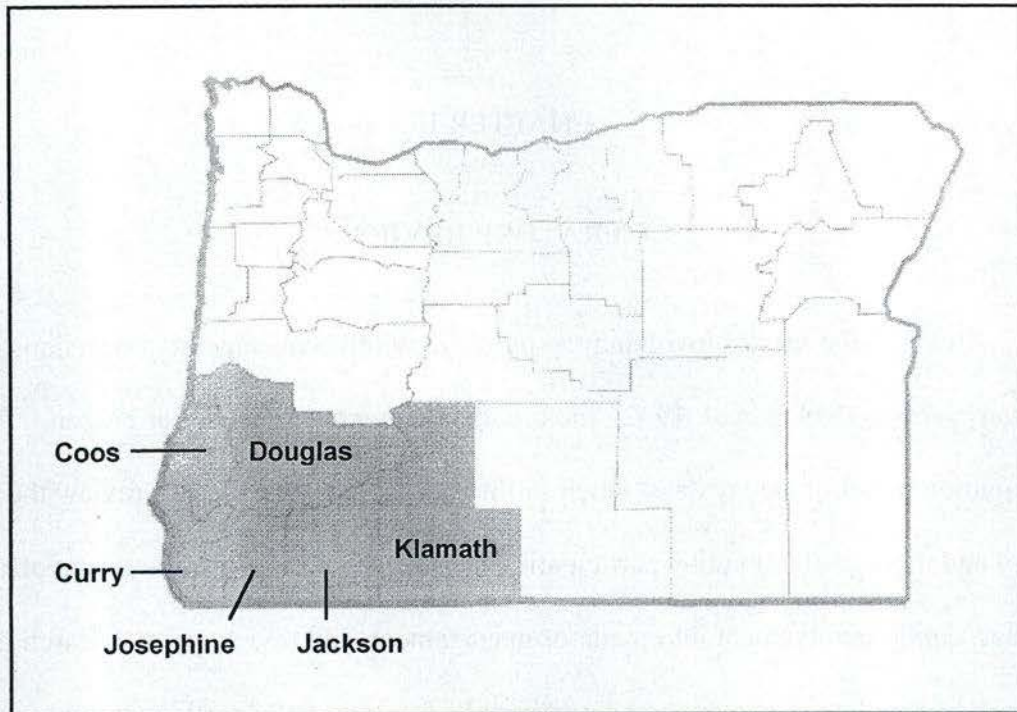


FIGURE 1.5. The six southwestern counties of the study area.

Remaining Chapters

Chapter II reviews relevant literature on public participation in policy-making and wildlife management and concludes by presenting the eight primary research questions. Chapter III describes the methods used and presents the results of the survey. Chapter IV offers further discussion and conclusions.

CHAPTER II

LITERATURE REVIEW

Although the idea of involving the public in wildlife management decisions is relatively recent (Decker et al. 1992), the broader, democratic concept of citizen participation in public policy dates much farther back. This chapter will review the history and theory behind public participation in policy-making, describe recent efforts to integrate public involvement into predator management, and review prior research that has used survey data as one component of a multi-faceted public participation process. The chapter concludes by synthesizing the three sections into a theoretical framework that addresses the question, "What preliminary information do we need before launching public participation in Oregon's cougar management?"

The History and Theory behind Public Participation in Policy-Making

In the 1970s, government-mandated citizen-involvement programs emerged in almost every facet of policy-making (Langton 1978a; Kweit & Kweit 1981). Since that initial surge of citizen-involvement programs in the seventies, the concept of public involvement has become increasingly broad and complicated, taking on multiple meanings (Forester 1999; Cortner 1996) and employing a wide range of techniques (Moote et al. 1997; Thomas 1995; Weeks 2000). The idea of public participation in wildlife management can trace its roots to these earlier conceptual explorations and the

programs that resulted from them. To provide an historical and conceptual context for the present research, I will briefly describe the emergence of citizen participation¹ programs in United States policy-making.

The Origins of Citizen Participation

Although the 1970s witnessed an explosion of government-mandated citizen-involvement programs, the notion of citizen participation in the United States dates back to the nineteenth century (Kweit & Kweit 1981). According to Kweit and Kweit (1981), the United States has experienced three "participation crises," which have come about because of a "...contradiction between a history of self government [sic.] and constitutional and legal limitations" (p. 4):

Although the Constitution may have seemed to close the door on anything but minimal citizen participation, throughout U.S. history the citizens have periodically pushed the door open. In essence, U.S. political history can be seen as a process of democratizing a republican governmental structure (Kweit & Kweit 1981, p. 4).

The first participation crisis occurred during the Age of Jackson when settlers moving west demanded greater access to political power, which remained concentrated on the east coast (Kweit & Kweit 1981). The second crisis took hold at the end of the

¹ Langton defines citizen participation by identifying the "necessary characteristics of the concept" (Langton 1978b, p. 16). These include: "(1) *Purposes* for which citizen participation activities are undertaken, (2) *Activities* that are undertaken to achieve the purposes, (3) *Citizens* who are engaged in the activities; and, (4) *Government or governmental units* in relation to which activities are undertaken" (Langton 1978b, p. 17). He then refines the definition of citizen participation by dividing it into four categories: citizen action, citizen involvement, electoral participation, and obligatory participation. I use the term citizen involvement, which is a form of citizen participation, interchangeably with public involvement and public participation.

nineteenth century when reformers of the Progressive era demanded "...a more direct decision-making role for the general citizenry" (Kweit & Kweit 1981, p. 18). Their demands resulted in reforms such as direct primaries, initiatives, and referendums. The third and final participation crisis emerged as a response to two forces. First, revisionist democratic theory, which dismissed the necessity of an "active citizenry," triggered a backlash that demanded a greater role for citizens in public decision-making. Second, a complex set of social changes, including but not limited to the civil rights and women's movements, the sexual revolution, increased mobility, the Vietnam War, and the increasing centralization of government led to rising demands for public political participation (Kweit & Kweit 1981).

As stated earlier, the third participation crisis resulted in a surge of government-mandated public-involvement programs in the 1970s. However, the historical precedent for these government-initiated programs dates back to the 1946 Administrative Procedure Act (APA) (Ethridge 1987; Cortner 1996), which

...for the first time in the nation's history provided a legal basis for public review of federal agency decisionmaking. The APA [required] agencies formulating administrative rules to publish those rules, and to provide an opportunity for written comments by interested parties (Cortner 1996, p. 168).

The 1960s also witnessed two landmark acts that set the stage for all subsequent government-initiated citizen-involvement programs (Kweit & Kweit 1981). The 1964 Economic Opportunity Act (EOA), which mobilized the "War on Poverty," called for community action programs intended to eliminate poverty and its causes. The act required that these programs be "...developed, conducted, and administered with the

maximum feasible participation of residents of the areas and members of the groups served [italics added]...” (American Passages 1999). A second act, the Demonstration Cities and Metropolitan Development Act of 1966 (Model Cities), called for “widespread” citizen participation in “...renewing the decaying sections of U.S. cities...[and achieving] the social welfare goals of the War on Poverty [sic.]” (Kweit & Kweit 1981, p. 6). While both of these anti-poverty acts received criticism for their failure to create genuine participation by the poor (Lowry et al. 1997), they nevertheless played pivotal roles in transforming the concept of citizen involvement into standard government practice (Kweit & Kweit 1981; Lowry et al. 1997).

The policy implications of the “third participation crisis” persist today, as “...the principal legacy of the participation experiments of the 1960s and 1970s are requirements for citizen participation in a wide range of programs at every level of government” (Lowry et al. 1997, p. 177). The recent influx of public participation programs in wildlife management (Lauber & Knuth 2000; Schusler & Decker 2001) suggests that public participation has become a regular feature of wildlife management as well. I propose that, if ODFW chooses to integrate greater public involvement into the formation of its next cougar management plan, lessons from the four-decade legacy of mandated public participation programs in other areas of public policy can provide a useful guide.

Lessons from the past have enabled planners and policy-makers to adapt, improve, and expand the concept of public participation, which has evolved dramatically since the 1960s and seventies. The following section will briefly consider the concept’s multiple meanings.

What is Public Participation?

According to Langton (1978b), “citizen involvement”² is “...initiated and controlled by government to improve and/or gain support for decisions, programs, or services. This category involves such activities as public hearings, consultation with advisory committees, and attitudinal surveys” (Langton 1978b, p. 20). More recent conceptions of public participation assign the citizen a more active role in actually shaping, as opposed to simply supporting, policy decisions. For example, Moote et al. (1997) contend that “In a participatory democracy approach, a broad range of interests are represented and participants are integrally involved throughout the planning process, from initiation through decision implementation and monitoring” (p. 877). Furthermore, the definition of public participation is dynamic. Because researchers and practitioners continually develop and improve involvement techniques, the definition changes with the practice. While Langton (1978b) offered examples of some techniques, others might include citizen task forces, stakeholder groups, charrettes, planning workshops, or co-management. In the past decade the field of human dimensions of wildlife management has contributed to the dynamic definition of citizen participation by modeling and testing new techniques (Johnson et al. 1993; Guynn & Landry 1997; Chase et al. 2000), which I will describe later in this chapter. First, however, I will briefly describe what public participation, at a general conceptual level, aims to achieve.

² As stated earlier, I use the terms public involvement, public participation, and citizen involvement interchangeably.

What Does Public Participation Strive to Achieve?

Alongside the policy developments that have increased opportunities for public involvement, there exists a large body of academic literature that examines the *concept* of public participation. In this literature public participation is examined through a range of theoretical lenses: participatory democracy (Pateman 1970; Moote et al. 1997), democratic theory (Rosenbaum 1978), participatory theory (Bachrach & Botwinick 1992), participatory planning (Forester 1999), and deliberative democracy (Nino 1996; Weeks 2000). These theoretical discussions often occur within the field of planning and public policy and rarely consider wildlife management as the context for public participation. Therefore, no *single* theoretical model from the public participation literature provides an appropriate groundwork for the present study. Nevertheless, the field of human dimensions of wildlife has begun to evaluate public participation in wildlife management within pre-existing theoretical frameworks (Lauber & Knuth 1998; Lauber & Knuth 2000), demonstrating their usefulness to wildlife management. Therefore, I have chosen to combine those concepts that have the greatest meaning for cougar management into a synthetic theoretical framework that allows us to apply concepts from planning and public policy to public participation in Oregon's cougar management (Figure 2.1). The brief review that follows, which summarizes theoretical concepts regarding the goals of public participation in planning and public policy, will contribute toward that synthesis.

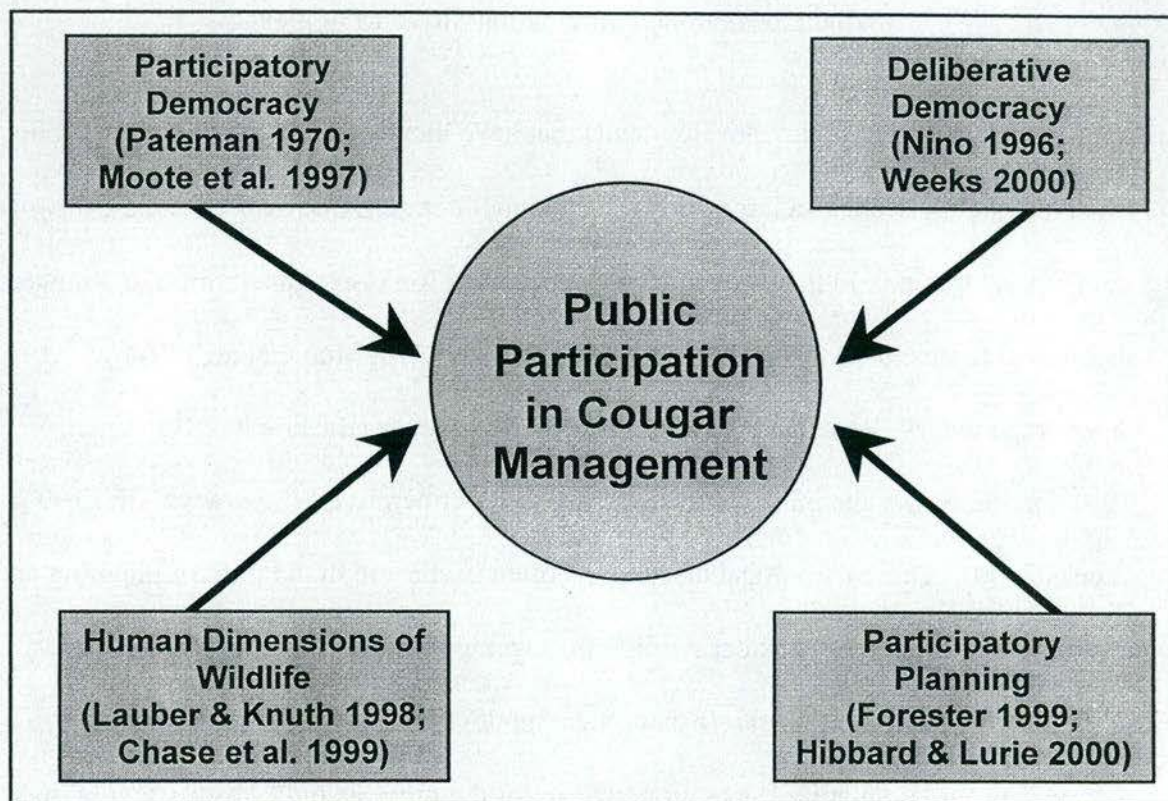


FIGURE 2.1. Four approaches to public participation that contribute toward a synthetic theoretical framework for public participation in cougar management.

When considering the goals of public participation, the participatory theory of democracy emphasizes the benefits to the individual, asserting that people achieve "...self-fulfillment through active involvement in politics, with politics broadly defined to include all decisions that are relevant to an individual" (Kweit & Kweit 1981, p. 25).

According to Bachrach and Botwinick (1992),

In the context of participatory theory, self-development connotes the process by which persons gain through dialogue and interaction with others a sense of personal identity linked with augmented clarity concerning their interests and combined with an enhanced recognition of others....Process, of course, suggests not a one-shot affair but a continuing network of interaction with others... (p. 29).

From a community perspective, public participation "...is the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future" (Arnstein 1969, p. 216). The process of public dialogue, facilitated by a pro-active manager who is trusted by the participants, can give voice to community members and pre-empt powerlessness (Forester 1999; Few 2000), as well as foster the exchange, re-articulation, and re-creation of values (Reich 1988; Weeks 2000). In order for public participation to be successful, citizens must trust not only the public official but the participation process as a whole (Hibbard & Lurie 2000). Trust will be eroded if a full range of views is not included or if the views of certain interests are privileged over those of others (Hibbard & Lurie 2000).

Other discussions focus not on the process nor the direct benefits to the participants but on the outcome: "Proponents of participation [in planning] argue that it will lead to superior problem solving because the community interest is easier to define and secure when there is active citizen involvement" (Hibbard & Lurie 2000, p. 188). Moreover, public participation can serve as a tool to promote conflict resolution (Moote et al. 1997; Weeks 2000), education and group learning (Forester 1999), and collaboration (Moote et al. 1997). More pragmatically, public involvement can ease the

work of public officials by legitimizing administrative decisions as participants develop responsibility for and ownership over those decisions (Lowry et al. 1997).

The summary above illustrates that the goals of public participation in policy-making can vary considerably depending on the theoretical lens. Likewise, public participation in wildlife management, which has emerged among a general trend toward increased public involvement in natural resource decision-making (DeSario & Langton 1987; Sample 1993; Smith & McDonough 2001), is not grounded in a single theoretical model. Approaches vary depending on the purpose, desired outcome, political, cultural, and regional context, and the wildlife species in question. The following section will describe the burgeoning concept of public involvement in wildlife management, with an emphasis on the use of public participation to solve conflicts over predator management.

Public Participation in Wildlife Management: Using Dialogue to Solve Conflicts over Predators

Decker and Chase (1997) argue that "...developing strategies to integrate-informed [sic.] stakeholder input and involvement in decision-making..." (p. 788) is one of the greatest challenges in wildlife management for the 21st century. A combination of two factors has necessitated the recent attention to public involvement in wildlife management. First, the beneficiaries of wildlife management have become a larger and more diverse group. Traditionally, wildlife management narrowly focused on serving the needs of "clients," typically hunters, anglers, and trappers. The "constituency" was small and its needs were easy to understand, making it unnecessary for wildlife managers to

systematically include the public in decision-making processes (Decker et al. 1996). However, starting in the 1970s, as wildlife managers became increasingly confronted with nonconsumptive interests in wildlife, such as advocacy for rare and endangered species, animal protectionism, or concerns for problems caused by wildlife, their "constituency" broadened to include a range of "stakeholders"³ (Decker et al. 1996). This paradigm shift has led to a "stakeholder approach" to wildlife management, where "...managers seek to include all people who may be affected by a management decision (whether or not they recognize it themselves), not just those who make their views known to managers" (Decker et al. 1996, p. 75).

Secondly, and in conjunction with the shift from "clients" to "stakeholders," wildlife managers have faced increasing levels of conflict associated with wildlife management decisions (Loker & Decker 1995; Decker & Chase 1997; Chase et al. 2000). Innovative strategies for public involvement can help wildlife managers balance competing interests (Decker & Chase 1997; Chase et al. 2000) and facilitate public dialogue about controversial management issues before those issues become the subjects of adversarial political debates (Loker et al. 1998; Whittaker & Torres 1998).

Despite the touted benefits of public participation in wildlife management, the practice is not without its detractors. For example, environmentalists may "...fear

³ Decker et al. (1996) define "stakeholders" as "...those individuals and groups who may be affected by or can affect fish and wildlife management decisions and programs" (p. 72).

domination by cattle and extractive industry interests will be disguised under the pretense of ‘public participation’” (Nie 2001, p. 9). Wildlife managers may be unwilling to surrender decision-making authority (Whittaker & Torres 1998), and the degree to which they accept public involvement can vary considerably (Chase et al. 1999; Mortenson & Krannich 2001). Nevertheless, some form of public involvement is now generally accepted as a regular component of wildlife management. How that public involvement should occur is a subject of ongoing research and experimentation (Decker & Chase 1997; Chase & Decker 1998; Chase et al. 1999).

Researchers have examined a range of public involvement techniques for wildlife management: unsolicited input (Stout et al. 1996), public meetings and comment periods (Johnson et al. 1993; Lauber & Knuth 1998), surveys (Johnson et al. 1993; Stout et al. 1996), focus groups (DiCamillo 1995; Minnis et al. 1997), co-management (Chase et al. 2000; Schusler et al. 2000), consensus-based stakeholder groups (Nie 2001), search conferences (Schusler & Decker 2001), and citizen task forces or advisory councils (Stout et al. 1996; Guynn & Landry 1997). Among all of these techniques, the degree of decision-making influence conferred to the citizen can vary considerably. Decker and Chase (1997) outlined a typology of approaches that characterize the different ways wildlife managers have addressed public input and involvement. The five approaches—authoritative, passive-receptive, inquisitive, transactional, and comanagerial or delegatorial—represent a continuum of citizen influence. The “top-down” authoritative approach represents the time period when wildlife managers served a small

constituency, and the wildlife manager made decisions exclusively and independently. In a passive-receptive approach, wildlife managers are receptive to stakeholder input but do not seek it systematically. The initiative for public input comes from the stakeholder, not the wildlife manager. The inquisitive approach emerged in response to failures of the passive-receptive approach: "... managers seek input from a broad array of stakeholders and from multiple members of any single stakeholder group" (Decker & Chase 1997, p. 790). Systematic attempts to understand stakeholder opinions and perspectives fit into this category. In the transactional approach "...managers initiate and implement processes where stakeholders not only articulate their stakes to one another, rather than through the manager as an intermediary (which is the situation in either the passive-receptive or inquisitive approaches), but also essentially negotiate acceptable weights for their own and others' stakes" (Decker & Chase 1997, p. 791). Consensus is accomplished through education, discussion, and debate. The final approach, co-managerial or delegatorial, occurs when agencies share management authority with stakeholders. Though wildlife managers have not adopted this approach, Decker and Chase (1997) predict that current trends may lead to its use.

Decker and Chase (1997) argue that different circumstances call for different approaches. The present study, which explores how survey research can lay the groundwork for a more extensive public involvement process, is concerned primarily with the inquisitive and transactional approaches. More specifically, the remainder of this literature review will consider examples of public involvement that extend beyond the standard, and often required, public meetings and comment periods.

There are many documented on-the-ground examples of inquisitive or transactional public involvement in wildlife management; however, a large portion of those examples relates to the management of deer (Stout et al. 1996; Baker & Fritsch 1997; Curtis & Hauber 1997; Kilpatrick & Walter 1997) and other non-predator species (Enck & Brown 1996; Chase & Decker 1998; Lauber & Knuth 1998). Though the design of these public participation processes may be generalizable to large carnivore management (Decker & Chase 1997), issues specific to the relationship between humans and large carnivores—such as concerns for human safety and livestock depredation and the species' need for large tracts of contiguous habitat—make it important to distinguish public participation in cougar management from public participation in wildlife management generally (Primm & Clark 1996).

One of the first experiments in using the transactional approach to plan the management of a large carnivore species occurred in Minnesota. In preparation for the federal de-listing of the gray wolf (*Canis lupus*) in Minnesota, Wisconsin, and Michigan, the state of Minnesota was charged with drafting its first wolf management plan (Minnesota Department of Natural Resources 1999). Because of the highly controversial nature of wolf management, the state held a series of public meetings and convened a stakeholder group called the Minnesota Wolf Management Roundtable (Minnesota Department of Natural Resources 1999). Designed to represent a diversity of interests, the roundtable included representatives of environmental, agricultural, hunting, trapping, tribal, and wolf advocate organizations; government agencies; and private citizens who had specific interest in wolf management issues in Minnesota (Minnesota Department of

Natural Resources 1999). The purpose of the roundtable was to "...provide guidance to DNR in developing a wolf management plan for Minnesota by deriving consensus recommendations on wolf management plan options, with particular emphasis on the controversial aspects of wolf management" (Minnesota Department of Natural Resources 1999, p. 11). The commissioner of the DNR pledged to endorse all of the roundtable's recommendations, "...as long as the survival of the wolf in Minnesota would be assured and the recommendations were biologically sound" (Minnesota Department of Natural Resources 1999, p. 11).

The expansion of wolf populations in Minnesota and other parts of the Upper Great Lakes Region has stimulated interest in wolf restoration in the Northeast, where proposals to reintroduce wolves have sparked considerable controversy (USFWS et al. 2000). In response to this controversy, the United States Fish and Wildlife Service and the Defenders of Wildlife sponsored a workshop in July of 2000 designed "to move forward a process of public involvement [and to]...provide a greater opportunity for public participation in the debate over wolf recovery in the Northeast (USFWS et al. p. 1). The 45 participants in this three-and-a-half-day workshop in Rumford, Maine, titled "Wolves in the Northeast? A Workshop to Exchange Views," included state and federal wildlife agency personnel, industry and trapper representatives, environmental organizations representatives, and U.S. and Canadian scientists and field researchers with large carnivore experience (USFWS et al. 2000). The workshop began with individual participants sharing their views, allowing them to identify potential areas of common ground and to understand the diversity present in the group. Stakeholders then developed

scenarios of possible and desired futures for wolves in the Northeast through deliberation in mixed working groups combined with technical analysis (USFWS et al. 2000).

Faced with the possibility of its own wolf controversy—if wolves from Idaho re-colonize Oregon—the Oregon Fish and Wildlife Commission has initiated its own wolf dialogue. Four wolf education workshops will provide economic and biological information to the Commission and interested members of the public. Fourteen facilitated public meetings throughout the state give community members the opportunity to express their concerns regarding wolf restoration in Oregon. The Commission has not convened an official stakeholder group to consider wolf restoration policies. However, ODFW has used stakeholder task forces in the past to help determine management plans for native fish, mule deer, and elk (Ann Pressentin-Young, personal communication, October 14, 2002), suggesting that the agency may be open to using that approach for future plan-making.

The state of Colorado has initiated two transactional public involvement processes related to predator management. In response to public concerns over coyote predation of deer, the Colorado legislature mandated the formation of the Predator Management Advisory Council (Colorado Division of Wildlife 2000). Citizen stakeholders on the Council reviewed the state's coyote, black bear, and cougar management plans. In addition, the Colorado Division of Wildlife developed its strategic plan based partially on recommendations from four work groups, each with equal representation from the public and the Division of Wildlife (Colorado Division of Wildlife 2002). The strategic plan

includes the following statement regarding public participation in Colorado's wildlife management:

Colorado's wildlife belongs to the people of Colorado. However, Colorado's citizens hold diverse and often conflicting values and beliefs about wildlife and wildlife management. The Division and the Colorado Wildlife Commission will engage the public to ensure those diverse views are sought out and considered in the decisions that affect our state's wildlife. Opportunities for public participation exist along a wide spectrum. Interested citizens and organizations may provide feedback or input on Division proposals. They may also be called upon to participate as partners in the development and implementation of decision alternatives. Partnerships among the Division and interested constituents will be critical as the Division is challenged to address wildlife challenges such as habitat preservation and endangered species recovery (Colorado Division of Wildlife 2002, p. 5).

The state of Utah has demonstrated a similar commitment to public participation in wildlife management, as the Utah Division of Wildlife Resources strategic plan for 1998 – 2003 calls for increasing public involvement in wildlife decision-making by 50% by 2003 (Mortensen & Krannich 2001). After enduring ongoing political and public conflict over cougar management in the state (Wharton 1996), the Utah Division of Wildlife Resources formed the Cougar Discussion Group in 1997. The group was comprised of representatives from the Utah Wildlife Federation, Sportsmen for Fish and Wildlife, the Predator Education Fund, the Utah Wildlife Board, the Utah Big Game Hound Association, Wildlife Services, Utah State University, and the Audubon Council of Utah. Its mission "...was to aid the Division in preparing a cougar management plan that would hopefully gain agreement from diverse groups" (Utah Division of Wildlife Resources 1999, p. 6). Each member of the Cougar Discussion Group wrote a portion of the document's background and introductory chapters, which allowed the representation

of all group members' views. During the planning process group members also identified issues and concerns and provided input to the plan's goals, objectives, and strategies. (Utah Division of Wildlife Resources 1999). The final document was Utah's first ever cougar management plan. Endorsed by both hunting organizations and wildlife groups opposed to cougar hunting, the plan was passed by the Utah Wildlife Board in 1999 (Associated Press 1999).

Perhaps the biggest lesson we can glean from Utah's cougar management plan is its direct acknowledgment that the cougar issue is highly controversial and needs to be addressed through a well-crafted process that honors the diversity of perspectives. The Utah approach models the belief that conflict will not subside without "buy-in" from a broad range of stakeholders (Jacobs 1994). A purpose of the present study is to provide information that helps ODFW develop a revised cougar management plan that directly acknowledges the cougar controversy and, like the Utah approach, grows out of a process designed to reduce that controversy. This study uses results from survey research to provide that preliminary information. The final section of this chapter reviews how prior research has taken the same approach of using questionnaire data as one portion of a larger investigative or participatory process.

Questionnaire Data: One Component of the Whole

Mail-back questionnaires are a common tool for assessing human attitudes toward wildlife (Kellert 1985; Brown 1986; Biggs 1988). The work of Kellert (1980, 1985, 1993) has established a standard format for designing such questionnaires and a

generalizable scale of basic attitudes toward wildlife. These investigations tend to focus on endangered or threatened wildlife (Reading & Kellert 1993), large predators (Hook & Robinson 1982; Kellert 1985; Brown 1986; Biggs 1988), species slated for reintroduction (Biggs 1988; Kellert 1993), and/or species embroiled in controversy (Biggs 1988; Reading & Kellert 1993).

Four of these studies have focused on human attitudes toward cougars (Brown 1986; Manfredo et al. 1998; Riley & Decker 2000; Teel et al. 2002⁴). Although the studies reveal important implications for public involvement in cougar management, the questionnaires themselves were designed as stand-alone indicators of public opinion, attitude, preference, or perception.

Lauber and Knuth (1998) argue against the use of questionnaires as a public involvement strategy, asserting that they may place emphasis on the "...measurement of existing preferences rather than deliberation over values that might change and become refined" (p. 418). Weeks (2000) argues that the typical opinion poll is not a reliable basis for policy because "ordinary public opinion tends to be uninformed, superficial, and transient" (p. 361). Cortner (1996) adds that, "...surveys represent only a snapshot in time....[They] do not involve participants through the entire planning and decision process. Respondents do not obtain the benefits of mutual learning received by participants in face-to-face participatory situations" (p. 172).

⁴ The Teel et al. (2002) study used a telephone interviewing system rather than a mail-back questionnaire.

Rather than abandon the use of surveys because of their demonstrated inadequacies, this study proposes an alternative use of the mail-back questionnaire, one that recognizes its limitations but takes advantage of its benefits. With this approach, the questionnaire becomes just one component of a larger and more extensive public participation process. This section reviews three prior studies that adopted this approach, one in the field of public policy and two in wildlife management.

In response to the inadequacies of conventional public participation approaches, Weeks (2000) demonstrated the use of deliberative democracy in four communities dealing with prominent, contentious issues. Deliberative democracy, broadly defined as the “informed participation by citizens in the deliberative process of community decision making” (Weeks 2000, p. 361), “...requires both broad participation and the participation of citizens who are, as a group, representative of the general public” (Weeks 2000, p. 361). Weeks (2000) applied the concept of deliberative democracy to a community dialogue model, “...an iterative process with multiple exchanges as the dialogue proceeds through agenda setting, strategy development, and decision making” (p. 362). The model included five methods: (1) Tabloids that provide comprehensive information about the issue, (2) Questionnaires and exercises that present citizens with a realistic simulation or representation of the problem, (3) Multiple exchanges of information to allow consensus to form, (4) Workshops and tabloids that offer all members of the community an opportunity to participate, and (5) Sample surveys that represent the whole of the community (Weeks 2000).

True to the iterative nature of the model, the five methods simultaneously complement and modify each other as new information is gained and lessons are learned. The role of the surveys is to provide information representative of the general public. In addition, the surveys create an opportunity to compare representative results with results from public workshops. Perhaps more importantly, the pairing of workshops with surveys allows facilitators to tease out the nuanced ideas and values behind the more superficial survey results.

This type of large-scale public deliberative process should be reserved for the most critical and deadlocked issues in a community (Weeks 2000) and therefore may be an inappropriate solution for Oregon's cougar controversy. However, the example demonstrates substantial value in using a survey as the initial step in a larger public participation process, even if that process is not as extensive as Weeks' community dialogue model.

In a model developed by Chase et al. (1999), initial survey data inform the design of a subsequent stakeholder involvement process for wildlife management. The framework contains the following four steps: (1) Understand the situation, (2) Define agency objectives for stakeholder involvement, (3) Select a stakeholder involvement approach, and (4) Design a context-specific stakeholder involvement strategy. The survey occurs during the first step in the process, the situation analysis.

Chase et al. (1999) followed the four-step model in cases in Colorado and New York, with elk and deer management, respectively. They developed a survey instrument to assess residents' views about elk or deer management, opinions about stakeholder

involvement in elk or deer management, and preferences for personal involvement in elk or deer management. They then interviewed agency staff to identify objectives for stakeholder involvement. By running those objectives through a decision tree, they selected a stakeholder involvement approach according to the typology described by Decker and Chase (1997). In the final step they combined the survey results with the selected stakeholder involvement approach to design a context-specific stakeholder involvement strategy. For example, in the New York case, the agency's objectives were to obtain stakeholder input for and help with deer management decisions, to gather input from stakeholders who might not provide unsolicited input, and to seek stakeholder help in implementing deer management decisions. According to the decision tree, these objectives led to the recommendation of a co-managerial approach. The survey results indicated that residents desired public involvement in deer management and supported local control. However, because stakeholders had different preferences for participation in deer management, Chase et al. (1999) recommended that the agency and the community work together to design a public involvement process that provides multiple opportunities for stakeholder education, input, and deliberation. Chase et al. (1999) suggested that the combination of education about management actions and the opportunity for public deliberation of management alternatives may help residents reconcile differing perspectives about deer management in their community. Ongoing and extensive public involvement opportunities should improve the management climate for deer in New York.

Recommendations for the Colorado case followed a less clear-cut path through the decision tree. The agency wanted to obtain stakeholder input for elk management decisions, and it perceived a need to gather input from stakeholders who might not provide unsolicited input. However, agency personnel did not agree about whether or not obtaining stakeholder help in making decisions and implementing management actions was an objective. The survey results indicated that residents supported the agency as the final decision-maker. Considering the agency objectives and resident views together, Chase et al. (1999) recommended an inquisitive or transactional approach, with the following guidelines:

To satisfy stakeholders with different preferences for participation in elk management decisions, the [agency] can develop a multi-faceted process that allows individuals to become involved in ways compatible with their levels of interest and time constraints. Education about management actions combined with opportunities to provide input should satisfy most residents' desires for involvement. If the [agency] decides to include help with decisions as an objective of stakeholder involvement, a collaborative decision-making process (such as a task force) may improve the management climate and increase support for controversial management actions. Given residents' preferences for inclusive and representative methods of involvement, [agency] staff should take steps to ensure that any transactional approach they design includes opportunities for broad public input and oversight (pp. 37-38).

Siemer et al. (2000) also adopted the Chase et al. (1999) four-step process in designing a stakeholder involvement strategy for the Islip Deer Initiative (IDI), a deer management program in New York designed to address a high level of citizen complaints regarding problems associated with deer. Siemer et al. (2000) designed and implemented a questionnaire to get information about

...area residents': demographic characteristics; mass media use and characteristics; interests, concerns and attitudes toward deer and deer management; wildlife-related value orientations; opinions about who should be making and implementing deer management decisions; opinions about citizen involvement in deer management decisions; preferences for personal involvement in deer management decisions; and desired elements of a public-involvement process (p. 257).

Though many of the survey results did not come as a surprise, "...the survey data were valuable because they quantified what had been qualitative assumptions. The survey data [gave] IDI partners a shared understanding of the key impacts involved and the key perceptions of residents in areas occupied by deer" (Siemer et al. 2000, p. 258). The survey results informed officials of the kind of stakeholder involvement processes that would be most socially acceptable, most appropriate to the community, and in some cases, most effective. For example, officials learned that residents in areas occupied by deer were more interested than residents in areas not occupied by deer in providing input to deer management decisions. This insight led to the recommendation that "...IDI partners consider using different input mechanisms to accommodate residents with different levels of interest in deer management" (Siemer et al. 2000, p. 258). Other recommendations based on survey data included creating multiple involvement opportunities and formats, providing opportunities to meet different stakeholder interests, involving stakeholders for the purpose of informing and educating them, and capitalizing on citizen trust in scientific surveys (Siemer et al. 2000).

Conclusion

To structure a questionnaire that lays the groundwork for more extensive public participation in cougar management, it is necessary to ask what kind of preliminary information will aid the design of that public participation process. This chapter has reviewed the history and theory behind public participation in policy-making, outlined recent efforts to integrate public involvement into predator management, and described prior research that has used survey data as one component of a multi-faceted public participation process. When considered together, these sets of literature provide both theoretical and practical insight into the requirements for successful and inclusive public involvement. Although it is impossible to include all theoretical considerations in the design of a single public participation process, it is possible to synthesize the literature presented above into a guiding framework. Table 2.1 presents a list of questions that address the question, "What do we need to know before launching public participation in Oregon's cougar management?" The list of questions represents a synthesis of the literature reviewed above and provides a methodological framework for designing the questionnaire, which is described in detail in Chapter III.

TABLE 2.1. Eight research questions that address the preliminary information needed before launching a public participation process for cougar management.
Each research question emerges from one or more sources referenced in the literature review.

Research Question	Reference
What is the range of opinions?	Chase et al. 1999 Siemer et al. 2000 USFWS et al. 2000
What are the areas of agreement and disagreement?	Hibbard & Lurie 2000 USFWS et al. 2000
Might people's opinions "change and become refined"?	Lauber & Knuth 1998
Who is most likely to take part in public participation?	Chase et al. 1999 Siemer et al. 2000
How much decision-making power do people want or expect to have?	Chase et al. 1999 Siemer et al. 2000
Who do people perceive as currently holding the greatest power over the decision-making process?	Arnstein 1969 Few 2000 Forester 1999 Hibbard & Lurie 2000
What demographics and viewpoints must be included to ensure a full range of views?	Forester 1999 Hibbard & Lurie 2000
Do citizens trust wildlife managers to make good decisions?	Forester 1999 Hibbard & Lurie 2000

Together the questions in Table 2.1 not only guided the design of the questionnaire, they also form a framework for making recommendations about the design and implementation of the public participation process. The answers to these questions,

presented in Chapter IV, will provide the basis for determining a public participation strategy for cougar management.

CHAPTER III

METHODS AND RESULTS

The first section of this chapter outlines the sampling methods, the development and implementation of the survey instrument, and the data analysis. The second section presents the results.

Sampling

The sample consisted of 800 households from six counties in the southwestern region of Oregon: Coos, Curry, Douglas, Jackson, Josephine, and Klamath (Figure 1.5). A random sample of names and addresses was purchased from Genesys Sampling, Fort Washington, Pennsylvania. Genesys Sampling generated the list from a computerized database of white page telephone listings. The number of records from each of the six counties was proportional to the total population of each county. The six counties were selected for the following reasons: (1) ODFW considers cougar abundance and cougar-related damage complaints to be high in southwestern Oregon, (2) The rising number of human encounters with cougars has received considerable media attention in this region over the past three years, (3) The region contains a mix of people living in urban, rural, and urban-fringe areas, and (4) The region does not contain any of Oregon's largest metropolitan areas, where the issue of human encounters with cougars is expected to be less prominent.

Questionnaire Development

The mail-back questionnaire was designed to obtain results that can inform the design and implementation of a hypothetical public participation process. Table 2.1 lists the research questions that guided questionnaire development. This list was derived from the synthesis of public participation research and theory presented in Chapter II and addresses questions that planners must answer as they design and implement public participation in cougar management.

Questionnaire items were developed over a period of ten weeks, with review by one wildlife manager from ODFW and four professional survey researchers. The questionnaire was pre-tested on 20 students and ten administrative staff at the University of Oregon.

To compare the results with prior research, four questionnaire items were adapted from a survey related to cougars and cougar management in Montana (Riley 1998). The adapted questionnaire items (numbers 4, 8c, 8d, and 12) are listed in Appendix C.

The questionnaire contained 37 items that focused on the following six general topics: (1) experiences with and reactions to interactions with cougars, (2) beliefs and preferences regarding the relationship between humans and cougars, (3) opinions of various possible cougar management practices, (4) perceptions of how and by whom cougar management decisions are and should be made, (5) perceptions of the causes of the controversy over cougar management, and (6) beliefs regarding the rights of cougars, individual people, and the government. The final 13 questions requested information

about demographic characteristics, length of residency in Oregon, recreation habits, and livestock and pet ownership. (See Appendix C for complete list of all questionnaire items.)

Implementation Procedure

The four-wave survey implementation procedure was adapted from the Tailored Design Method (Dillman 2000). A pre-contact postcard that informed subjects that they would receive a request to participate in a study conducted by a University of Oregon graduate student and provided them with contact information if they had questions or concerns was mailed on January 18, 2002. The questionnaire, explanatory cover letter, and self-addressed, stamped return envelope were mailed six days later. The cover letter informed respondents that they had been randomly selected to participate in a study about people's knowledge and opinions of cougars in Oregon and that participation was voluntary and confidential. The letter was addressed to the household and requested that the individual over 18 years-old with the next birthday be the one to complete the questionnaire. A postcard that thanked respondents for returning the questionnaire and asked them to do so if they had not already was mailed seven days later. On February 11, 2002, those subjects who had not returned either a blank or completed questionnaire were sent a final questionnaire, cover letter, and self-addressed, stamped return envelope. The cover letter informed subjects that their comments were important to the success of the study and provided more detailed information about the confidentiality measures of the implementation procedure.

Data Analysis

Data were analyzed using SPSS 10.0 for the Macintosh (Piovanelli 1999).

Frequencies and percentages were computed for all questionnaire items. Differences in response pattern between sub-groups of the independent variable, including age group and gender, were analyzed using cross-tabulations (contingency tables) and Pearson's chi-square. Statistical significance was designated *a priori* at $P < 0.05$.

Groups of questionnaire items were combined into four indexes: EXPER measured prior experience with cougars. LETHAL measured attitude toward lethal control of cougars. CONCERN measured worry or concern regarding cougars as a potential threat to people, pets, or livestock. PARTICIPATE measured an individual's likelihood of becoming involved in public participation in cougar management. Appendix B describes in detail how these indexes were developed. Frequencies and percentages were computed for all four indexes.

Of the eight research questions listed in Table 2.1, two were selected for the most detailed analysis: "Who is most likely to take part in public participation?" and "What are the areas of agreement and disagreement?" The first question was selected to provide wildlife managers with detailed knowledge about the factors that increase likelihood of participation, allowing them to customize the public involvement process accordingly. Secondly, because the purpose of this study is to lay the groundwork for a public participation process, likelihood of participation is a logical dependent variable for comparing a range of independent variables. The second question was selected because

identifying potential areas of polarization and common ground can help managers both prevent conflict and build trust in a public participation process.

The following seven hypotheses were developed *a priori* to examine the first question, "Who is most likely to take part in public participation?"

1. Respondents with greater prior experience with cougars (EXPER) are more likely to participate.
2. Respondents with favorable attitudes toward lethal control of cougars (LETHAL) are more likely to participate.
3. Respondents with greater concern regarding cougars as a potential threat to people, pets, or livestock (CONCERN) are more likely to participate.
4. Males are more likely than females to participate.
5. Respondents who are older than 44 years are more likely to participate.
6. Hunters are more likely to participate than non-hunters.
7. Respondents who own livestock are more likely to participate than those who do not own livestock.

The null hypotheses for the first three hypotheses listed above stated that there was no relationship between the independent variable and likelihood of participation, the dependent variable. The null hypotheses for the last four hypotheses above stated that there was no difference among sub-groups of the independent variable regarding their likelihood of participation. To avoid cell values too low for the chi-square statistic (Piovanelli 1999), the PARTICIPATE index was not used as the dependent variable. Instead, respondents were divided into those who would and those who would not participate at all. The hypotheses were tested by cross-tabulations between the independent and dependent variables. The Pearson chi-square was used to measure the significance of differences between sub-groups of the independent variable. For the first three hypotheses, whose independent variables were ordinal measures, the strength of association between variables was tested by gamma (Piovanelli 1999).

Responses to questionnaire item 14 (Appendix C), which asked respondents to rate the acceptability of 12 cougar management methods, were selected to assess areas of agreement and disagreement. For the purposes of clarity, the very acceptable and acceptable responses were combined, as were the very unacceptable and unacceptable responses. "Don't know" responses were not considered as part of this analysis, creating three possible response categories: Very acceptable/acceptable, neutral, and very unacceptable/unacceptable. Respondents who selected the same response category for any given management option were considered to be in agreement for that option. Hypothetically, the highest possible agreement would occur when all respondents select the same response category.

The twelve management options were ranked in order of respondent agreement according to the operational definition described above. The response category with the highest percentage determined the rank order for that management option. This method ranks the management options according to level of respondent agreement but cannot necessarily be reversed to indicate level of disagreement.

Responses

Of the 800 questionnaires sent on January 24, 2002, 175 were returned because of faulty addresses, leaving a total of 625 deliverable questionnaires. Completed questionnaires were received from 364 individuals, for a response rate of 58%. Four questionnaires were removed from the database, one because the respondent was under 18 years of age, one because the respondent listed a zip code outside the study area, and

two because of incomplete data, resulting in a final sample size of 360 respondents.

Appendix C lists the results for all questionnaire items. The margin of error for all questionnaire items ranged between plus or minus five and six percent at the 95% level of confidence.

Demographic Information

Respondents were 39% female and 61% male. Forty-five percent lived inside and 55% lived outside a city limit. The percentage of respondents from each county was roughly proportional to the representation in the six-county survey sample (Figure 3.1). Nineteen percent raised livestock, and 39% were hunters. Individuals between 18 and 44 years of age were underrepresented and individuals over 44 were over-represented in the survey data (Table 3.1). To gauge the effects of the disproportionate age representation, the responses to 17 questionnaire items were tested for differences between 18 to 44 year-olds and those older than 44 years. Only one of the 17 items obtained a significant age-group difference, suggesting that the disproportionate age representation did not skew the data.

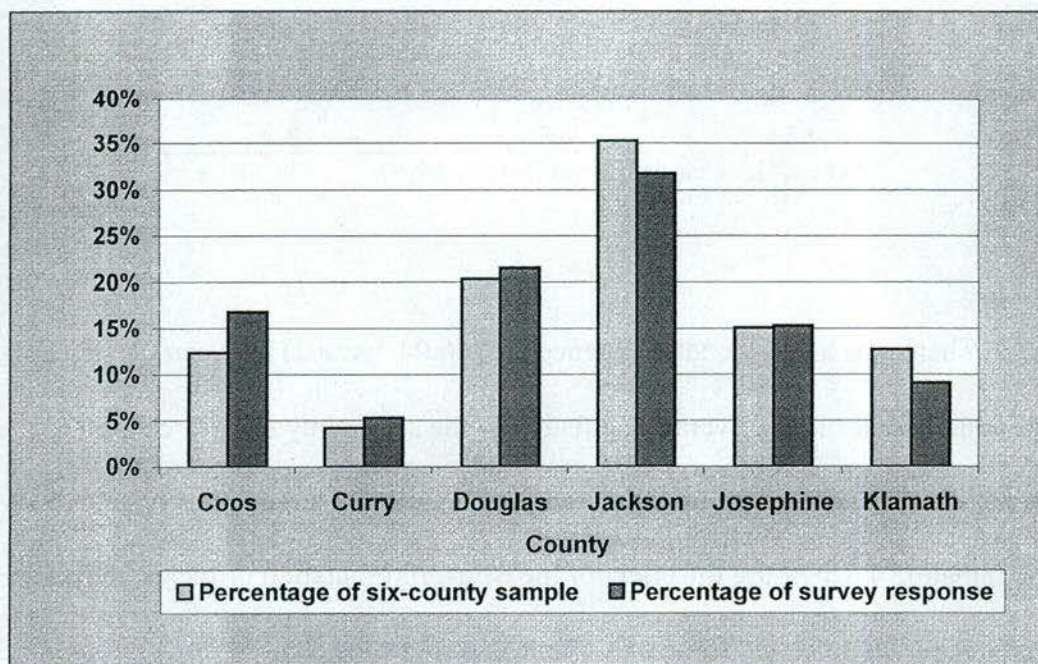


FIGURE 3.1. Sample and response size for each of the six counties in the study area, represented as percentages.

TABLE 3.1. Ages of overall population in the six-county study area compared to ages of survey respondents (N = 336).

Age (in years)	Percentage of total population in study area*	Percentage of survey respondents
18-24	10.2	2.4
25-44	32.7	19.9
45-64	34.2	40.8
65-84	20.4	33.6
85+	2.6	3.3

*Source: U.S Census Bureau (July 1, 1999)

There was a significant difference ($\chi^2 = 66.04$, $p < .001$) between the percentage of males and females in the overall population in the six-county study area (48% male, 52% female¹) and the percentage of males and females among survey respondents (61% male, 39% female). To measure the effect of the over-representation of males, the same 17 questionnaire items tested for age differences were tested for gender differences. Eleven of the 17 items obtained significant differences between males and females, suggesting that the under-representation of females may limit how accurately the data represent the residents of the study area.

Basic Attitudes toward and Thoughts about Cougars

Most respondents indicated that they did not spend substantial time thinking about the topic of cougars in Oregon. The majority reported that they thought about the topic

¹Source: U.S. Census Bureau, Census 2000

either sometimes (36.5%) or rarely (40.6%). Twelve percent indicated that they thought about the topic often, while 9.6% reported never thinking about the topic of cougars in Oregon (N = 323).

The majority of respondents (63.8%, N = 348) strongly agreed or agreed that Oregonians should accept occasional encounters with cougars as part of living in the Pacific Northwest. Respondents showed mixed reactions to two questionnaire items regarding the presence of cougars in Oregon. Over half (55.1%) strongly agreed or agreed that the presence of cougars in Oregon is a sign of a healthy environment (N = 349). Less than half of that percentage (26.2%) strongly agreed or agreed with the statement, "The presence of cougars in Oregon increases my overall quality of life" (N = 347). (See Appendix C for percentage of neutral, disagree, strongly disagree, and don't know responses.)

Respondents did not express a majority opinion about the desired size of future cougar populations. When asked if, in the future, they would like to see the number of cougars increase, decrease, or stay the same, 10.3% chose increase, 29.1% chose decrease, 33.4% chose stay the same, and 27.1% chose "I have no idea" (N = 350).

Respondents did demonstrate a clear majority opinion regarding the rights of cougars and the rights of individual people in relationship to cougars. Almost three-quarters of respondents (73.1%, N = 332) strongly agreed or agreed with the statement, "No matter what the government says, I should have a right to kill a cougar that I think is a threat to people." Again, almost three-quarters (74.5%, N = 330) strongly disagreed or disagreed with the statement that "Cougars should have a right to live where they will

encounter people even if they pose a threat to people.” (See Item 23 in Appendix C for more results regarding the rights of cougars and the rights of individual people in relationship to cougars.)

Prior Experience with Cougars

Over half of respondents reported having seen a cougar in the wild. However, the most frequently reported prior experience with cougars was the indirect, or vicarious, experience of hearing about a cougar in one’s neighborhood or community. Far fewer respondents reported having seen a cougar in their neighborhood or community or having had a pet threatened or attacked by a cougar (Table 3.2).

TABLE 3.2. Responses to questionnaire items that made up the index EXPER (prior experience with cougars).

Questionnaire Item	Yes (%)	No (%)
Have you ever seen a cougar in the wild? (N = 355)	53.5	46.5
Have you heard of cougar sightings in your neighborhood or community? (N = 357)	72.8	27.2
Have you seen a cougar in your neighborhood or community? (N = 358)	17.9	82.1
Have you ever had a pet threatened or attacked by a cougar? (N = 353)	6.5	93.5

The results of the EXPER index indicate that few respondents have had a *very high* level of prior experience with cougars (Table 3.3). A greater percentage of females than males had no or minimal prior experience, though a greater percentage of females also had very high experience, suggesting no definitive gender-related pattern concerning EXPER. However, significant gender differences were obtained for two of the items in the index. Sixty-three percent of males compared to 38.6% of females reported having seen a cougar in the wild ($\chi^2 = 18.92, p < .000005$). Seventy-seven percent of men and 66.2% of women indicated they had heard of cougar sightings in their neighborhoods or communities ($\chi^2 = 5.20, p = .023$).

TABLE 3.3. Level of prior experience with cougars, as represented by the index EXPER (N = 350).

Level of EXPER	Percent of Respondents
None	16.6
Minimal	27.1
Low	10.6
Medium	28.6
High	13.1
Very High	4.0
Total	100.0

Attitude toward Lethal Control of Cougars

Table 3.4 lists the results of the four questionnaire items that made up the LETHAL index (attitude toward lethal control of cougars). Respondents were asked to rate the four management options based on their acceptability for addressing the increase in reported cougar sightings and cougar-related damage complaints (see 14a, 14d, 14e, and 14f in Appendix C for complete wording of questionnaire item). The most acceptable of the four lethal control methods was to make it legal for individuals to shoot cougars that appear threatening to people, pets, or livestock, with 68.9% of respondents finding it very acceptable or acceptable (N = 350). The most unacceptable method was trapping and destroying any cougars that enter human communities, with 47.4% finding the method unacceptable or very unacceptable (N = 346). The method of creating a longer hunting season on cougars obtained more “neutral” and “don’t know” responses than did any of the other three lethal control methods.

TABLE 3.4. Responses to questionnaire items that made up the LETHAL index (attitude toward lethal control of cougars). Respondents were asked to rate the four management options based on their acceptability for addressing the increase in reported cougar sightings and cougar-related damage complaints.

Lethal Management Method	Very Acceptable (%)	Acceptable (%)	Neutral (%)	Unacceptable (%)	Very Unacceptable (%)	Don't Know (%)
Trap and destroy any cougars that enter human communities (N = 346)	14.7	22.0	14.5	30.6	16.8	1.4
Make it legal for individuals to shoot cougars that appear threatening to people, pets, or livestock (N = 350)	36.6	32.3	12.3	11.4	4.6	2.9
Create a longer hunting season on cougars (N = 347)	13.3	17.3	29.4	18.2	11.8	10.1
Make it legal to hunt cougars with dogs (N = 349)	21.8	19.5	13.8	18.3	22.9	3.7

The results of the LETHAL index indicate that more respondents had a favorable attitude toward the use of lethal control methods to address the increase in reported cougar sightings and cougar-related damage complaints than an unfavorable attitude (Table 3.5). However, with over a third of respondents in the mixed category, there was no clear majority attitude regarding the lethal control of cougars. Males were significantly more likely than females to be favorable toward lethal control, with 50.0% of males and 20.2% of females in the favorable category ($\chi^2 = 29.029$, $p < .000005$).

TABLE 3.5. Attitude toward the use of lethal control of cougars as a method for addressing the increase in reported cougar sightings and cougar-related damage complaints, as represented by the LETHAL index (N = 297).

Level of LETHAL	Percent of respondents
Unfavorable	27.3
Mixed	33.3
Favorable	39.4
Total	100.0

Further analysis was conducted to determine whether responses in the mixed category were dominated by neutral responses. Only one percent of respondents in the mixed category selected "neutral" for all four items that made up the LETHAL index. A combined 82% of mixed respondents gave a neutral response to only one or two items (Table 3.6).

TABLE 3.6. Percent of respondents in the mixed category who gave one, two, three, or four neutral responses to the questionnaire items that made up the LETHAL index (N = 99).

Number of neutral responses	Percent of "mixed" respondents
One	58.6
Two	23.2
Three	17.2
Four	1.0

Figure 3.2 compares the distribution of responses by respondents in the mixed category to those in the unfavorable and favorable categories. Fewer than 15% of mixed respondents found any lethal control method to be very unacceptable or very acceptable. Almost half of mixed respondents found it unacceptable to trap and destroy any cougars that enter human communities, and over 60% found it acceptable to make it legal for individuals to shoot cougars that appear threatening to people, pets, or livestock. The only item that obtained a neutral response by the majority was creating a longer hunting season on cougars.

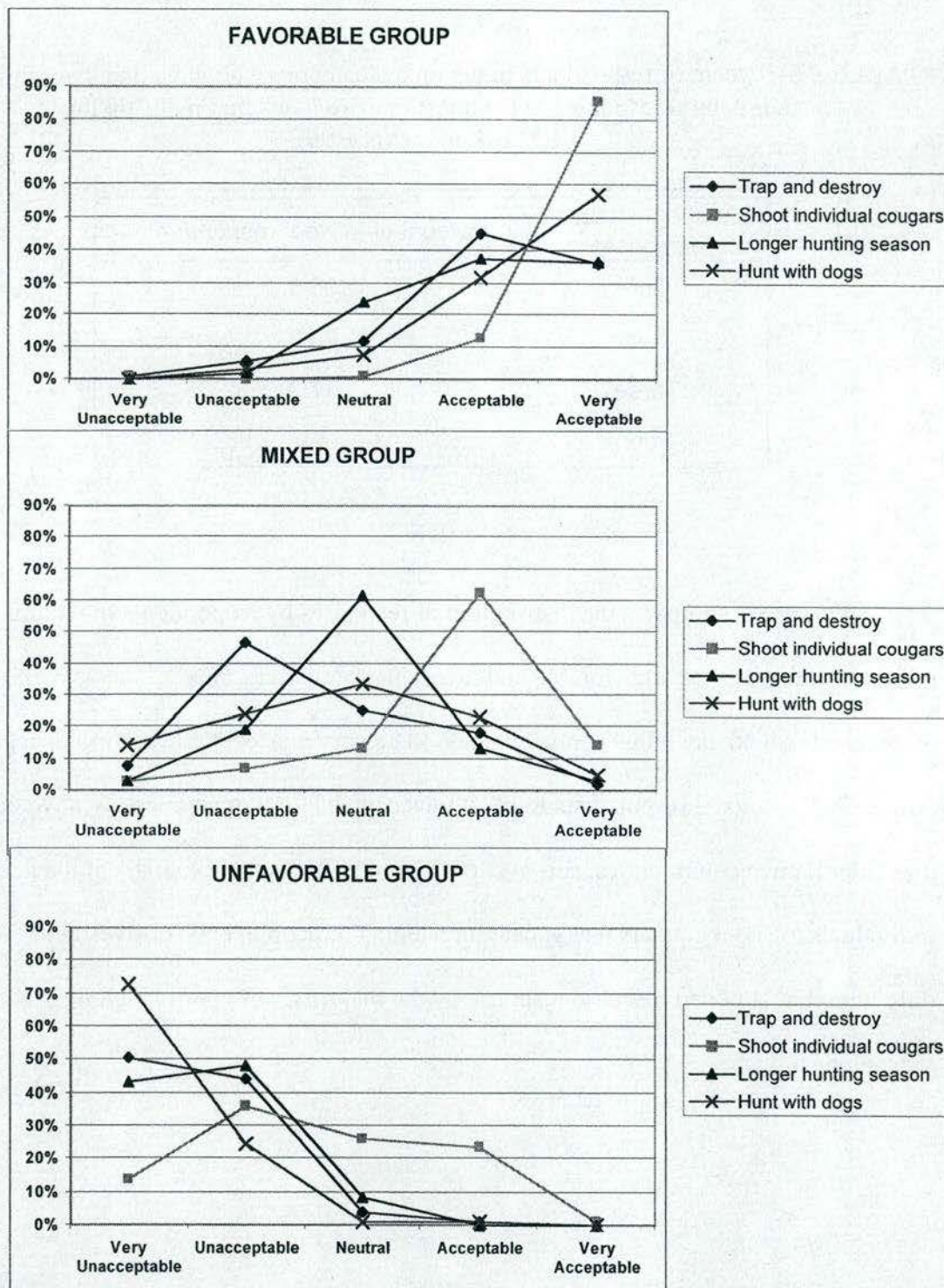


FIGURE 3.2. Responses to the four questionnaire items that made up the LETHAL index by respondents who were favorable, mixed, or unfavorable toward the use of lethal control methods to address the increase in reported cougar sightings and cougar-related damage complaints.

Worry or Concern Regarding Cougars as a Potential Threat to People, Pets, or Livestock

The results of the four questionnaire items that made up the CONCERN index suggest that respondents believed that cougars pose a greater threat to pets and/or livestock than they do to people (Table 3.7). The CONCERN results indicate that only 22% of respondents had a high level of worry or concern regarding cougars as a potential threat to people, pets, or livestock (Table 3.8). There were no significant differences between males and females for CONCERN.

TABLE 3.7. Responses to questionnaire items that made up the CONCERN index (worry or concern regarding cougars as a potential threat to people, pets, or livestock).

Question	Always (%)	Often (%)	Sometimes (%)	Rarely (%)	Never (%)	Don't Know (%)
How often do you worry about encountering a cougar in your neighborhood or community? (N = 358)	2.8	5.6	19.8	24.9	46.4	0.6
Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know
Cougars pose a threat to pets and/or livestock in my neighborhood or community (N = 350)	18	27.1	15.7	19.7	12.9	6.6
Cougars pose a threat to people in my neighborhood or community (N = 352)	7.4	16.2	18.5	29.3	23	5.7
I would like to learn more about how to prevent cougars from entering my neighborhood (N = 347)	9.8	30	35.2	16.1	3.5	5.5

TABLE 3.8. Worry or concern regarding cougars as a potential threat to people, pets, or livestock, as represented by the index CONCERN (N = 300).

Level of CONCERN	Percent of respondents
Low	39.7
Medium	38.3
High	22.0
Total	100.0

Beliefs about Cougar Management Policy

Respondents were asked to indicate which groups they thought had the most influence over cougar management policies in Oregon. From a list of 13 options plus “none of the above” and “other,” respondents could choose one to four groups. The five most selected options were wildlife officials (65.1%), animal rights activists (49.3%), environmentalists (39.6%), politicians (37.8%), and ranchers (34.9%) (N = 341). (See Item 16 in Appendix C for a complete list of the 13 options and their results.)

Almost half of respondents (48.6%) indicated that they “trust wildlife officials in Oregon to make the best possible decisions regarding cougar management” (N = 319). The majority of respondents (76.3%) did not think that their interests, and those of people like them, were adequately considered in cougar management decisions (N = 316). When asked to select one of four options that best described how they thought major decisions about cougar management should be made, the majority of respondents

(65.6%) indicated that experts and citizens should make cougar management decisions together (Table 3.9).

TABLE 3.9. Responses to the question, "Which statement below best describes how you think major decisions about cougar management should be made?" (please check one box)" (N = 336)

Statement	Percent of respondents
Experts and citizens make decisions together	65.6
Experts make decisions with some citizen input	24.5
Experts make decisions by themselves	4.4
Citizens make the decisions by themselves	3.5

Respondents were asked which actions they would be likely to take if wildlife officials invited citizens in their community to participate in deciding cougar management policy. The options selected the most were "Attend a meeting" and "I would not participate" (Table 3.10). Each of the other options was selected by less than 16% of respondents.

TABLE 3.10. Results used to calculate the PARTICIPATE index. Table shows the percentage of respondents who selected each response to the following question, "If wildlife officials invited citizens in your community to participate in deciding cougar management policy, which of the following actions would you be likely to take?" Because respondents were asked to check all that applied, the results are not cumulative (N = 334).

Participation Action	Percentage of Respondents
Attend a meeting	43.4
I would not participate/other no	30.2
Attend a meeting and testify	15.9
Participate in a focus group or workshop	15.9
Sign up for a citizen advisory committee	9.9
Work with officials to draft management plans	15.0
Recruit other citizens to participate in the process	11.1

The results of the PARTICIPATE index show that 69.7% of respondents would participate in some way (Table 3.11), with more respondents in the low than the high participation category. Significantly more males were in both the high and low categories, and significantly more females indicated that they would not participate ($\chi^2 = 7.895$, $p = .019$).

TABLE 3.11. Percent of respondents in each category of the PARTICIPATE index (N = 334).

PARTICIPATE category	Percent of respondents
No participation	30.2
Low participation	40.7
High participation	29.0
Total	100.0

Gender Differences

Each of the four indexes was tested for gender differences. The results have been described above and are summarized below:

- EXPER: No definitive gender-related pattern for the index. Males were more likely to report having seen a cougar in the wild and having heard of cougar sightings in their neighborhood or community.
- LETHAL: Males were significantly more likely to be favorable toward lethal control.
- CONCERN: No significant differences.
- PARTICIPATE: Males were significantly more likely to participate at both the high and low levels.

In addition, 54.5% of females, compared to 35.1% of males, thought their opinions about cougar management might change if they learned more about cougars ($\chi^2 = 11.585, p = .001$).

Hypothesis Testing

Hypotheses Related to Beliefs and Attitudes

Hypothesis 1: Respondents with Greater Prior Experience with Cougars Are More Likely To Participate

The null hypothesis states that there is no relationship between EXPER and likelihood of participating in cougar management decision-making. The cross-tabulation between EXPER and participation obtained a significant positive association ($\gamma = 0.530$, $p < .000005$, Table 3.12), allowing us to reject the null hypothesis. Whereas 69.7% of all respondents would participate in some way (Table 3.11), only 44.2% of respondents with no prior cougar experience would participate. Overall, the results showed a steadily increasing level of expected participation with higher levels of prior experience (Figure 3.3).

TABLE 3.12. Contingency table between EXPER (independent variable) and participation in cougar management decisions (dependent variable).

	EXPER					
	None (N = 52) %	Minimal (N = 89) %	Low (N = 35) %	Medium (N = 92) %	High (N = 43) %	Very High (N = 13) %
Would not participate	55.8	39.3	28.6	23.9	4.7	0.0
Would participate	44.2	60.7	71.4	76.1	95.3	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

$$\chi^2 = 40.32, p < .000005$$

$$\gamma = 0.530, p < .000005$$

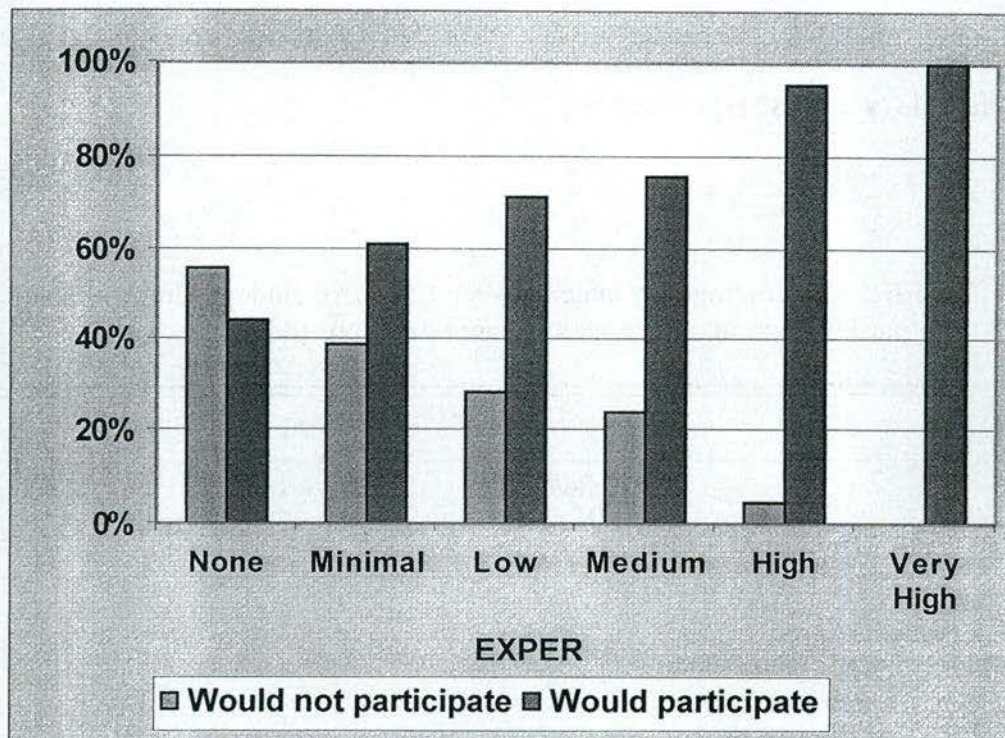


FIGURE 3.3. The percentage of respondents with no, minimal, low, medium, or high prior experience with cougars (EXPER) who would and would not participate in cougar management decision-making.

Hypothesis 2: Respondents with Favorable Attitudes toward Lethal Control of Cougars Are More Likely to Participate.

The null hypothesis states that there is no relationship between LETHAL and likelihood of participating in cougar management decision-making. The cross-tabulation between EXPER and cross-tabulation did not obtain a significant association, so we cannot reject the null hypothesis (Table 3.13). Respondents with favorable and unfavorable attitudes toward lethal control were almost equally likely to participate (Figure 3.4). In contrast, respondents who were neutral toward lethal control were

significantly less likely to participate than individuals who were either favorable or unfavorable ($\chi^2 = 18.872$, $p < .000005$).

TABLE 3.13. Contingency table between LETHAL (independent variable) and participation in cougar management decisions (dependent variable).

	LETHAL		
	Unfavorable (N = 78) %	Mixed (N = 96) %	Favorable (N = 112) %
Would not participate	20.5	43.8	18.8
Would participate	79.5	56.3	81.3
Total	100.0	100.0	100.0

$$\chi^2 = 18.872, p < .000005$$

$$\gamma = 0.099, p = 0.313$$

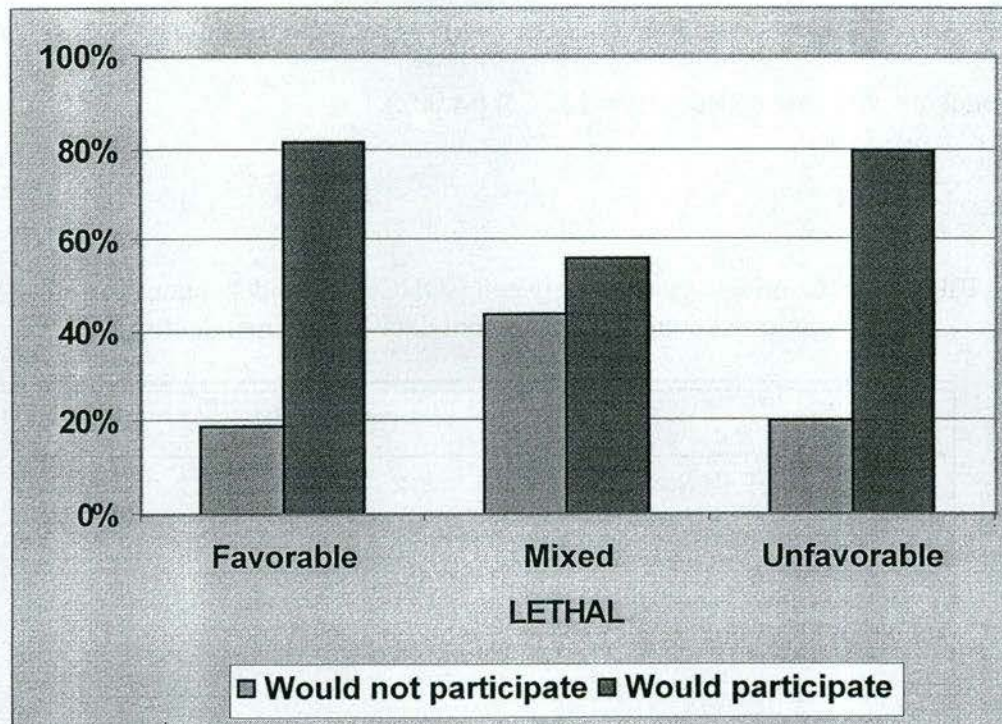


FIGURE 3.4. Percentage of respondents with favorable, neutral, or unfavorable attitudes toward lethal control of cougars (LETHAL) who would or would not participate in cougar management decision-making.

Hypothesis 3: Respondents with Greater Concern Regarding Cougars as a Potential Threat to People, Pets, or Livestock Are More Likely to Participate.

The null hypothesis states that there is no relationship between CONCERN and likelihood of participating in cougar management decision-making. The data allow us to reject the null hypothesis. There was a significant positive association between CONCERN and participation ($\gamma = 0.378$, $p < .000005$; Table 3.14, Figure 3.5), though the association was not as strong as that between EXPER and participation. Eighty-seven

percent of respondents with high concern would participate, compared to 62.6% of respondents with low concern ($\chi^2 = 12.153$, $p < .002$).

Table 3.14. Contingency table between CONCERN (independent variable) and participation in cougar management decisions (dependent variable).

	CONCERN		
	Low (N = 115) %	Medium (N = 109) %	High (N = 62) %
Would not participate	37.4	26.6	12.9
Would participate	62.6	73.4	87.1
Total	100.0	100.0	100.0

$$\chi^2 = 12.153, p < .002$$

$$\gamma = 0.378, p < .000005$$

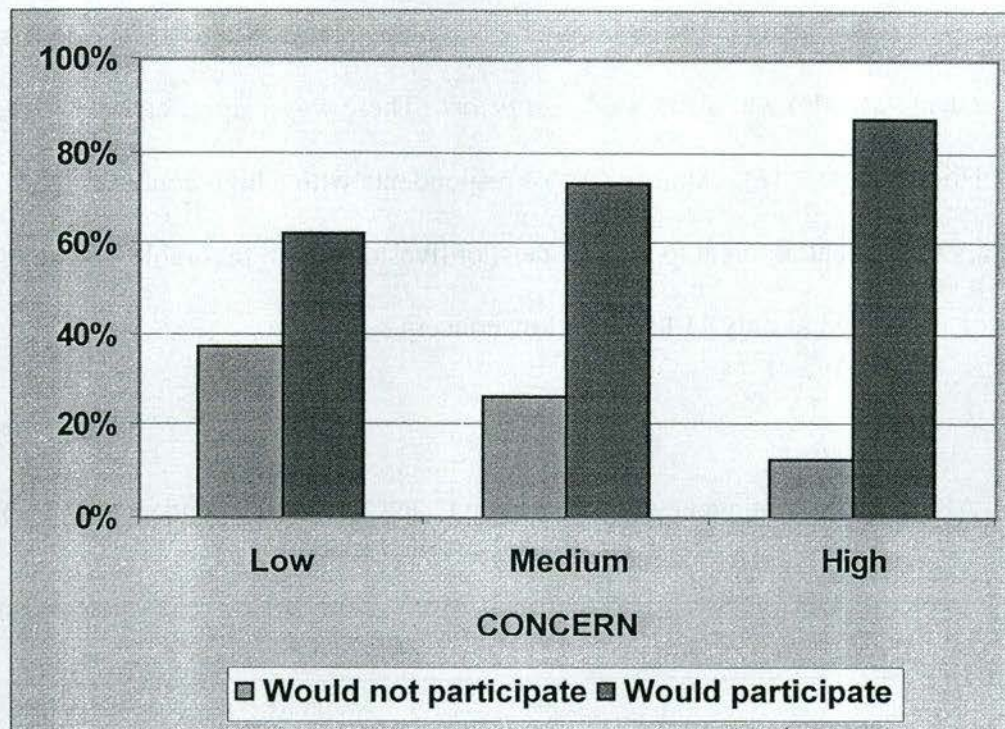


FIGURE 3.5. Percentage of respondents with low, medium, or high levels of concern regarding cougars as a potential threat to people, pets, or livestock (CONCERN) who would or would not participate in cougar management decision-making.

In addition to the hypotheses described above, two other cross-tabulations with likelihood of participation as the dependent variable were tested *post priori*. In the first test there was no significant difference between those who believed that their opinions about cougar management might change if they learned more about cougars and those who did not. In the second test respondents who did not trust wildlife officials in Oregon to make the best possible decisions regarding cougar management were significantly more likely to participate (N = 160, 78.1%) than those who did (N = 151, 62.3%) ($\chi^2 = 9.396$, $p = 0.002$).

The relationship between CONCERN (independent variable) and LETHAL (dependent variable) was also tested *post priori*. There was a significant positive association (Table 3.15). Almost 80% of respondents with a high concern regarding cougars as a potential threat to people, pets, or livestock were favorable toward lethal control, compared to only 11.8% with low concern.

TABLE 3.15. Contingency table between CONCERN (independent variable) and LETHAL (dependent variable).

LETHAL	CONCERN		
	Low (N = 102) %	Medium (N = 105) %	High (N = 61) %
Unfavorable	45.1	26.7	4.9
Mixed	43.1	35.2	16.4
Favorable	11.8	38.1	78.7
Total	100.0	100.0	100.0

$$\chi^2 = 75.676, p < .000005$$

$$\gamma = 0.643, p < .000005$$

Hypotheses Related to Demographics

Four hypotheses related to subject demographics were tested. Males compared to females, hunters compared to non-hunters, and livestock owners compared to non-livestock owners were significantly more likely to participate (Table 4.17). No significant age difference was found (Table 3.16).

TABLE 3.16. Contingency table between four demographic characteristics (independent variables) and participation in cougar management decisions (dependent variable).

	Female (N = 125) %	Male (N = 200) %
Would not participate	39.2	24.5
Would participate	60.8	75.5
$\chi^2 = 7.892, p = 0.005$		
	18 – 44 years (N = 73) %	45+ years (N = 245) %
Would not participate	24.7	32.2
Would participate	75.3	67.8
$\chi^2 = 1.527, p = 0.217$		
	Non-Hunters (N = 203) %	Hunters (N = 124) %
Would not participate	39.9	14.5
Would participate	60.1	85.5
$\chi^2 = 23.500, p < .000005$		
	Non-Livestock Owners (N = 268) %	Livestock Owners (N = 60) %
Would not participate	33.6	16.7
Would participate	66.4	83.3
$\chi^2 = 6.619, p = .010$		

Areas of Agreement and Disagreement

Respondents were asked how they think officials should address the reported increases in cougar sightings and cougar-related damage complaints. Respondents were presented with 12 different management options and ask to indicate the acceptability of each one, independent of the others, on a five-point scale with a “don’t know” option.

Areas of Agreement

Seven of the 12 options elicited agreement among at least half of respondents (Table 3.17). The most agreed-upon—and the most acceptable—option was “Conduct informational programs about how to respond if you see a cougar” (Figure 3.6). This questionnaire item had even greater agreement among women: 90.6% of females, compared to 79.2% of males, found the method acceptable or very acceptable.

The second most agreed-upon—and acceptable option—was relocation. The third was a lethal method that targets individual offending cougars rather than entire cougar populations. The three most unacceptable options, all which had over 50% agreement, were different forms of “do nothing” (Table 3.17).

TABLE 3.17. The twelve management options listed in order of degree of respondent agreement. The highest percentage for each item is underlined. The percentage of “don’t know” responses is listed in Appendix C.

Management Option	Very Acceptable/ Acceptable	Neutral	Unacceptable/ Very Unacceptable
Conduct informational programs about how to respond if you see a cougar (N = 347)	<u>81.8</u>	12.7	2.9
Trap cougars that enter human communities and release them far away, in wildland places (N=348)	<u>77.3</u>	10.3	11.7
Make it legal for individuals to shoot cougars that appear threatening to people, pets, or livestock (N = 350)	<u>68.9</u>	12.3	16.0
Do nothing because it's not something worth addressing through policy (N = 347)	10.7	19.6	<u>64.0</u>
Do nothing because the reports of cougar sightings or damage may not be legitimate or a big problem (N = 346)	13.8	20.5	<u>57.8</u>
Do nothing because people should leave cougars alone (N = 346)	16.5	24.6	<u>54.3</u>
Limit further human development in areas where cougars reside (N = 351)	26.2	19.9	<u>50.1</u>
Trap and destroy any cougars that enter human communities (N = 346)	36.7	14.5	<u>47.4</u>
Create special places for cougars to move about safely, such as road underpasses (N = 345)	22.6	24.6	<u>43.8</u>
Make it legal to hunt cougars with dogs (N = 349)	<u>41.3</u>	13.8	41.2
Devote new research funds to studying cougars and their behavior (N = 348)	<u>40.5</u>	28.2	27.0
Create a longer hunting season on cougars (N = 347)	<u>30.6</u>	29.4	30.0

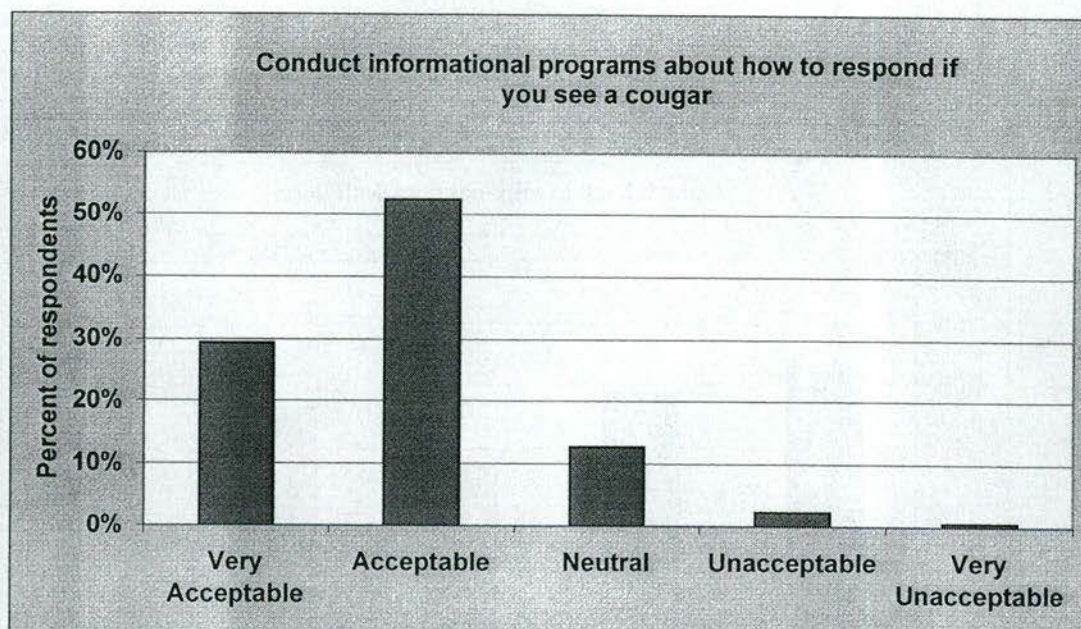


FIGURE 3.6. Acceptability of informational programs. This option had the highest level of acceptability (82%) of all management options.

Areas of Disagreement

Of the five management options that elicited less than 50% agreement, two different management options, “Make it legal to hunt cougars with dogs” and “Create a longer hunting season on cougars,” obtained an almost equal percentage of respondents in the very acceptable/acceptable and very unacceptable/unacceptable categories. However, the hunting season option obtained over twice as many neutral respondents as the dog-hunting option (Table 3.17, Figure 3.7), as well as more “don’t know” responses (10.1%) than any other management option (Appendix C).

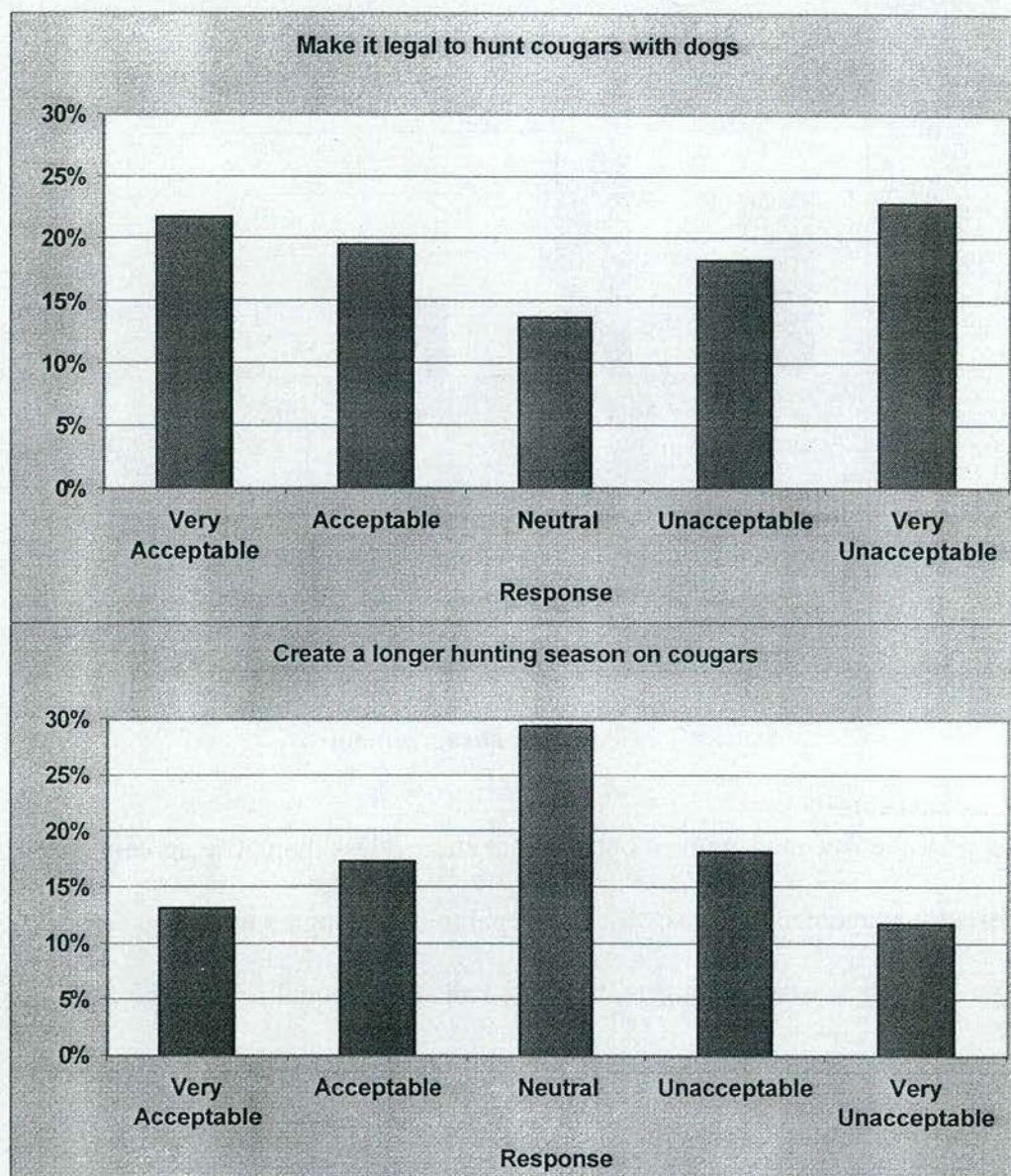


FIGURE 3.7. Different types of responses to two lethal control measures.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

The purpose of this study has been to examine how data from a mail-back questionnaire can lay the groundwork for more extensive public participation in cougar management. This information could help ODFW develop a revised cougar management plan that explicitly acknowledges the conflict over cougars and grows out of a process designed to mitigate against that conflict. I have set public participation as a goal for cougar management because of its potential to produce policy that garners widespread support. This discussion does not aim to design the public participation process but to inform its design. That almost 90% of survey respondents viewed the issue of how to manage cougars in Oregon as controversial reinforces the need to integrate human dimensions considerations into cougar management decision-making.

This final chapter begins with a discussion of the study's limitations. I then present a profile of the respondents and describe their basic reactions to cougars. The bulk of the chapter is devoted to answering the eight preliminary research questions that guided the questionnaire design and considering their implications for public participation in cougar management. I conclude by placing those implications within the four-step model designed by Chase et al. (1999) to make recommendations for the design and preparation of the public participation process.

Limitations of the Study

This thesis presents a case study of southwestern Oregon. The results represent not the entire state of Oregon but rather one region in the state where cougar concentrations are high. The results of the hound-hunting ballot measures suggest that there are important differences of opinion between residents of southwestern Oregon and those of the more populated metropolitan regions. Sixty percent of voters in the study area voted against the ban in 1994, and 53% voted to repeal it in 1996 (Appendix A). In contrast, 35% of voters in Multnomah County, the home of Oregon's largest city, voted against the hound-hunting ban in 1994, and only 29% voted to repeal it. The survey results do not capture these regional differences. Therefore, the specific implications and recommendations that follow apply only to public participation by residents of southwestern Oregon. The data do not provide context-specific information for mitigating against statewide conflict, which may be intensified by regional differences.

Nevertheless, because these regional differences exist, developing context-specific public participation strategies for individual regions can help wildlife managers design their approach according to the concerns, knowledge, and interests of the participants. Of course, the results of a public participation process held only in southwestern Oregon cannot determine statewide policy, and conflicting regional preferences for statewide decisions will need to be reconciled. Part of that reconciliation may come from designing public participation processes that do not promise to value one

region over another but promote fairness by acknowledging differences in regional circumstances.

In addition to the limitations of geographical scope, this study had several methodological limitations. The gender imbalance among respondents may affect the data's generalizability to the overall population of the study area. This observation raised questions about the implications of gender differences toward cougar management, which I describe later in this chapter.

Problems inherent to mail-back questionnaires may have limited the accuracy of the data. People's responses were likely affected by mood, recent news exposure, the order of the questionnaire items, and, possibly, input of other members of the household. Furthermore, different respondents may have interpreted the same question differently. For example, respondents were asked if they believed it should be legal to hunt cougars in Oregon and then asked to explain their responses. The qualitative explanations indicated that some respondents interpreted the question as whether or not it should be legal to hunt cougars for sport, while others interpreted the question as whether people should be allowed to kill cougars under any circumstances, such as self defense. With these limitations in mind, the survey data still provide a complex and nuanced picture of southwestern Oregonians' attitudes toward cougars and cougar management.

Before discussing answers to the eight research questions, I will begin by presenting a brief narrative based on the survey results. The narrative ties together a profile of the respondents and their basic reactions to cougars. Those reactions highlight

a perceived distinction between what might be termed “people places” and “cougar places.”

Profile of the Respondents

The respondents to this survey were residents of six counties in southwestern Oregon—Coos, Curry, Douglas, Jackson, Josephine, and Klamath—with over half from Douglas or Jackson counties. They were almost evenly split between rural dwellers and small city dwellers. Most were long-time residents (over 20 years) of Oregon. Those not originally from Oregon came primarily from California or other parts of the Pacific Northwest.

Most respondents indicated they spend at least some time recreating in forests, mountains, or wilderness areas, and over a third were hunters. Just under one-fifth raised livestock, and over two-thirds owned dogs or cats that go outside. The average age was 58, and the majority were 45 and older. Just one-fifth of respondents had children under age 16 in the household.

Basic Reactions to Cougars

Most respondents did not spend substantial time thinking about the topic of cougars in Oregon. Although most respondents had heard of cougar sightings in their neighborhoods or communities, they did not spend a lot of time worrying about

encountering them there, and there was no clear agreement that cougars posed a threat to people in their neighborhoods and communities.

In real terms, therefore, most respondents did not view cougars as a present threat to their personal safety. In hypothetical terms, however, the reactions were different. When presented with the scenario of seeing a wild cougar in the neighborhood, the top predicted (or reported) reactions were fear for one's safety and wanting the animal killed. The reactions were almost the opposite in the wilderness scenario, where enjoyment and thrill ranked highest. The difference in reactions to the neighborhood scenario and the wilderness scenario may reflect the perception that cougars and humans belong in different places. The same animal that causes enjoyment and thrill in the wilderness may inspire fear in the neighborhood. However, as human communities continue to expand and spread into the "wilderness," the imagined division between the human place and the cougar place blurs (Torres et al. 1996).

Addressing that blurred division is a fundamental challenge of managing cougars and managing people in relationship to cougars. ODFW approaches the human side of the challenge through its collaborative traveling workshop, "Living with Wildlife," which provides strategies for avoiding encounters with cougars. However, because wildlife managers need strategies beyond educational programs, this topic will be considered again later in the chapter.

The perceived threats that cougars do or do not pose may depend largely on who the potential victim is. Though less than a quarter of respondents believed that cougars posed a threat to people in their neighborhoods or communities, almost twice as many

believed that cougars posed a threat to pets and/or livestock. This differentiation between human safety and the safety of pets or livestock is not surprising since cougar attacks on humans are still very rare (Beier 1991).

A majority of respondents believed they should have a right to kill a cougar that they think is a threat to *pets or livestock*, no matter what the government says. A slightly higher percentage of respondents felt that they should have a right to kill a cougar that they think is a threat to *people*, regardless of what the government says. In other words, despite the fact that more respondents considered cougars a threat to pets and/or livestock than to people, the belief in the right to defend against a threatening cougar is slightly stronger when the potential victim is a person.

The inverse of the strong belief in the right to protect people against threatening cougars is the denial of the rights of potentially threatening cougars. Three-quarters of respondents did not believe that cougars should have a right to live where they will encounter people if they pose a threat to people. Sixty-seven percent did not believe that cougars should have a right to live where they will encounter people if they pose a threat to pets or livestock. As with the reactions to seeing a cougar in the wilderness versus the neighborhood, these hypothetical situations have elicited a distinction between people's place and cougars' place. Cougars should not have a right to live in people's place if they pose a threat to people, pets, or livestock. The limitations of this study do not allow us to tease out the various interpretations of what constitutes a threat. Nevertheless, the results make it clear that maintaining the division between the cougar place and the human

place, for the sake of protecting people and their property, was important to most respondents.¹

Laying the Groundwork: Answering Preliminary Questions

The literature review in Chapter II concluded with a set of eight research questions that address the preliminary information needed before launching a public participation process for cougar management. Those questions guided the design of the questionnaire and the approach of the data analysis. The following discussion will use the results presented in Chapter III to answer the eight questions, which are listed below as sub-headings.

What Is the Range of Opinions?

In the model developed by Chase et al. (1999), the first step in developing a public participation process—understanding the situation—is to develop an overall picture of people's opinions and attitudes. Designers of the stakeholder workshop about wolves in the northeast took the same approach (USFWS et al. 2000). In the first step of the process, each participant wrote down his or her individual responses to a question posed to the entire group. The responses offered "...a first insight into the diversity of perceived issues present in the group" (USFWS et al. 2000, p. 2). The questionnaire

¹ This observation is consistent with similar findings in Idaho, where the majority of respondents "felt some concern for [cougar] conservation" (Brown 1986, p. 75) but supported the right of ranchers to protect their livestock.

results (Chapter III; Appendix C) in this study serve the same purpose. They provide a basic understanding of people's thoughts and opinions prior to a public deliberative dialogue.

While Lauber and Knuth (1998) question the wisdom of basing policy on survey data, the information can provide a useful starting point before beginning more extensive public participation. The results of each questionnaire item reveal an insight that can help wildlife managers understand the range of opinion on that particular issue. For example, this survey found that ten percent of respondents wanted the cougar population to increase in size, 29% hoped it would decrease, 33% wanted it to stay the same, and 27% had no idea.² Because many wildlife management decisions center around maintaining a targeted (approximate) population size (Utah Division of Wildlife Resources 1999), disagreement about this basic goal could thwart an entire consensus-building process. Preliminary knowledge that residents of southwestern Oregon may disagree about cougar population size implies that the participatory process should consider the topic.³

The range of opinion described above and reflected throughout the questionnaire

² This questionnaire item, along with four others, was modified from a questionnaire created by Riley (1998). Comparisons between the results of this study and the results of Riley (1998) can be found in Appendix D.

³ On the other hand, respondents' preferences for future population were relative to their beliefs about current population size, suggesting that these preferences may change if respondents learned more about current cougar population sizes. The issue of population size, therefore, offers opportunities for both group dialogue and education. That a relatively high number of respondents "had no idea" further suggests a role for education.

can provide a baseline for ensuring that participants in the public involvement process represent a balance of opinion (Weeks 2000). Though an individual's opinions may change during the deliberative process, the success of that process depends on a full representation of views (Forester 1999; Hibbard & Lurie 2000).

Because the purpose of this analysis is to inform a public process, awareness of minority, strongly held, neutral, or uncertain opinions is crucial. For example, four percent strongly disagreed that the presence of cougars in Oregon is a sign of a healthy environment. Three percent strongly agreed that cougars should have a right to live where they will encounter people even if they pose a threat to people. Three percent always worried about encountering a cougar in their neighborhood or community. Much of the analysis that follows will focus not on these smaller percentages but instead on majority opinions and overall trends. Nevertheless, the analysis must not overshadow the need to consider the diversity or range of opinion, which is the first building block of the public participation process.

What Are the Areas of Agreement and Disagreement?

As we might expect with a controversial topic, most of the questionnaire items did not generate agreement from a majority of respondents. Strong agreement, where at least three-quarters of respondents expressed the same opinion, occurred for only three items:

1. As discussed earlier, seventy-five percent of respondents felt that cougars should not have a right to live where they will encounter people if they pose a threat to people.

2. Seventy-six percent did not think that their interests and opinions, and those of people like them, were adequately considered in cougar management decisions. This finding suggests that an ODFW policy move toward incorporating public involvement in cougar management decision-making, just as it has done with the management of elk, mule deer, and native fish, would address a strong public need.
3. Eighty-nine percent of respondents thought that the issue of how to manage cougars in Oregon was a controversial topic. The groups considered most responsible for the controversy were animal rights activists, environmentalists, ranchers, news media, and politicians. Wildlife officials ranked relatively low on the list.

Agreement and disagreement were also gauged by examining how respondents rated the acceptability of various cougar management practices for addressing the increase in reported cougar sightings and cougar-related damage complaints. The vast majority of respondents agreed that conducting informational programs about how to respond to seeing a cougar was an acceptable strategy. Similarly, trapping and relocating problem cougars elicited strong agreement and support. Both of these approaches are non-lethal, and they appear on the surface to address the problem directly and relatively quickly,⁴ as opposed to strategies such as creating road underpasses for cougars, which require broader planning, both spatially and temporally.

The only other approach considered acceptable by a majority of respondents was making it legal for individuals to shoot cougars that appear threatening to people, pets, or livestock. This approach confers rights to the person and targets individual offending

⁴ Despite respondents' general acceptance of trapping and relocating problem cougars, this method has been unsuccessful in practice (Don Whittaker, personal communication, May 16, 2001).

cougars, rather than entire cougar populations. The three lethal methods that target cougars more generally, whether the animals are threatening or not, elicited much more disagreement among respondents. These findings are consistent with those of Brown (1986), who found that the majority of respondents in Idaho, with the exception of livestock raisers, favored shooting or relocating individual problem cougars over more aggressive control methods that targeted entire cougar populations.

The findings are also consistent with those of Manfredo et al. (1998), who surveyed metropolitan and non-metropolitan residents of the Denver area. Manfredo et al. (1998) found that public acceptance of management actions to address problems with cougars depended on the specific circumstances of the situation. For example, on average, respondents found it acceptable to destroy a cougar because it had injured or killed a human, but not because it had been sighted in a residential area or killed a pet. Manfredo et al.'s (1998) findings, as well as this study's finding that reported or predicted reactions to seeing a cougar depend on the setting, suggest that situational specifics are important for predicting public response to cougar management practices, and situational differences may account for variability in public attitudes.

Such situational differences must be considered when interpreting the results of this survey. For example, respondents were asked to rate management practices based on their acceptability for addressing the rise in reported cougar sightings and cougar-related damage complaints. If presented with a different scenario, such as rating management practices based on their acceptability for preventing cougar attacks on children, ratings of the same management strategies may have differed. Secondly, Manfredo et al.'s (1998)

observations remind us that attitudes in southwestern Oregon may differ considerably from those in other regions of the state where the cougar presence is less prevalent.

The most polarizing management approach was hound-hunting (Figure 3.7). Respondents were divided on the issue, and more respondents found it very acceptable (22%) or very unacceptable (23%) than simply acceptable (20%) or unacceptable (18%). This management option elicited the most divided opinions, with strong feelings on both ends of the spectrum and few respondents with neutral or no opinion. This finding is not consistent with the results of Teel et al. (2002), who found that residents of Utah generally disapproved of hound hunting. Rural Utahns were more favorable toward the practice than urban Utahns but were still generally opposed to it.

It seems likely that the public visibility of the hound-hunting issue in Oregon, including its presence in two statewide elections, has resulted in strongly formed opinions. When the question appeared on the voting ballot, “neutral” and “don’t know” were not options. In contrast, survey respondents may have been considering several of the other management techniques for the first time. For example, respondents were also divided over the option of creating a longer cougar-hunting season, but not as strongly (Figure 3.7). Over twice as many respondents were neutral as compared to the hound-hunting issue; a greater percentage found it acceptable or unacceptable than very acceptable or very unacceptable; and almost three times as many did not know.

Despite the high percentage of neutral and “don’t know” responses, the duration of the hunting season remains quite relevant to current cougar management, as ODFW has lengthened the hunting season in some parts of the state to address the rise in cougar-

related damage complaints (ODFW 2002). However, since the issue has not received the political attention devoted to the hound-hunting debate, most respondents probably had not considered whether or not the hunting season should be lengthened. Had the issue appeared on a ballot initiative or been the subject of statewide debate, perhaps the survey results for that item would have been polarized as well.

This observation reinforces the arguments of Whittaker and Torres (1998) and Loker et al. (1998) that it is important to conduct public dialogue and deliberation around these issues before they become entrenched in political debate. Loker et al. (1998) argue that wildlife managers should use human dimensions inquiry to gather knowledge about stakeholders' opinions and concerns to avoid the misinformation and conflict that often surround ballot initiatives. If wildlife managers stay sufficiently aware of community concerns, they can predict which issues have the potential to become divisive and controversial. The results of this survey suggest that the extended cougar-hunting season could be one of those issues. Therefore, a public participation process for cougar management should prioritize discussion about the extended cougar-hunting season before it becomes too polarizing.

However, since ODFW can expect the discussion about the extended cougar-hunting season to be contentious, it does not serve as a productive starting point for the deliberative process. Instead, wildlife managers can make use of the survey results to identify areas of common ground—or relative agreement—and then design the process to build interpersonal trust based on that common ground (USFWS et al. 2000). For example, most respondents agreed that they should have a right to kill a cougar that is a

threat to people, so a discussion about that issue should be less heated than one about the extended hunting season. Further conversation can then build on the ideas and values that people share when discussing the less contentious issues.

Might People's Opinions "Change and Become Refined"?

When Lauber and Knuth (1998) argued against the use of questionnaires as a public involvement strategy, they asserted that questionnaires may place emphasis on the "...measurement of existing preferences rather than deliberation over values that might change and become refined" (p418). To address this consideration, I asked respondents if they thought their opinions about cougar management might change if they learned more about cougars. Forty-three percent said 'yes' and 57% said 'no'. While the results to this question cannot serve as a predictor of how many people will and will not modify their opinions based on new information, it does offer an indication of how firm people perceive their opinions to be. That over 40% of respondents viewed their opinions as dynamic suggests an important role for public deliberation. Since those who indicated that their opinions might change and those who indicated that they would not were almost equally likely to take part in public participation, wildlife managers can expect that participants will represent a mix of those with and those without firmly-held opinions.

Do Citizens Trust Wildlife Managers To Make Good Decisions? How Much Decision-Making Power Do People Want or Expect To Have? Who is Most Likely to Take Part in Public Participation?

Few (2000) and Forester (1999) emphasize that community members must be able to trust the planners or managers who facilitate public dialogue. Respondents in this study were almost evenly split about whether or not they trusted wildlife officials in Oregon to make the best decisions regarding cougar management. However, because those who did not trust wildlife officials were significantly more likely to take part in public participation, a public involvement process advertised and implemented by ODFW may generate a climate of distrust among many potential participants. This observation raises the question of whether or not individuals associated with ODFW are best suited as facilitators of the process. While it has been argued that wildlife officials need to improve their ability to work with the public (Whittaker & Torres 1998), ODFW may be unable to portray itself as a fair and unbiased facilitator of public dialogue.

However, even if an outside facilitator leads the participation process, there is no guarantee that participants will automatically trust that facilitator. One of the first tasks in designing the public participation program will be to build trust. Secondly, because respondents who trusted wildlife officials were less likely to participate, engaging the less likely participants becomes crucial. Attracting a broader range of participants may have the indirect effect of increasing participation by those who expressed trust for wildlife officials.

The majority of respondents indicated that major decisions about cougar management should be made by experts and citizens together, and over three-quarters did not think that their interests, and those of people like them, were adequately considered in cougar management decisions. However, despite the belief that the public should play a role in policy-making, when asked how they would participate in deciding cougar management policy, far fewer respondents indicated that they would participate at a high level. Close to 15% responded that they would participate in a focus group or workshop or work with officials to draft management plans. Around 10% indicated that they would sign up for a citizen advisory committee or recruit other citizens to participate in the process.⁵ The apparent contradiction between the belief that the public should be involved and actual interest in participating may be a perennial problem for participatory planning.

Clearly the survey responses cannot predict with accuracy who will actually participate when given the opportunity. However, if between ten and 15% of respondents do participate in the more time-intensive activities, ODFW would have a sufficiently large group to work with. Perhaps, then, a more important question than how many people would participate is *who* would participate and whether those people represent the full range of views.

I addressed the question of who would participate by examining who would participate in any way, whether by attending a meeting only or by taking any of the other

⁵ Percentages are not cumulative.

participation actions. Willingness to attend a meeting has the potential to transform into more extensive participation if that very first meeting generates interest in continued involvement. For that reason, knowledge of who would participate *at all* is a good starting point. In addition to those who did not trust wildlife officials, other groups significantly more likely to participate were those with greater prior experience with cougars; people with high concern regarding cougars as a potential threat to people, pets, or livestock; men, hunters, and livestock owners. Though these results are not surprising, they serve as a reminder for wildlife officials to actively engage those who are less likely to participate. Those individuals may bring a set of ideas and experiences not represented by those more likely to participate.

Who Do People Perceive as Currently Holding the Greatest Power over the Decision-Making Process?

Hibbard and Lurie (2000) argue that trust in a public participation process will be eroded if the views of certain interests are privileged over those of others. To foster trust, planners may need to design participation processes that counter pre-conceived notions about who holds the greatest undue decision-making power. In the case of cougar management policies in Oregon, the groups perceived by survey respondents to have the greatest influence were wildlife officials, animal rights activists, environmentalists, politicians, and ranchers. Very few respondents believed that average citizens or rural people held the most influence. In other words, special interests, such as animal rights activists and ranchers, were seen to have more influence than average people. As

Arnstein (1969) and Forester (1999) have described, the process of public participation has the potential to preempt this sense of powerlessness. If planners hope to implement public participation that fosters trust and “buy-in” by the participants, they will need to counter the impression, and perhaps the fact, that special interests will dominate the process. The first step may be to demonstrate that the process openly values the participation of average people not affiliated with special interest groups.

What Demographics and Viewpoints Must Be Included To Ensure a Full Range of Views?

A large complex of independent variables can make it difficult to explain variation in attitudes (Teel et al. 2000). For this reason, this study has not emphasized the identification of differences that may have limited value to the overall analysis. However, in this study, as with previous research regarding attitudes toward wildlife management (Kellert 1980; Boulay et al. 2000; Teel et al. 2002), gender differences emerge consistently.

Based on the survey results, men were more likely than women to take part in public participation for cougar management policy. Had there been no differences between male and female views toward cougar management, this difference would have minimal implications for the success of a public participation process. However, some of the most potentially controversial issues elicited gender differences. Men were more likely than women to be favorable toward the lethal control of cougars. Because lethal control methods make up a large portion of cougar management policy (see Chapter I)

and have been the primary subjects of controversy, they will undoubtedly be considered in the public participation process. Including an equal number of women in that process would help ensure a representative balance of views regarding lethal control practices.

Women were significantly more likely than men to think that their opinions about cougar management might change if they learned more about cougars. Assuming that successful public deliberation of values, ideas, and preferences is contingent upon an openness to learning new information, participation from an equal number of women may help prevent deadlock. Secondly, women's less favorable attitude toward lethal control combined with their greater interest in learning more about cougars and cougar management could extend cougar management policy deliberations beyond a discussion about control methods. That is, an equal representation of women may broaden the scope of the dialogue and increase the potential for creative possibilities, facilitating the "superior problem solving" that can result from well-crafted public participation (Hibbard & Lurie 2000).

The survey results also indicate that people who had mixed feelings toward lethal control were less likely to take part in public participation than those with favorable or unfavorable attitudes toward lethal control. The mixed group did not lack opinions toward lethal control, but their opinions tended to be less strong and did not fall consistently to one pole or the other. The response pattern of the mixed group suggests that they represent a "middle ground" with connections to both perspectives. Underrepresentation of the mixed group may leave the favorable and unfavorable groups, with their opposing and more firmly held views, without sufficient exposure to the middle

ground. Additionally, members of the mixed group may contribute a mediating force that fosters open communication in the deliberative process.

The challenge to wildlife managers is to create a public participation process that appeals not just to those with the strongest opinions. If people perceive public participation in cougar management only as a forum where special interests or unyielding members of the public battle to push their agendas forward, individuals with moderate views will probably show little interest. On the other hand, if wildlife managers design and present public involvement in cougar management as a unique form of community participation or volunteerism, they may attract a broader spectrum of views.⁶

Does the goal of ensuring a full range of views imply that the process should aim for complete representation of all members of society, whether or not they have expressed interest in cougar management? The survey results have shown that, though many people have strong opinions about some issues related to cougar management, most people do not spend a lot of time thinking about the topic of cougars in Oregon. There is little value in devoting time and resources to engaging individuals who have no interest in cougar management. However, as Decker et al. (1996) note, some people affected by a wildlife management decision may not recognize it themselves and could be unfairly left

⁶ The packaging and promoting of a public involvement process may influence who decides to participate. More respondents indicated that they would work with officials to draft management plans than would sign up for a citizen advisory committee. Though the difference is not statistically significant, it raises the question of whether the wording of the two participation actions influenced respondents' decisions. The first, sign up for a citizen advisory committee, may seem too bureaucratic, conjuring images of the traditional process of one-way input flowing from citizen to decision-maker. In contrast, working with officials to draft management plans sounds like an interactive process that actively involves the participant.

out of the process. The stakeholder approach, which seeks to "...include all people who may be affected by a management decision..., not just those who make their views known to managers" (Decker et al. 1996, p. 75), provides a balanced approach between seeking broad representation of all members of society and including only those who step forward.

The key lesson from the public participation literature (Chapter II) is to use caution when determining who the affected groups are. Decker et al. (1996) note that "The future of fish and wildlife management depends on managers' responsiveness to the full spectrum of society's values without falling victim to the special interest politics of one or a few stakeholder groups" (p76). By allowing a few groups to dominate the process, managers would reinforce the sense of powerlessness that well-facilitated public participation can pre-empt (Forester 1999). Currently, residents of southwestern Oregon may feel powerless over cougar management. Various special interest groups, along with wildlife officials, were considered to have the most influence over cougar management policies. Over three-quarters did not think that their interests and opinions were adequately considered in cougar management decisions. A stakeholder approach committed to valuing the full spectrum of views would take steps to ensure participation by individuals not affiliated with special interest groups. Fortunately, the data indicate that the people with stronger opinions—those who probably believe they have a strong stake in the issue—are already more likely to participate. Outreach efforts, therefore, can focus on engaging those individuals who may not recognize their legitimate status as stakeholders.

Connecting the Survey Results to Cougar Biology and Conservation: Striking Balance
between the People Place and the Cougar Place

This discussion has emphasized the importance of harnessing the diversity of opinion in the public participation process, valuing both minority and majority opinions, and broadening the stakeholder concept to pre-empt a sense of powerlessness among residents of southwestern Oregon. However, despite the importance of crafting policy based on a fair and inclusive process, that policy cannot compromise ODFW's goal of maintaining healthy cougar populations (ODFW 1993).

As discussed in the cougar biology section in Chapter I, cougars are territorial animals that require large tracts of land for long-term survival (Noss & Cooperider 1994; Primm & Clark 1996). Though cougars have increased in number over the past two decades and may be adapting to living near humans (Gullo et al. 1998), strong evidence still exists that their long-term survival depends on the maintenance of quality habitat free of human disturbance (Van Dyke et al. 1986; Beier 1993).

Providing the habitat that cougars need to survive requires communities to plan for wildlife as well as people (Soulé 1991). When a species is listed as federally endangered, legal obligations may oblige human lifestyles to accommodate to the needs of the wildlife, as with the salmonid listings in the Pacific Northwest (Lasilla 1999). However, because the cougar is a game mammal, any conservation efforts beyond the ODFW requirement to maintain "healthy" populations would be voluntary.

Voluntary efforts might involve the integration of landscape ecology into planning. For example, road underpasses and culverts can mitigate habitat fragmentation

by permitting cougar dispersal across barriers (Soulé 1991; Alexander 2000). Clustered development can reduce fragmentation (Theobald et al. 1997), and infill neighborhoods and compact development reduce the overall loss of wildlife habitat (Lasilla 1999).

Implementation of these conservation measures requires modification of human behavior as opposed to cougar behavior. The survey data offer mixed results about whether or not residents of southwestern Oregon would be willing to modify their lifestyles for the sake of cougars. Sixty-four percent of respondents believed that Oregonians should accept occasional encounters with cougars as part of living in the Pacific Northwest. Fifty-five percent thought that people living in rural areas or on the edge of cities ought to adjust their lifestyles in order to peacefully co-exist with cougars.⁷ However, when respondents were asked to rate the acceptability of various management options, the options that involved modifications of human behavior did not obtain high levels of acceptability. Creating special places for cougars to move about safely, such as road underpasses, was rated acceptable or very acceptable by 23% of respondents. Twenty-six percent found it acceptable or very acceptable to limit further human development in areas where cougar reside.

Though these management options were rated specifically for their acceptability in addressing the increase in cougar sightings and cougar-related damage complaints, not for their intrinsic or overall value, the results suggest less interest in modifying human

⁷ More people who lived inside the city limit than outside the city limit held this belief, but the difference was not significant.

behavior than cougar behavior (with the exception of conducting informational programs). As discussed earlier in this chapter, respondents seemed to maintain a spatial division between people's place and cougars' place. Therefore, if people prefer not to limit human development to prevent encounters with cougars, the cougars' place will shrink as the human place grows, a phenomenon that has occurred more rapidly with cougars in California (Torres et al. 1996).

It is possible that respondents found the approaches that modify human behavior less acceptable because it was less apparent how those approaches would reduce conflicts with cougars.⁸ For example, some respondents may have thought that creating special places for cougars to move about safely, such as road underpasses, would provide cougars with easier access to human communities. In fact, underpasses could have the opposite effect by creating linkages to better cougar habitat (Soulé 1991), which does not tend to be areas disturbed by humans (Van Dyke et al 1986). By including education and discussion about the long-term, landscape-level methods of addressing human-cougar encounters, wildlife managers can move the public dialogue beyond a discussion about the acceptability of various lethal control methods as well as introduce concepts important to the conservation of cougars.

⁸ The perception that building road underpasses would waste taxpayer money may have also contributed to its low acceptability rating.

Conclusion: Recommendations for Creating a Participatory Process

As discussed in Chapter II, the model designed by Chase et al. (1999) to use initial survey data to inform the design of a subsequent stakeholder involvement process contains four steps: (1) Understand the situation, (2) Define agency objectives for stakeholder involvement, (3) Select a stakeholder involvement approach, and (4) Design a context-specific stakeholder involvement strategy. This study has completed the first step of that model by obtaining preliminary information about southwestern Oregonians' opinions about cougars and cougar management.

The second step will occur if and when ODFW determines its objectives for public participation in cougar management. Though the most recent cougar management plan is now outdated, ODFW has no plans to revise it in the near future. Other wildlife programs require more immediate attention, and since the agency considers the cougar population to be healthy, revising the cougar plan is a lower priority (Ann Pressentin-Young, personal communication, October 14, 2002). However, that revision will occur eventually. And when it does, the recommendations that follow can help guide the process of integrating public involvement into the plan's development.

Although it is impossible to select a stakeholder involvement approach (step three of the model) without completing step two, this analysis can be used to propose a stakeholder approach based on information from the survey. For example, the majority of respondents did not think that their interests and opinions were adequately considered in cougar management decisions, and most felt that cougar management decisions should

be made by citizens and wildlife experts together. These results, coupled with the impression that various special interest groups had some of the greatest influence over cougar management policies, suggest that the process should create substantial opportunity for active involvement by participants. Moreover, to truly address the conflict surrounding cougar management, the process will need to promote a sense of fairness among stakeholders. Broad-based support will follow only if participants feel satisfied that their perspectives were valued and that the results were reached fairly (Susskind and Cruikshank 1987).

The inquisitive approach allows for active stakeholder involvement, but it does not encourage the dialogue among stakeholders that will help mitigate against further controversy. Therefore, based on the need to both address a broad controversy and involve participants actively, I recommend the transactional approach, which allows for facilitated public dialogue that promotes mutual learning. In the transactional approach, "...managers initiate and implement processes where stakeholders not only articulate their stakes to one another, ...but also essentially negotiate acceptable weights for their own and others' stakes" (Decker & Chase 1997, p. 791). This type of open discussion and negotiation, if well-facilitated, will help participants understand the values and perspectives that lead to differences in opinion about cougar management policy.

It is outside the scope of this study to pursue step four, designing a context-specific stakeholder involvement strategy. However, certain implications from the survey data can inform that design. Listed below are eight key lessons about southwestern Oregonians' attitudes toward cougar management. Each lesson is followed

by a set of recommendations for the design and preparation of a transactional stakeholder involvement process in southwestern Oregon:

1. Over half of respondents did not trust wildlife managers to make the best decisions regarding cougar management, and those individuals were more likely to take part in the public involvement process than those who did trust wildlife managers.
 - ♦ ODFW should consider enlisting an outside facilitator to conduct the public involvement process. ODFW could then use the facilitated process to build stakeholder trust in the agency.
2. Most respondents were unlikely to take part in the most time-intensive forms of public involvement. However, 70% of respondents expressed interest in participating at some level.
 - ♦ ODFW should capitalize on people's willingness to participate by offering various levels of public involvement options. Managers should use initial public meetings and workshops to engage participants' interest in further levels of involvement.
3. Respondents appeared to imagine a division between where cougars should live and where people should live. Furthermore, those management techniques that required the most modification of human behavior were generally not considered acceptable methods for addressing the increase in reported cougar sightings and cougar-related damage complaints. Together, these findings suggest that most respondents would prefer to maintain the division between cougar's place and people's place through modifying cougar behavior rather than human behavior.
 - ♦ The viability of the cougar population will depend on humans planning their communities with the needs of cougars in mind. The public participation process can help stakeholders weigh the tradeoffs of modifying their behavior for the sake of cougar conservation.
 - ♦ Since respondents were supportive of informational programs, ODFW should continue to address the "living with cougars" theme through educational presentations. These efforts not only provide people with useful tools for avoiding encounters with cougars, they also promote the message that humans living in cougar territory bear some responsibility for adjusting their behavior.
 - ♦ The public participation process itself should include a comprehensive educational component. The "living with cougars" theme should be expanded to include information about long-term solutions to human-cougar conflict, such as

integrating landscape ecology into community planning. For example, ODFW might invite speakers to present examples of how road underpasses or other corridors have successfully linked cougars to prime habitat or how the establishment of refugia would affect movement of the cougar population. These topics should be framed in lay terms and presented not only as techniques that conserve cougar populations, but also as ways to reduce conflicts between humans and cougars.

- ♦ Wildlife biologists should partner with community planners to help stakeholders understand the relationship between human development and cougar populations. Through interactive workshops, stakeholders can weigh the tradeoffs of a range of growth and development scenarios for their communities. For example, planners might present GIS maps that display different growth scenarios. Biologists can then explain the implications of those scenarios both for cougar conservation and for conflicts between humans and cougars. Stakeholders would then possess context-specific knowledge that enables them to develop informed preferences for community development.
4. Making it legal to hunt cougars with dogs was the most divisive issue on the questionnaire, suggesting that this issue remains politically entrenched. Creating a longer cougar-hunting season was the second most divisive issue.
- ♦ Based on the argument that wildlife managers should use public involvement to prevent conflict around those issues with the greatest potential for political divisiveness, I recommend that ODFW prioritize public dialogue about the extended cougar-hunting season. The relatively high percentage of neutral respondents for this item indicates that the issue is not dominated by firmly-held opinions, yet its divisiveness suggests that the topic may foster active dialogue. This issue, therefore, can serve as the “hook” that engages stakeholders in the process and fosters the exchange of values and ideas. However, open dialogue alone will not prevent this issue from entering into a polarizing political conflict. Because cougar advocates have argued that management decisions are based on questionable biological data and inflated reports of cougar-related damage, discussion of the extended hunting season must be introduced by a clear presentation of the most accurate and updated biological and management data. Secondly, managers should describe how those data can be used to guide policy and should openly discuss gaps in the data. This approach may diminish the perception that management decisions are based on flawed scientific information. Moreover, because many participants will have formed impressions of the human-cougar conflict through the media or other “unofficial channels,” presentation of the most accurate information about topics such as cougar-related damage complaints or cougar attacks on humans provides an opportunity to dispel possible misconceptions among participants.

- ♦ Before introducing potentially contentious topics, such as the extended hunting season, wildlife managers should build trust through areas of common ground. For example, the survey results indicated that most respondents felt they should have a right to kill a cougar that they think is a threat to people. This result reveals a fundamental—and shared—belief about the relationship between humans and cougars. After introductions and icebreakers, therefore, the facilitator might begin the process by asking stakeholders to share their thoughts about this topic. Open dialogue might uncover the nuances of people's beliefs about what constitutes a legitimate threat or how readily they would kill a cougar. The overall discussion, however, may be relatively non-oppositional. Conversation about the more contentious topics could then build on the ideas and values that emerged during this less divisive discussion. Of course, for the 16% of respondents who did not believe they should have a right to kill a cougar that they think is a threat to people, this issue is not an area of common ground. To ensure the inclusion of those people—and that as many people as possible develop a sense of trust for the other stakeholders—the public participation process will need to introduce multiple areas of common ground. Unfortunately, this survey identified few examples of strong agreement. Therefore, the beginning of the public participation process itself should be used to explore additional areas of common ground.
5. Ensuring that a full range of views are included will require engaging an equal representation of women as well as people not affiliated with special interest groups.
 - ♦ The promotion and marketing of the public participation process should target non-traditional stakeholders, the general public, and women. Outreach materials should be distributed in a broad range of venues, and participation should be portrayed as a form of community involvement or volunteerism open to all community members.
 - ♦ If ODFW chooses to form a smaller stakeholder group beyond the general public participation process, that group should include an equal number of men and women. Secondly, though members of stakeholder groups traditionally represent specific interests, slots should be reserved for non-affiliated members of the public.
 6. Respondents expressed the perception that special interests have some of the greatest influence over the decision-making process.
 - ♦ To pre-empt the potential sense of powerlessness among non-affiliated members of the general public, the ground rules—such as how decisions will be affirmed by the group—should be stated clearly and explicitly at the beginning and

throughout the process. Those rules should be enforced equally for all participants.

7. People with “mixed” attitudes toward lethal control were less likely to take part in the public involvement process. However, that group may contribute a mediating force that fosters open communication in the deliberative process.
 - ♦ Wildlife managers should create a public participation process that appeals to the “middle ground” by explicitly valuing the role that they play. For example, during a discussion of lethal control methods, the facilitator might divide participants into smaller groups for one-on-one discussion. Each group should contain at least one member of the mixed group to help bridge the divide between those with opposing views.
8. The nuances of the survey results reveal the diversity of opinion among respondents.
 - ♦ Wildlife managers should use these results as a baseline to ensure that stakeholders in the public involvement process represent a balance of opinion.

The recommendations offered above provide guidance for how to structure a public involvement process for cougar management in southwestern Oregon. Specific design decisions—such as whether to use focus groups, charrettes, hands-on workshops, stakeholder discussion groups, or some other technique—still must be made. Important ground rules, such as how much decision-making authority participants will have, remain to be determined. Nevertheless, the information from this study provides a starting framework.

The goal of using public participation to reduce conflict over cougar management assumes that conflict is a problem. This thesis has maintained that wildlife managers need techniques for mitigating against conflict so that the time and energy people devote to cougars focuses on establishing positive coexistence between humans and cougars and conservation of the species rather than on conflict among humans. However, the effort to

reduce conflict among humans should never compromise the long-term viability of the cougar population. Forming policy through public participation has the potential for “superior problem-solving.” However, if the resulting policy is inferior, then wildlife officials need to re-evaluate the design, applicability, and utility of the selected methods.

Suggestions for Further Research

Further analysis of these data may answer important questions about how to structure a collaborative group process for cougar management. I recommended that wildlife managers use common ground to build trust among participants. By searching for “cross-cutting cleavages”—divisions that split groups into smaller groups so that individuals find themselves in agreement with different people depending on the management issue and no group forms a majority on all issues—we might discover management topics that will help bridge the divide between people who disagree strongly about more contentious issues such as hound-hunting and the extended hunting season.

My data analysis and interpretation of the results have accepted responses at face value. I have not tested responses for internal consistency nor examined the varying interpretations of the “neutral” response. Further analysis of these same data might explore some of the complexity behind the responses.

This study raises some intriguing questions that might be pursued through further research. The questionnaire items focused primarily on basic attitudes and opinions toward cougars and cougar management and secondarily on feelings about policy-making and public participation. Subsequent research might focus more narrowly on attitudes

toward participation: reasons for participating and not participating, individual expectations for a participatory process, and the importance and value of participating. When exploring attitudes toward participation, gauging the level of importance that people assign to cougar management compared to other statewide issues will make it easier to identify non-traditional stakeholders.

This study approached the task of “understanding the situation” by assessing people’s attitudes toward a broad range of cougar-related topics. Future studies might expand on the results of this project to focus more intensively on specific questions that will help wildlife managers design a public participation process. For example, do people truly imagine or prefer a physical division between cougar habitat and human communities? If so, how firmly do they hold that image or preference? How much do people value cougars and their long-term survival? How willingly will people modify their behavior for the sake of conserving cougars compared to modifying behavior for the sake of reducing human-cougar encounters? A more focused analysis of these questions would provide an even clearer picture of how people living in cougar country perceive their relationship to cougars. That information can help wildlife managers design a context-specific public participation process that begins with well-facilitated and directed dialogue about the community’s goals for its relationship with cougars.

Final Thoughts

There are no easy answers for solving a controversy about an animal that inspires such passion. The cougar conflict stems from a clash of political, ideological, and moral

values. This case study of southwestern Oregon will not eliminate that clash, and it is possible that the cougar conflict in Oregon will never subside. As Koch (1994) observed in California, the cougar controversy may actually have created the positive effect of increasing people's awareness of wildlife issues in the state. We should capitalize on these positive effects where they exist. However, I have spent three years on this project because of the conviction that prolonged wildlife conflict ultimately hurts both people and wildlife. Imagine if the time and resources poured into the hound-hunting debate had instead been devoted to bringing diverse groups together to work toward the conservation of cougar habitat. Efforts to divert and mitigate against conflict may seem unrealistic, but they have the potential to channel people's time and energy into solving our most challenging problems.

APPENDIX A

RESULTS OF HOUND-HUNTING BALLOT MEASURES

Ballot Measure 18
(1994): Bans hunting
bears with bait,
hunting bears, cougars
with dogs

Ballot Measure 34
(1996): Wildlife
management exclusive
to Commission;
repeals 1994
bear/cougar initiative

County*	Yes on 18	No on 34	No on 18	Yes on 34
Baker	1,873	2,476	4,750	5,049
Benton	15,249	20,789	16,914	12,959
Clackamas	73,032	79,815	56,132	57,873
Clatsop	7,215	9,492	6,508	5,459
Columbia	7,719	9,052	8,378	9,000
Coos	9,268	11,907	16,102	15,148
Crook	2,052	2,603	4,379	4,306
Curry	3,797	4,295	5,446	6,352
Deschutes	18,418	23,767	19,022	20,611
Douglas	12,865	16,454	26,377	25,741
Gilliam	290	385	610	637
Grant	708	1,050	2,713	2,796
Harney	625	1,112	2,229	2,346
Hood River	3,452	3,974	3,281	3,438
Jackson	30,571	38,488	33,752	33,541
Jefferson	1,951	2,745	3,180	3,359
Josephine	12,343	16,503	14,849	15,080
Klamath	6,265	9,280	14,540	15,052
Lake	709	941	2,549	2,669
Lane	63,235	83,078	59,816	51,664
Lincoln	10,286	12,634	7,676	7,362
Linn	13,613	18,227	23,866	21,836
Malheur	2,853	3,924	5,538	5,723
Marion	52,058	59,248	43,846	45,112
Morrow	835	1,185	2,101	2,080
Multnomah	155,107	184,344	85,028	75,933
Polk	11,669	13,476	11,186	11,027
Sherman	320	363	640	667
Tillamook	4,653	5,551	5,321	5,499
Umatilla	6,098	8,248	12,492	12,302
Union	2,774	3,317	6,919	8,029
Wallowa	738	883	2,837	3,363
Wasco	4,360	4,758	4,857	4,957
Washington	79,632	93,522	56,895	57,635
Wheeler	202	231	533	630
Yamhill	12,692	14,862	14,764	15,568
TOTAL	629,527	762,979	586,026	570,803

*Counties included in the questionnaire survey sample are highlighted

APPENDIX B

DESCRIPTION OF INDEXES

EXPER: Prior Experience with Cougars

Four yes-no questions made up EXPER:

1. Have you ever seen a cougar in the wild?
2. Have you heard of cougar sightings in your neighborhood or community?
3. Have you seen a cougar in your neighborhood or community?
4. Have you ever had a pet threatened or attacked by a cougar?

Responses to questions 1, 3, and 4 were scored so that:

Yes = 1

No = 0

Missing = 100

Responses to question 2 were scored so that:

Yes = 0.5

No = 0

Missing = 100

EXPER was calculated so that:

$EXPER = q1 + q2 + q3 + q4$

Possible EXPER scores were 0, 0.5, 1, 1.5, 2, 2.5, 3, 3.5, or 100+

EXPER value labels were assigned as listed below:

0 = None

0.5 = Minimal

1 = Low

1.5 - 2 = Medium

2.5 - 3 = High

3.5 = Very High

100+ = Missing

Example

Responses:

1. Have you ever seen a cougar in the wild? YES
2. Have you heard of cougar sightings in your neighborhood or community? YES
3. Have you seen a cougar in your neighborhood or community? NO
4. Have you ever had a pet threatened or attacked by a cougar?

$$q1 + q2 + q3 + q4 = 1 + .5 + 0 + 100 = 101.5$$

EXPER = Missing

LETHAL: Attitude toward Lethal Control of Cougars

Subjects were presented with the following scenario:

The number of reported cougar sightings and cougar-related damage complaints in Oregon has increased over the past several years. How do you think that public officials should address these reported increases? Listed below are various management options. Indicate with a check (✓) how acceptable you believe each one to be. Please consider each option by itself, independent of the others. If you would like to express your viewpoint in more detail, please use the space provided on the last page.

Subjects were asked to rate the acceptability of 12 management options on a five-point Likert scale with a "don't know" option. Four of these questions made up LETHAL:

1. Trap and destroy any cougars that enter human communities.
2. Make it legal for individuals to shoot cougars that appear threatening to people, pets, or livestock.
3. Create a longer hunting season on cougars.
4. Make it legal to hunt cougars with dogs.

Responses to all four questions were scored so that:

Very acceptable = 5

Acceptable = 4

Neutral = 3

Unacceptable = 2

Very unacceptable = 1

Missing/Don't know = 100

LETHAL was calculated so that:

$$\text{LETHAL} = q1 + q2 + q3 + q4$$

Possible LETHAL scores were 4 – 20 and 103+

LETHAL value labels were assigned as listed below:

4 – 9 = Unfavorable

10 – 14 = Mixed

15 – 20 = Favorable

103+ = Missing/Don't know

Example

Responses:

1. Trap and destroy any cougars that enter human communities. Very unacceptable
2. Make it legal for individuals to shoot cougars that appear threatening to people, pets, or livestock. Very acceptable
3. Create a longer hunting season on cougars. Neutral
4. Make it legal to hunt cougars with dogs. Unacceptable

$$q1 + q2 + q3 + q4 = 1 + 5 + 3 + 2 = 11$$

LETHAL = Mixed

CONCERN: Worry or Concern Regarding Cougars as a Potential Threat to People, Pets, or Livestock

Four five-point Likert questions with a “don't know” option made up CONCERN:

1. How often do you worry about encountering a cougar in your neighborhood or community? (Never, rarely, sometimes, often, always, don't know)
2. Cougars pose a threat to pets and/or livestock in my neighborhood or community (Strongly agree, agree, neutral, disagree, strongly disagree, don't know)
3. Cougars pose a threat to people in my neighborhood or community (Strongly agree, agree, neutral, disagree, strongly disagree, don't know)
4. I would like to learn more about how to prevent cougars from entering my neighborhood (Strongly agree, agree, neutral, disagree, strongly disagree, don't know)

Responses to q1 were scored so that:

Never = 1

Rarely = 2

Sometimes = 3

Often = 4

Always = 5

Don't know/missing = 100

Responses to q2 – q4 were scored so that:

Strongly disagree = 1

Disagree = 2

Neutral = 3

Agree = 4

Strongly agree = 5

Don't know/missing = 100

CONCERN was calculated so that:

$\text{CONCERN} = q1 + q2 + q3 + q4$

Possible CONCERN scores were 4 – 20 and 103+

CONCERN value labels were assigned as listed below:

4 – 9 = Low

10 – 14 = Medium

15 – 20 = High

103+ = Missing/Don't know

Example

Responses:

1. How often do you worry about encountering a cougar in your neighborhood or community? Sometimes
2. Cougars pose a threat to pets and/or livestock in my neighborhood or community
Agree
3. Cougars pose a threat to people in my neighborhood or community. Disagree
4. I would like to learn more about how to prevent cougars from entering my neighborhood. Neutral

$$q1 + q2 + q3 + q4 = 3 + 4 + 2 + 3 = 12$$

CONCERN = Medium

PARTICIPATE: An Individual's Likelihood of Becoming Involved in Public Participation in Cougar Management

One question makes up PARTICIPATE:

If wildlife officials invited citizens in your community to participate in deciding cougar management policy, which of the following actions would you be likely to take? (please check all that apply)

- Attend a meeting
- Attend a meeting and testify
- Participate in a focus group or workshop
- Sign up for a citizen advisory committee
- Work with officials to draft management plans
- Recruit other citizens to participate in the process
- I would not participate
- Other (please specify)

The actions listed above were divided into three categories as follows:

No participation

I would not participate

Low participation

Attend a meeting

Attend a meeting and testify

High participation

Participate in a focus group or workshop

Sign up for a citizen advisory committee

Work with officials to draft management plans

Recruit other citizens to participate in the process

Each respondents was placed into one of the three categories as follows:

No participation

Respondents who checked "I would not participate" and/or indicated through "Other" that they would not participate.

Low participation

Respondents who checked only "Attend a meeting" or "Attend a meeting and testify" or indicated through "Other" that they would take an equivalent level of action.

High participation

Respondents who checked any combination of actions included in the high category, whether or not they checked actions in the low category, or who indicated an equivalent level of action through "Other."

Example 1

Response:

Attend a meeting

PARTICIPATE = Low participation

Example 2

Response:

Attend a meeting

Sign up for a citizen advisory committee

PARTICIPATE = High participation

Example 3

Response:

Recruit other citizens to participate in the process

PARTICIPATE = High participation

APPENDIX C

QUESTIONNAIRE ITEMS AND RESULTS

All questionnaire items are listed below with their corresponding sample size and response results. The format below is not the format of the actual questionnaire mailed to subjects.

1. Have you ever seen a cougar in the wild?

N = 355

Yes = 53.5%

No = 46.5%

2. Have you heard of cougar sightings in your neighborhood or community?

N = 357

Yes = 72.8%

No = 27.2%

3. Have you seen a cougar in your neighborhood or community?

N = 358

Yes = 17.9%

No = 82.1%

4. Have you ever had a pet threatened or attacked by a cougar?

N = 353

Yes = 6.5%

No = 93.5%

5. How often do you worry about encountering a cougar in your neighborhood or community?

N = 358

Never = 46.4%

Rarely = 24.9%

Sometimes = 19.8%

Often = 5.6%

Always = 2.8%

Don't know = 0.6%

6. If you *have seen* or *were to see* a wild cougar, what was or would be your reaction? For each of the two scenarios below, please check up to three statements that best describe your reaction.

Wilderness scenario: Reaction to seeing a cougar in the wild (*please check one to three boxes*):

N = 348

I enjoy seeing the cougar even though it could attack me = 146

I am thrilled to see the cougar = 130

I am afraid for my safety = 86

The cougar doesn't scare me because cougars rarely attack people = 85

The cougar scares me, but I don't think it will hurt me = 83

I want the animal killed = 29

I have no feelings about the cougar one way or the other = 28

Other (please specify) = 25

Neighborhood scenario: Reaction to seeing a cougar in your neighborhood or community (*please check one to three boxes*):

N = 349

I am afraid for my safety = 116

I want the animal killed = 102

I enjoy seeing the cougar even though it could attack me = 77

Other (please specify) = 72

The cougar doesn't scare me because cougars rarely attack people = 68

The cougar scares me, but I don't think it will hurt me = 65

I am thrilled to see the cougar = 49

I have no feelings about the cougar one way or the other = 22

7. Overall, about how frequently do you think about the topic of cougars in Oregon?

N = 323

Never = 9.6%
Rarely = 40.6%
Sometimes = 36.5%
Often = 12.4%
Don't know = 0.9%

8. To what extent do you agree or disagree with the following statements about cougars
(check (✓) one box per statement):

- a. Cougars pose a threat to pets and/or livestock in my neighborhood or community.

N = 350

Strongly agree = 18.0%
Agree = 27.1%
Neutral = 15.7%
Disagree = 19.7%
Strongly disagree = 12.9%
Don't know = 6.6%

- b. Cougars pose a threat to people in my neighborhood or community.

N = 352

Strongly agree = 7.4%
Agree = 16.2%
Neutral = 18.5%
Disagree = 29.3%
Strongly disagree = 23.0%
Don't know = 5.7%

- c. The presence of cougars in Oregon is a sign of a healthy environment.

N = 349

Strongly agree = 15.8%
Agree = 39.3%
Neutral = 16.3%
Disagree = 13.8%
Strongly disagree = 4.0%
Don't know = 10.9%

- d. The presence of cougars in Oregon increases my overall quality of life.

N = 347

Strongly agree = 9.2%
Agree = 17.0%
Neutral = 30.3%
Disagree = 23.9%
Strongly disagree = 9.2%
Don't know = 10.4%

- e. I know as much as I want to know about cougars in Oregon.

N = 347

Strongly agree = 2.9%
Agree = 28.8%
Neutral = 27.7%
Disagree = 31.4%
Strongly disagree = 5.2%
Don't know = 4.0%

- f. I would like to learn more about how to prevent cougars from entering my neighborhood.

N = 347

Strongly agree = 9.8%
Agree = 30.0%
Neutral = 35.2%
Disagree = 16.1%
Strongly disagree = 3.5%
Don't know = 5.5%

- g. Cougars are causing deer and elk populations to decline in Oregon.

N = 352

Strongly agree = 15.6%
Agree = 14.2%
Neutral = 11.1%
Disagree = 25.6%
Strongly disagree = 13.9%
Don't know = 19.6%

- h. Oregonians should accept occasional encounters with cougars as part of living in the Pacific Northwest.

N = 348

Strongly agree = 17.5%
Agree = 46.3%
Neutral = 15.2%
Disagree = 10.9%
Strongly disagree = 7.5%
Don't know = 2.6%

9. Do you believe that it should be legal in Oregon to hunt cougars?

N = 351

Yes = 30.2%

Yes, but with careful restrictions = 41.3%

No = 19.7%

I have no opinion = 8.8%

Explain your response if you can.

10. Do you think people living in rural areas or on the edge of cities ought to adjust their lifestyles in order to peacefully co-exist with cougars?

N = 341

Yes = 54.8%

No = 45.2%

11. Do you think that the number of cougars in Oregon is increasing, decreasing, or staying the same?

N = 352

Increasing = 47.4%

Decreasing = 5.7%

Staying the same = 12.2%

I have no idea = 34.7%

12. In the future, would you like to see the number of cougars in Oregon increase, decrease, or stay the same?

N = 350

Increase = 10.3%

Decrease = 29.1%

Stay the same = 33.4%

I have no idea = 27.1%

13. How many people do you think have been attacked by cougars in Oregon since 1960?

N = 312

None = 32.1%

A handful = 66.0%

Lots = 1.9%

14. The number of reported cougar sightings and cougar-related damage complaints in Oregon has increased over the past several years. How do you think that public officials should address these reported increases? Listed below are various management options. Indicate with a check (✓) how acceptable you believe each one to be. Please consider each option by itself, independent of the others. If you would like to express your viewpoint in more detail, please use the space provided on the last page.

a. Trap and destroy any cougars that enter human communities.

N = 346

Very acceptable = 14.7%

Acceptable = 22.0%

Neutral = 14.5%

Unacceptable = 30.6%

Very unacceptable = 16.8%

Don't know = 1.4%

b. Trap cougars that enter human communities and release them far away, in wildland places.

N = 348

Very acceptable = 31.3%

Acceptable = 46.0%

Neutral = 10.3%

Unacceptable = 8.3%

Very unacceptable = 3.4%

Don't know = 0.6%

- c. Conduct informational programs about how to respond if you see a cougar.

N = 347

Very acceptable = 29.4%
Acceptable = 52.4%
Neutral = 12.7%
Unacceptable = 2.3%
Very unacceptable = 0.6%
Don't know = 2.6%

- d. Make it legal for individuals to shoot cougars that appear threatening to people, pets, or livestock.

N = 350

Very acceptable = 36.6%
Acceptable = 32.3%
Neutral = 12.3%
Unacceptable = 11.4%
Very unacceptable = 4.6%
Don't know = 2.9%

- e. Create a longer hunting season on cougars.

N = 347

Very acceptable = 13.3%
Acceptable = 17.3%
Neutral = 29.4%
Unacceptable = 18.2%
Very unacceptable = 11.8%
Don't know = 10.1%

- f. Make it legal to hunt cougars with dogs.

N = 349

Very acceptable = 21.8%

Acceptable = 19.5%

Neutral = 13.8%

Unacceptable = 18.3%

Very unacceptable = 22.9%

Don't know = 3.7%

- g. Create special places for cougars to move about safely, such as road underpasses.

N = 345

Very acceptable = 6.7%

Acceptable = 15.9%

Neutral = 24.6%

Unacceptable = 26.7%

Very unacceptable = 17.1%

Don't know = 9.0%

- h. Limit further human development in areas where cougars reside.

N = 351

Very acceptable = 10.5%

Acceptable = 15.7%

Neutral = 19.9%

Unacceptable = 35.3%

Very unacceptable = 14.8%

Don't know = 3.7%

- i. Devote new research funds to studying cougars and their behavior.

N = 348

Very acceptable = 12.6%
 Acceptable = 27.9%
 Neutral = 28.2%
 Unacceptable = 19.5%
 Very unacceptable = 7.5%
 Don't know = 4.3%

- j. Do nothing because people should leave cougars alone.

N = 346

Very acceptable = 3.5%
 Acceptable = 13.0%
 Neutral = 24.6%
 Unacceptable = 39.0%
 Very unacceptable = 15.3%
 Don't know = 4.6%

- k. Do nothing because the reports of cougar sightings or damage may not be legitimate or a big problem.

N = 346

Very acceptable = 2.0%
 Acceptable = 11.8%
 Neutral = 20.5%
 Unacceptable = 42.2%
 Very unacceptable = 15.6%
 Don't know = 7.8%

- l. Do nothing because it's not something worth addressing through policy.

N = 347

Very acceptable = 2.3%
 Acceptable = 8.4%
 Neutral = 19.6%
 Unacceptable = 46.4%
 Very unacceptable = 17.6%
 Don't know = 5.8%

15. Do you think your opinions about cougar management might change if you learned more about cougars?

N = 325

Yes = 42.8%

No = 57.2%

16. Which of the groups below do you think has the most influence over cougar management policies in Oregon? *(Please check only one to four boxes.)*

N = 341

Wildlife officials = 222

Animal rights activists = 168

Environmentalists = 135

Politicians = 129

Ranchers = 119

Hunters = 62

News media = 55

Farmers = 48

Urban people = 37

Rural people = 23

Developers = 21

Average citizens = 19

Planners = 8

Other (please specify) = 5

None of the above = 0

17. Do you trust wildlife officials in Oregon to make the best possible decisions regarding cougar management?

N = 319

Yes = 48.6%

No = 51.4%

18. Which statement below best describes how you think major decisions about cougar management should be made? (please check one box)

N = 343

Experts make decisions by themselves = 4.4%
Experts make decisions with some citizen input = 24.5%
Experts and decisions make decisions together = 65.6%
Citizens make the decisions by themselves = 3.5%
Other (please specify) = 2.0%

19. Do you think that your interests and opinions, and those of people like you, are adequately considered in cougar management decisions?

N = 316

Yes = 23.7%
No = 76.3%

20. If wildlife officials invited citizens in your community to participate in deciding cougar management policy, which of the following actions would you be likely to take? (*please check all that apply*)

N = 334

Attend a meeting = 145
I would not participate = 96
Attend a meeting and testify = 53
Participate in a focus group or workshop = 53
Work with officials to draft management plans = 50
Recruit other citizens to participate in the process = 37
Sign up for a citizen advisory committee = 33
Other = 23

21. Do you think that the issue of how to manage cougars in Oregon is a controversial topic?

N = 324

Yes = 88.6%
No = 11.4%

22. Which of the groups below do you think is most responsible for causing the controversy over cougar management in Oregon? (*Please check only one to four boxes.*)

N = 285

Animal rights activists = 186
Environmentalists = 151
Ranchers = 79
News media = 78
Politicians = 71
Newcomers building homes in rural areas = 67
Hunters = 63
Wildlife officials = 46
Urban people = 39
Farmers = 35
Developers = 23
Rural people = 19
Cougars = 15
Other (please specify) = 6
Planners = 3
None of the above = 0

23. To what extent do you agree or disagree with the following statements about cougars (*check (✓) one box per statement*):

- a. Cougars should have a right to live where they will encounter people even if they pose a threat to pets or livestock.

N = 331

Strongly agree = 3.6%
Agree = 13.6%
Neutral = 14.5%
Disagree = 44.1%
Strongly disagree = 22.4%
Don't know = 1.8%

- b. Cougars should have a right to live where they will encounter people even if they pose a threat to people.

N = 330

Strongly agree = 2.7%
Agree = 10.9%
Neutral = 9.7%
Disagree = 44.8%
Strongly disagree = 29.7%
Don't know = 2.1%

- c. The government has a right to regulate how many cougars can live in the state.

N = 330

Strongly agree = 4.2%
Agree = 23.0%
Neutral = 20.3%
Disagree = 27.9%
Strongly disagree = 17.0%
Don't know = 7.6%

- d. The government has a right to regulate whether or not I can kill a cougar.

N = 329

Strongly agree = 4.3%
Agree = 33.1%
Neutral = 14.0%
Disagree = 29.2%
Strongly disagree = 15.8%
Don't know = 3.6%

- e. No matter what the government says, I should have a right to kill a cougar that I think is a threat to pets or livestock.

N = 333

Strongly agree = 29.7%
 Agree = 32.1%
 Neutral = 13.5%
 Disagree = 15.3%
 Strongly disagree = 6.9%
 Don't know = 2.4%

- f. No matter what the government says, I should have a right to kill a cougar that I think is a threat to people.

N = 332

Strongly agree = 37.3%
 Agree = 35.8%
 Neutral = 9.0%
 Disagree = 10.5%
 Strongly disagree = 5.4%
 Don't know = 1.8%

- g. I don't know enough to say who should and shouldn't have certain rights.

N = 315

Strongly agree = 5.7%
 Agree = 19.7%
 Neutral = 23.2%
 Disagree = 29.5%
 Strongly disagree = 18.4%
 Don't know = 3.5%

24. How often do you visit forests, mountains, or wilderness areas for recreation?

N = 331

Never = 2.4%
 Less than once a year = 10.3%
 1 – 4 times per year = 23.0%
 More than 4 times per year = 64.4%

25. How long have you lived in the state of Oregon?

N = 339

Less than one year = 0.6%

1 – 4 years = 6.2%

5 – 9 years = 9.7%

10 – 20 years = 14.5%

More than 20 years = 69.0%

26. If you are not originally from Oregon, what was the last state or country that you moved here from?

N = 204

California = 117

Washington = 13

Idaho = 10

Other = 64

27. What are the first five digits in your home's zip code?

N = 354

Coos County = 16.8%

Curry County = 5.40%

Douglas County = 21.6%

Jackson County = 31.8%

Josephine County = 15.3%

Klamath County = 9.1%

28. Do you live inside or outside a city limit?

N = 337

Inside = 44.8%

Outside = 55.2%

29. Do you own dogs or cats that go outside?

N = 349

Yes = 69.6%

No = 30.4%

30. Do you raise livestock?

N = 347

Yes = 19.3%

No = 80.7%

31. Are you a hunter?

N = 345

Yes = 38.6%

No = 61.4%

32. What is your gender?

N = 344

Female = 39.0%

Male = 61.0%

33. How old are you?

N = 336

18 - 24 = 2.4%

25 - 44 = 19.9%

45 - 64 = 40.8%

65 - 84 = 33.6%

85+ = 3.3%

34. How many children under the age of 16 live in your household?

N = 341

0 = 79.8%

1 - 3 = 18.2%

More than 3 = 2.1%

What are their ages?

35. What is the highest level of education you have?

N = 343

Elementary school = 0.9%

Junior high/middle school = 0.3%

High school = 28.0%

Some college = 34.1%

Junior college degree = 7.6%

College degree = 13.4%

Some graduate school = 4.1%

Post-graduate work or degree = 11.7%

36. For the purposes of comparison with 2000 U.S. Census data, please estimate your 2001 total household income.

N = 320

Less than \$5,000 = 1.3%

\$5,000 to \$9,999 = 2.5%

\$10,000 to \$14,999 = 8.8%

\$15,000 to \$24,999 = 12.5%

\$25,000 to \$49,999 = 35.0%

\$50,000 to \$74,999 = 20.0%

\$75,000 to \$99,999 = 3.8%

\$100,000 to \$149,999 = 5.3%

\$150,000 or more = 0.9%

I prefer not to answer this question = 10.0%

37. Please use this space for any additional comments you'd like to make.

Comparison of results between Riley (1998) and this study. For the results of the present study, strongly agree and agree and strongly disagree and disagree were combined. All results are shown as percentages. The N values for individual questionnaire items are not available for the Montana study. The overall sample size for the Montana study was 805.

Questionnaire Item	Southwestern Oregon			Montana		
Seen a cougar in the wild	53.5			36.3		
Had a pet threatened or attacked by a cougar	2.0			6.5		
	Southwestern Oregon			Montana		
Questionnaire Item	Agree	Disagree		Agree	Disagree	
The presence of cougars is a sign of a healthy environment	55.1	17.8		69.1	14.2	
The presence of cougars in [my state] increases my overall quality of life	26.2	33.1		39.9	29.5	
	Southwestern Oregon			Montana		
Questionnaire Item	Increase	Decrease	Same	Increase	Decrease	Same
Desire for future population of cougars	10.3	29.1	33.4	12.2	27.3	44.5

COMPARISON TO PRIOR RESEARCH

APPENDIX D

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