HUNTING WITH HOUNDS IN VIRGINIA: A WAY FORWARD

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TECHNICAL REPORT

HOUND-HUNTING TECHNICAL COMMITTEE,
VIRGINIA DEPARTMENT OF GAME AND INLAND FISHERIES

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PREFACE

The Technical Report provides factual information about the various dimensions of hound-hunting relevant to Virginia: history, status, trends, values, concerns, and legal aspects. This report *does not* include recommendations to address hound-hunting issues. Recommendations will be presented through other components of the *Hunting with Hounds: A Way Forward* process.

Specific objectives of this report are to (1) provide *technical information* to complement *values input* provided by public stakeholders, (2) separate evidence from conjecture, (3) identify issues relevant to hound-hunting in Virginia, and (4) inform all parties involved in the *Hunting with Hounds* process.

Primary users of information contained in this report include the Stakeholder Advisory Committee, the general public, decision makers, Virginia Department of Game and Inland Fisheries (VDGIF) and Virginia Tech, and other wildlife professionals and organizations in the United States.

The Hound-Hunting Technical Committee (Appendix 1) produced this report in its entirety and is *solely responsible for the content.* The report relies on a number of information sources. Sources are cited in the text by author and year (e.g., Allen 1984, VDGIF 2002) and listed alphabetically at the end of the report. Sources included scientific literature, unpublished technical data, popular literature, the worldwide web, and personal communication.

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EXECUTIVE SUMMARY

Hunting with hounds is an important tradition in Virginia, but modern challenges demand solutions. A proactive approach to resolving issues is best for all parties. To ignore the issues is to invite a reactionary response that may preclude more reasonable solutions. Therefore, the goal of the *Hunting with Hounds in Virginia: A Way Forward* process initiated by VDGIF and Virginia Tech in 2007 is: *"To provide diverse opportunities for hunting with hounds in Virginia in a manner that is fair, sportsmanlike, and consistent with the rights of property owners and other citizens."*

Hounds have been used to hunt black bears, white-tailed deer, gray and red foxes, raccoons, rabbits, and other species throughout Virginia's history. Today, at least 30% of all hunters in Virginia likely use hounds. Benefits of hound-hunting range from wildlife population control, to individual hunter satisfactions, to community benefits. Significant sociological values exemplified by hound-hunting include tradition and heritage, companionship and community, challenge of the sport, and specific hound- and horse-related values. Hound-hunters assist with wildlife research, wildlife damage abatement, public safety incidents involving wildlife, invasive species control, and land conservation. The economic contribution of hound-hunting is difficult to measure but considered significant.

Although hound-hunting is still viable in many areas, changing land uses, demographics, and societal attitudes are exerting pressures on hound-hunting not seen a generation ago. These modern trends are a recipe for conflicts involving hunters and other citizens. Due to relatively large acreage requirements, high visibility, frequent interactions with landowners and other outdoor users, and hunting methods that some people find unacceptable, hunting with hounds can be controversial.

Demonstrated by numerous public surveys, ballot initiatives, and other legal actions across the United States, the use of hounds for hunting has been a source of concern among hunters, landowners, and other citizens. While most Americans support hunting in general, the use of dogs has generated concerns about fair chase, animal welfare, conflicts of interest, and objectionable behavior by hunters. Deer and bear hunting with hounds have fueled much of the debate. Concerns about bear hunting tend to focus more on fair chase and animal welfare issues, whereas deer hunting issues focus more on conflicts of interest, such as landowner trespass and disturbance to other hunters. As currently regulated, hound-hunting poses little threat to wildlife populations, although potential influences on behavior and movements of individual animals cause concern for some citizens.

Addressing conflicts through increased enforcement in Virginia is hampered by inadequate staffing levels and certain laws that are difficult to enforce. At present, Virginia employees an average of only 1.2 VDGIF Conservation Police Officers per county. Unethical hunters may take advantage of certain laws to engage in activities that lead to conflicts with other citizens or that are viewed as objectionable by the public; e.g., chasing game or disturbing other citizens on prohibited lands under the dog retrieval law, chasing deer and bears out-of-season under year-

round fox or raccoon chase seasons, and road-hunting under inconsistent laws or ordinances. A number of states permit retrieval of hunting dogs without landowner permission under certain conditions (e.g., on unposted properties), but Virginia appears to be one of only 2 states where hunters can lawfully retrieve dogs even when access has been expressly denied by the landowner. Assistance from other state and local law enforcement agencies varies across Virginia. In some areas, significant resources are devoted to highway safety and animal control issues related to hound-hunting. Definitive data on complaints and violations relating to hunting with hounds is lacking, but new systems under development offer improved methods for coordinating enforcement and reporting of such incidences.

Approaches used to address hound-hunting issues in Virginia and the United States have included nonrestrictive, voluntary measures (e.g., education, codes of ethics, multi-stakeholder guidelines), increased restrictions on hound-hunting (e.g., permits, pack size limits), closures during certain times or in certain areas, and complete prohibitions on hound-hunting. The diversity of approaches that have been used to address hound-hunting conflicts demonstrates the importance of considering the unique aspects of each situation. Although some approaches have reduced opportunities for hound-hunters, restrictions were often designed to mitigate the public's desire to eliminate certain hound-hunting practices.

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CHAPTER 1—INTRODUCTION AND BACKGROUND

INTRODUCTION

Hounds have been used to hunt black bear, white-tailed deer, gray and red fox, raccoon, rabbit, squirrel, wild turkey, and other species throughout Virginia's history. Each type of hound-hunting has a distinct history, tradition, and culture. Hunting with hounds remains important today as a traditional recreational activity and as a means to harvest challenging quarry. Hound-hunting also contributes substantially to wildlife population management in many areas. Today, 40% of all hunters use some type of dog while hunting and at least 30% of all hunters likely use hounds (Jagnow et al. 2008).

The Virginia of today is very different from the Colony where hunting with hounds evolved and flourished. Changes in land uses, demographics, and societal attitudes are exerting pressures on hound-hunting that were largely unknown just 50 years ago. These modern trends are a recipe for conflicts involving hunters and other citizens. Due to relatively large acreage requirements, high visibility, frequent interactions with landowners and other outdoor users, and hunting methods that some people find unacceptable, hunting with hounds has become controversial in some parts of the United States and in other countries. However, hound-hunting still occurs in many areas with few conflicts.

To address issues associated with hound-hunting, a variety of strategies have been used across the United States. Recent restrictions in other states were a primary motivation for VDGIF to look more closely at hound-hunting in the Commonwealth, in hopes of finding solutions that would be acceptable to hound-hunters, landowners, and other affected citizens. Hound-hunting in Virginia is viable and popular, but increasingly difficult in our modern landscape. To date, the Virginia Department of Game and Inland Fisheries (VDGIF) has addressed hound-hunting issues on a case-by-case basis, recently using guidance found in the Virginia Bear and Deer Management Plans. In 2007, VDGIF initiated the *Hunting with Hounds in Virginia: A Way Forward* process, in conjunction with Virginia Tech, to address the issues more comprehensively. The goal of this process reflects a proactive endeavor aimed at benefiting all parties: *"To provide diverse opportunities for hunting with hounds in Virginia in a manner that is fair, sportsmanlike, and consistent with the rights of property owners and other citizens."*

HISTORY AND TRADITION

Identifying a way forward for hound-hunting in Virginia today begins with understanding the roots of the tradition. At the crossroads of a plantation culture and the Appalachian frontier, Virginia played a prominent role in developing America's hound-hunting traditions. Founding fathers, explorers, and backcountry settlers contributed to the diversity of hound breeds and hunting styles. As wildlife populations were decimated in the late 19th and early 20th centuries by habitat destruction and unregulated hunting, Virginia joined other states in enacting hunting laws to conserve wildlife. The different hunting regulations in eastern and western Virginia

today reflect not only a difference in physical geography but also a historical divergence in culture and tradition that continues to impact hound-hunting to this day.

Domestication of the Dog

Recent genetic analysis clearly demonstrates that the domestic dog is a descendant of the wolf and is the oldest of all domesticated species (Wayne and Vila 2001). Archeologists have discovered 15,000 year old European cave paintings depicting humans using dogs to hunt wild animals (Cornwell 1966). A primary reason man domesticated the dog was to assist in securing food (i.e., hunting) in addition to its value as companion and protector (Cornwell 1966, McInteer 1968). Dick Dietz of the Washington News Bureau noted, "the man-dog partnership is probably one of the oldest ever developed and certainly one of the most successful" (McInteer 1968:7).

Early Records on Hunting with Hounds

Early Development of Hounds—In the centuries following domestication, hunting hounds were bred into two general categories: sight, or coursing, hounds (e.g., Greyhound, Afghan Hound, etc.) and scent hounds (e.g., Saint Hubert Hound - ancestor to the modern Bloodhound - and Southern Hound) (BF 2007). Sight hounds were typically sleek, long legged, and silent and were generally used in open, arid environments where dogs could hunt fox, red deer, hare, and other game by sight. In contrast, scent hounds were heavier bodied, more durable, and had deep, rich musical voices. They were developed to hunt bear, boar, deer, and other large game in the thicker, temperate forests of Europe (BF 2007).

Hound-Hunting from Medieval Europe to Colonial America – In the 1600s when North America was colonized, the Europeans brought the tradition of hunting with hounds to the New World in the form of an English hound. One of the earliest importations of hunting hounds into Colonial America was a pack brought by Robert Brooke to Maryland in 1650 (BF 2007, FFF 2007). Hounds had been used to hunt foxes for hundreds of years, but the modern foxhound did not emerge until the early- to mid-18th century in England. It was created by crossing the Greyhound and the Southern Hound (BF 2007).

Hound-hunting was an integral part of plantation life in Colonial Virginia. George Washington's personal diaries indicate fox hunting from horseback was his favorite sport (Wilson 1960). U. S. Congressman John Randolph, of Roanoke, was known to stride onto the House of Representatives floor with riding boots, riding crop, and a pack of hounds yelping behind him (Pitch 1990).

The American Hound-Hunting Tradition

Subsistence and Social Recreation—In contrast to the aristocratic European hunting tradition, hunting was not limited to the wealthy or nobility in Colonial America (Robinson and Bolen 1989). In Europe, wildlife was the private property of the upper class. However, in America, a model developed where wildlife is a publicly-owned resource. This distinction afforded the common man the right to hunt in America (Bean 1983, Marks 1991). Whereas the wealthy

hunted with hounds for recreation and social interaction (Wilson 1961), hound-hunting in North America before the wildlife conservation movement in the late 19th century could best be described as subsistence hunting practiced by the common man (Marks 1991). This subsistence hunting lifestyle was best embodied by the Appalachian culture of the Scots-Irish immigrants who poured into the backwoods of Kentucky, South Carolina, North Carolina, Tennessee, and western Virginia in the mid-1700s (BF 2007, Fischer 1989).

Development of American Hound Breeds—From the first English hounds, American hound-hunters would develop an assortment of new trailing and treeing hounds over the next 250 years, particularly suited for the specific species they pursued. The diversity of hounds included the trailing foxhounds (e.g., July, Trigg, and Walker strains), the treeing coonhounds (e.g., English, Redbone, Bluetick, Black and Tan, and Treeing Walker), and the all purpose trailing and treeing hounds (e.g., Plott - a German import – Cur, and Leopard Hound). Today there are about 400 breeds of dogs worldwide. The AKC recognizes 23 registered breeds of hounds, although a number of unique strains exist within the breeds (AKC 2008).

Historical Restrictions on Dog-Hunting

For the majority of Colonial Americans, agriculture and subsistence hunting were the most important means of survival. As a result of habitat loss and unregulated subsistence and market hunting, many wildlife populations were reduced to the brink of extinction over much of the eastern United States by 1900 (Reeves 1960, Dickson 2001). Restrictions were put in place on hunting, especially certain hunting methods that were very effective even at low game densities, like hound-hunting. In 1876, Wisconsin outlawed hunting deer with dogs (Trefethen 1961). One of the most famous battles to restrict hound-hunting was the Adirondack Deer Law (Ives Act) passed in New York in 1888 (Trefethen 1961). Proponents of the Ives Act were concerned about deer population impacts from hound-hunting as well as unsportsmanlike practices, such as driving deer into the water with hounds so they could be easily captured. By the 1920s, the use of hounds for hunting deer was prohibited throughout the northeastern United States (Mattfeld 1984).

Timeline of Important Hunting Laws and Regulations in Virginia

Following are some of the laws or regulations that have either directly or indirectly impacted hound-hunting in Virginia since settlement (Reeves 1960, Peery and Coggin 1978):

1632—First "hunting" law passed to protect feral hogs released when the colony was settled in 1607
1639—First hunting trespass law enjoined public not to hunt or shoot on another's property
1699—First closed season for deer hunting: February 1 – July 31
1738—First law passed to restrict hunting with dogs: owners to keep dogs tied or kenneled except when on the chase, to protect the declining deer population.
1792—New legislation to protect landowners against trespass
1849—First closed deer season west of the Blue Ridge: January 1 – August 1
1920s—Counties west of Blue Ridge closed to deer hunting

1950s, 1960s—"Dog line" established for deer hunting as western counties that had been closed and stocked with deer were reopened; dogs prohibited primarily due to overharvest concerns (see Figure 4 in Chapter 2 for "dog line").
1957—Deer and bear season separated west of Blue Ridge to minimize bear harvest and to keep bear hounds out of deer season (hounds illegal for hunting deer west of Blue Ridge)
1960—Deer and bear season run concurrently again, but bear hounds not allowed during the first week
1974—Sixty-seven counties with a low bear density are closed to hunting.

MODERN TRENDS IMPACTING HOUND-HUNTING

Changing land uses (e.g., development, shrinking parcel sizes, land ownership turnover, property access restrictions), changing demographics (e.g., population growth, urbanization, hunting participation declines), and changing societal values present challenges to hunting, including hunting with hounds. Hunting practices used for generations in rural Virginia (e.g., hunting multiple land ownerships where permission was not required, intercepting chases via country roads) are less accepted in some modern communities where members often do not know the hunters and/or are not familiar with hound-hunting. However, hound-hunting is still practiced in many areas with few conflicts.

Development

Land development is occurring rapidly in Virginia and many parts of the nation. Development subdivides and shrinks the land base available for hunting, thereby intensifying competition among land uses and activities on undeveloped lands (Miniter 2008). From 1960 - when the average hunter in Virginia was born (Jagnow et al. 2008) - until 2000, the total acreage in farmland decreased 36% and the number of farms in Virginia decreased 54% (USDA 2008). A total of 770,000 acres – an area larger than the Jefferson National Forest – was developed from 1982 to 1997 in Virginia (VDGIF 2005). Over 27,000 acres of forestland were developed during 2007 alone (VDOF 2007). Corporate timber companies have been selling off large portions of their holdings in Virginia since 1992; over 300,000 acres have been purchased by investment organizations whose long-term goals to maximize profit likely will result in further subdivision and development of formerly consolidated timberland (VDOF 2007).

Land is being developed in Virginia at more than 3 times the rate of population growth (VDOF 2007). In just one decade (1990-2000), the number of occupied housing units in Virginia increased 18%, from 2,291,830 to 2,699,173 (USCB 2000). Nationwide, each person added to the population during 1992-1997 resulted in over 1.2 acres of land becoming developed, more than double the rate that occurred during the previous 50 years (USDA 2000).

The trend toward more land developed per capita is related to exurban residential growth, outside of urban and suburban areas, among working farms and forests. More Americans were added to exurbia during the 1990s than to urban, suburban, or rural areas (Storm et al. 2007). "Large lot" subdivisions and dispersed housing in rural areas impact larger portions of the landscape than traditional, compact residential developments. Exurbia is a challenging landscape for hunting,

and in turn, for wildlife population management (Harden et al. 2005). Forms of hunting that require large areas, such as hunting with hounds, are impacted most by exurban growth.

Parcel Sizes and Land Ownership Turnover

As land development increases, average parcel size decreases, further reducing lands conducive to hound-hunting and other traditional wildlife and forest management uses (Kendra 2003). The average parcel of nonindustrial private forest land (NIPF) in Virginia is less than 30 acres; the number of forested parcels over 100 acres have decreased significantly in recent decades (Birch et al. 1998). As forested parcels in Virginia get smaller, they become more vulnerable to sale and development (VDGIF 2005). Nearly half of the NIPF owners in the United States are over 65, so much of their land will likely be subdivided or sold by their heirs in the near future (DeCoster 2000). Rapidly changing ownerships can undermine relationships hunters have nurtured with landowners in their community.

Property Access

Private Land Restrictions—The amount of private land available for wildlife and outdoor recreation in the United States has decreased as landowners have adopted more restrictive access policies and altered traditional land uses (Siemer et al. 1990). Nationally, there has been a steady increase in the amount of private land that is posted (WMI 1983). In Pennsylvania, approximately 70% of landowners now post their land (Jagnow et al. 2006). In southern Illinois, less than 20% of exurban landowners permit deer hunting (Storm et al. 2007). Rural landowners with urban backgrounds may have negative views of hunting, a factor that appears to be of growing importance in decisions to restrict access (Wright et al. 1990). Largely due to complaints by neighboring landowners and other recreationists, several timber companies in Virginia have either prohibited hunting deer with dogs or increased scrutiny of lease contracts with deer hunt clubs, a recent trend observed throughout the Southeast (GON 2004).

Public Land Restrictions—Demands for access to public land have increased from hound-hunters, still hunters, and nonhunting-recreationists. Public land acreage open to hound-hunting has remained relatively stable across Virginia over the last several decades. Several hound-hunting closures, mostly related to deer hunting, on state Wildlife Management Areas and federal military installations have been based on land purchase restrictions, incompatibility with managed hunts, conflicts between hunters on areas with high use, or concerns about hunter and/or hound encroachment onto adjacent properties (VDGIF Regional Wildlife Managers, personal communication). Elsewhere in the Southeast, wildlife managers have recognized that generally more still hunters than hound-hunters can be accommodated on a given area (Marchinton 1970). In Florida, hunting deer with hounds was recognized as "preemptive" of (i.e., compromising opportunity for or incompatible with) other recreational uses, resulting in recommendations to separate hound-hunting from other recreational pursuits and establish minimum acreages for public areas open to hound-hunting (FGFWFC 1991:17). Population growth across the Southeast places a premium on public land for hunting and other uses.

Population Growth and Urbanization

From 1980 to 2007, Virginia's population has increased 45% from 5.3 to 7.7 million (USCB 2000, CC 2008). Population growth is not only driving land development, it is also urbanizing Virginia. Approximately 70% of Virginians now live in Northern Virginia, Richmond, and Tidewater (CC 2008, Figure 1). This population shift impacts all Virginias, regardless if they live or hunt in this area, because of the growing political influence of urban areas (CP 2008). Increasing vehicle traffic creates more opportunities for motorists to encounter hunters pursuing game or retrieving dogs along roadways. From 1968 – when the average hunter in Virginia would have likely started hunting - to 2006, annual vehicle miles traveled on Virginia roadways increased 217% from 25.6 to 81.1 billion (Virginia Department of Transportation, VDOT unpublished data).

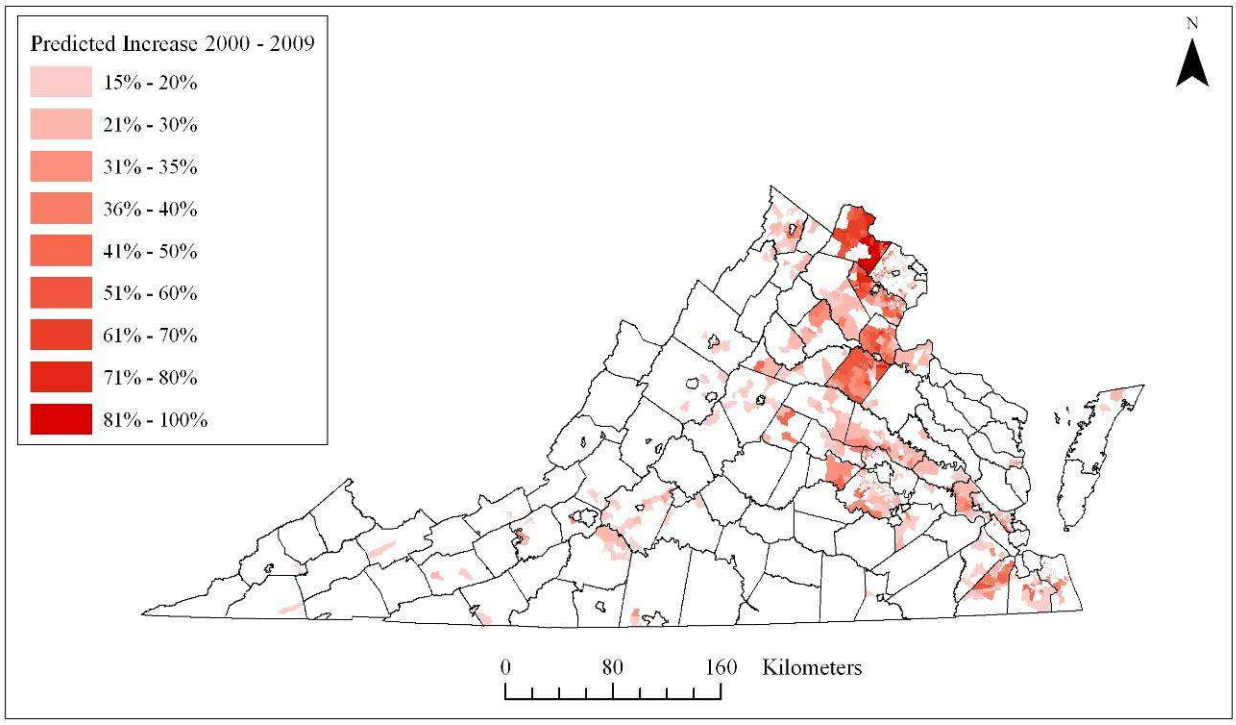

Figure 1. High impact growth areas in Virginia consisting of 2000 census block groups with at least 50 people/mi2 and populations projected to grow by at least 15% by 2009 (USCB 2000).

Participation in Hunting

While Virginia's population has increased 45% since 1980, the number of resident hunters has decreased 38% (F. Boswell, VDGIF, unpublished data). Therefore, hunters represent an even smaller segment of the population: 6.7% of Virginians purchased a resident hunting license in 1980 compared to only 2.9% in 2006. Approximately 13% of Virginia residents consider themselves hunters (RM 2005). Given that some 30% of hunters use hounds, 4-5% of Virginians likely hunt with hounds.

Nationwide, participation in all types of hunting declined from 1996 to 2006, but only some types declined from 2001 to 2006 (USFWS 2006). Big game hunting has remained relatively stable but there were substantial declines for small game hunting (12%) and migratory bird hunting (22%; USFWS 2006). Former hunters consistently say the main reason they have stopped hunting is because they have nowhere to hunt (Miniter 2008). Urbanization, a decline in rural culture and direct contact with nature, lack of access to land, and more types of recreation competing with hunting have all been implicated in the decline in hunting (Organ and Fritzell 2000).

Changing Attitudes about Hunting and Wildlife

Attitudes about Hunting – Most Americans generally have a positive view of hunting. A recent nationwide survey found that 78% of Americans approve of legal hunting (Duda and Jones 2008). Moreover, support for legal hunting in the United States has increased slightly in the United States over the last decade (Duda and Jones 2008). From 2000 to 2005, general public approval of legal hunting increased slightly from 75% to 81% in Virginia (McMullin et al. 2000, RM 2005).

Public support for hunting varies with methods used, species pursued, and reasons given for hunting (RM/NSSF 2008). The public supports hunting for food or wildlife population control more than hunting for "the sport" or "a trophy" (Duda et al. 1998, Organ and Fritzell 2000, RM/NSSF 2008). Surveys have also shown little public support for hunting bears or deer with dogs (Lafon et al. 2003, RM 2004, 2006), hunting predators, and hunting over bait (Duda et al. 1998, RM/NSSF 2008). Hunters and their family members are the most supportive of hunting; the least supportive include those without a hunting family member, younger Americans, and urban residents (Duda and Jones 2008). Although a large majority of Americans approve of *hunting*, they appear to have a less favorable opinion of *hunters* (Duda and Jones 2008). Sixty-four percent of Americans agreed that hunters violate laws or behave unsafely while hunting (Duda et al. 1998).

Attitudes about Wildlife Use — Trends in wildlife-related recreation and public attitudes toward wildlife use have implications for hunting, including hunting with hounds. Nonconsumptive wildlife recreation (e.g., wildlife viewing) has increased significantly over the last several decades (Duda et al. 1998), and advocates of animal rights and animal welfare have begun to exert more influence on wildlife management decisions (Muth et al. 2002). Accepting most uses of animals, individuals concerned with animal welfare focus on treating animals with compassion and avoiding cruelty. However, animal rights proponents advocate equal moral and legal rights for all species with a motive to end any exploitation or human use of animals (Cockrell 1999, Muth and Jamison 2000).

Major social, cultural, and demographic changes in modern society have given rise to the animal protectionist movement. Chief among these shifts is an urban world view, brought about as people migrated from farms to cities and lost direct contact with nature (Muth and Jamison 2000). Opposition to traditional wildlife management and consumptive uses of animals is

greater among urban than rural residents (Brown et al. 2000). Densely-populated areas, and those with little reliance on agriculture, have been most supportive of restrictions on hunting methods (Jones 1996, in Minnis 1998).

RATIONALE FOR ADDRESSING HOUND-HUNTING IN VIRGINIA

Changing land uses, demographics, and attitudes in modern America are a recipe for controversy involving hunters who use hounds. At the same time, hunting with hounds remains an important tradition and wildlife management tool. State agencies must be proactive and anticipate such conflicts that involve important user groups or resources. To ignore these issues is to invite a reactionary response that may preclude more reasonable solutions. Agency intervention through education or public involvement can prevent legislated or litigated decisions that exclude input from wildlife professionals and primary users of wildlife resources (Minnis 2001).

Hound-Hunting Controversies

The past several decades have witnessed challenges to hound-hunting across the United States and in Europe. Whereas historical regulations addressed protection of depleted wildlife populations and fair chase (e.g., the Adirondack Deer Law, Trefethen 1961), recent restrictions have addressed citizen conflicts, animal welfare, and fair chase (Minnis 1998, Peyton 1998).

National Challenges— Hunting, including several types of hound-hunting, has generated opposition, manifested in ballot initiatives, legislation, litigation, and nonregulatory restrictions. During the 1990s in Colorado, Massachusetts, Oregon, and Washington, public ballot initiatives banned hunting with hounds for bears and wild felines, along with other aspects of hunting and trapping (Minnis 1998). Similar voter initiatives in Maine, Michigan, and Idaho failed, and hound-hunting for bears continues in these states.

Conflicts of trespass and interference with other users have been the primary factors leading to various restrictions on deer hunting with dogs in the Southeast. Following failed attempts to compromise between landowners and deer hunters, the Texas Parks and Wildlife Department prohibited hunting deer with dogs in 1990 (Campo and Spencer 1991). Alabama, Georgia, and Florida wildlife resource agencies have since developed permit or registration systems and minimum acreage requirements to increase accountability of deer clubs using dogs. South Carolina has considered similar measures and is currently using a stakeholder involvement process to attempt to resolve issues. Timber companies in the Southeast, who lease thousands of acres to hunt clubs, have begun to restrict or prohibit the use of deer hounds (GON 2004). A large timber corporation in South Carolina lost a lawsuit on the grounds that deer hound-hunting on its property created a nuisance for a neighboring landowner (GON 2004).

Recent Developments in Virginia—As seen elsewhere in the Southeast, several timber companies in Virginia have either prohibited hunting deer with dogs or increased scrutiny of lease contracts with deer hunt clubs. Reflecting the trend in other states and a distinct possibility in the future, one timber company has disallowed the use of dogs during deer season on its leases in Accomack County, Virginia.

Other events during 2006-2007 also prompted VDGIF to examine issues of hound-hunting more closely. A 2006 survey of Virginia hunters regarding Sunday hunting indicated greater opposition to bear and deer hunting with hounds than any other types of hunting (VDGIF 2007*b*). Prior to and during the 2006 regulations scoping process, VDGIF Wildlife and Law Enforcement Division staff discussed recent incidents and recognized the need for an internal VDGIF committee to explore hound-hunting issues for multiple species concurrently (in essence, the current Technical Committee). In March 2007, a Gloucester County resident made a presentation to the VDGIF Board expressing concerns about the impacts of deer hunting with hounds on landowners. During April-June 2007, the VDGIF regulations web forum recorded 928 "hunting with dogs" comments – both pro and con - from 254 individuals. These 254 people represented 44% of all individuals providing comments, and provided 38% of the total comments received (P. Smith, VDGIF, unpublished data). At the VDGIF Board meeting in July 2007, the Wildlife Division Director presented a proposal for a public involvement process, to be facilitated by Virginia Tech, that would address these emerging issues while ensuring a future for hound-hunting. The Board unanimously endorsed the *Hunting with Hounds in Virginia: A Way Forward* project.

Addressing Hound-Hunting Conflicts in Virginia

VDGIF considered all of the above factors (e.g., citizen dissatisfaction, recent restrictions on dog-hunting in other states, the move by timber companies to disallow hound-hunting) in making the recommendation to address this critical issue during 2007-2008. The *Hunting with Hounds* process is the most comprehensive approach used to date in Virginia to address hound-hunting issues. Case-by-case solutions in several Virginia localities and 2 statewide management plans provided the foundations for this process.

Case-by-Case Approaches—Several conflicts involving hunting with hounds have been addressed on a local, case-by-case basis in Virginia. With assistance from VDGIF, governing bodies in the counties of Accomack (1997), King George (1986), Richmond (2004), and Westmoreland (1996) chartered hunter/landowner advisory committees to develop nonregulatory solutions to hunter-landowner conflicts, mostly related to hunting deer with dogs. During 2004-2005, VDGIF facilitated collaboration between bear hunters and landowners in Roanoke County to resolve conflicts and develop mutually agreeable guidelines for all parties. This multi-stakeholder decision-making process was in keeping with direction provided in the newly approved 2001-2010 Virginia Bear Management Plan, which called for "foster[ing] communication about concerns and solutions between bear hunters, landowners, and other affected citizens through conflict resolution strategies" (VDGIF 2002:77).

Guidance in Virginia Bear and Deer Management Plans—The Virginia Bear and Deer Management Plans both identify issues associated with use of hounds, contain goals and objectives to maintain hound-hunting while ensuring hunting ethics and respect for citizen rights, and identify strategies to address these objectives (VDGIF 2002, 2007a).

The 2001-2010 Virginia Bear Management Plan contains 3 goal areas relevant to hunting with hounds (VDGIF 2002). The first goal states: "Provide a diversity of black bear hunting opportunities in Virginia as a management tool and recreational experience, while discouraging or prohibiting activities that prevent attainment of black bear population objectives." A specific objective in this goal area is to maintain a minimum number of hunter-days of bear hunting, including hunting with and without dogs, and training with dogs. Another goal was written to "Ensure that black bear hunting methods in Virginia, including chase and take, are fair and sportsmanlike." A third goal reads: "Ensure that bear hunting activities are consistent with and respect the rights of private property owners and other Virginia citizens."

The 2006-2015 Virginia Deer Management Plan contains a goal to "Provide opportunities for all citizens to safely and ethically enjoy diverse deer-related recreational experiences and traditions (including observation and hunting) consistent with deer population and damage goals." Relevant guidance is to: (1) maintain a minimum number of hunter-days of deer hunting, both with and without dogs, (2) ensure that deer hunting methods are fair and sportsmanlike, and (3) ensure that deer hunting is consistent with and respects the rights of property owners and other Virginia citizens (VDGIF 2007a).

The Virginia Deer and Bear Management Plans are fundamental to the *Hunting with Hounds* project. In fact, the goal of the project was derived directly from goals in these plans. Both the Deer and Bear Management Plans were developed with substantial involvement from hound- and Nonhound-hunters, landowners, nonconsumptive-recreationists, corporate landowners, land management agencies, and other stakeholders; therefore, direction provided in these plans is already based on input from many key stakeholders.

Hunting with Hounds in Virginia: A Way Forward –This project was initiated in 2007 by VDGIF, in cooperation with Virginia Tech. It began with a clearly articulated goal founded upon significant stakeholder investment during development of the Bear and Deer Management Plans: *"To provide diverse opportunities for hunting with hounds in Virginia in a manner that is fair, sportsmanlike, and consistent with the rights of property owners and other citizens."*

This process focuses on hunting with hounds, rather than all hunting dogs, because issues of concern are associated primarily with hound-hunting. However, because some species commonly hunted with hounds may also be hunted with other dogs, and because Virginia hunting laws reference "dogs," not "hounds," the *Hunting with Hounds* process does not totally exclude any type of dog-hunting.

SUMMARY AND CONCLUSIONS

Hunting with hounds is an important tradition in Virginia, but modern challenges demand solutions. A proactive approach to resolving issues is best for all parties. To ignore these issues is to invite a reactionary response that may preclude more reasonable solutions. The *Hunting with Hounds* process will attempt to identify a way forward for an important tradition in a modern world.

CHAPTER 2—DESCRIPTION OF HOUND-HUNTING TODAY

INTRODUCTION

Hunting with hounds continues to be an important aspect of the hunting culture across the United States. In recent years, the strong tradition of hound-hunting has been challenged by negative public sentiment and changing land uses less conducive to the practice (see Chapters 1 and 4). An understanding of current hound-hunting practices is fundamental to resolving these conflicts.

DISTRIBUTION OF HOUND-HUNTING IN THE UNITED STATES

A recent survey (Appendix 2) revealed that all 50 states allow some wildlife species to be hunted or chased with hounds. Hunting with hounds for wildlife species classified as small game (e.g., rabbits, squirrels) and furbearers (e.g., foxes, raccoons) is allowed throughout nearly all of the United States. Hunting with hounds for big game species (e.g., black bear, white-tailed deer) is more restricted and regional in nature. Eighteen (18) states allow the use of hounds for hunting or chasing bears (Figure 2). Deer hunting with hounds is legal in 11 states (Figure 3) and in Ontario, Canada.

Figure 2. Distribution of states allowing the use of hounds for hunting or chasing bears.

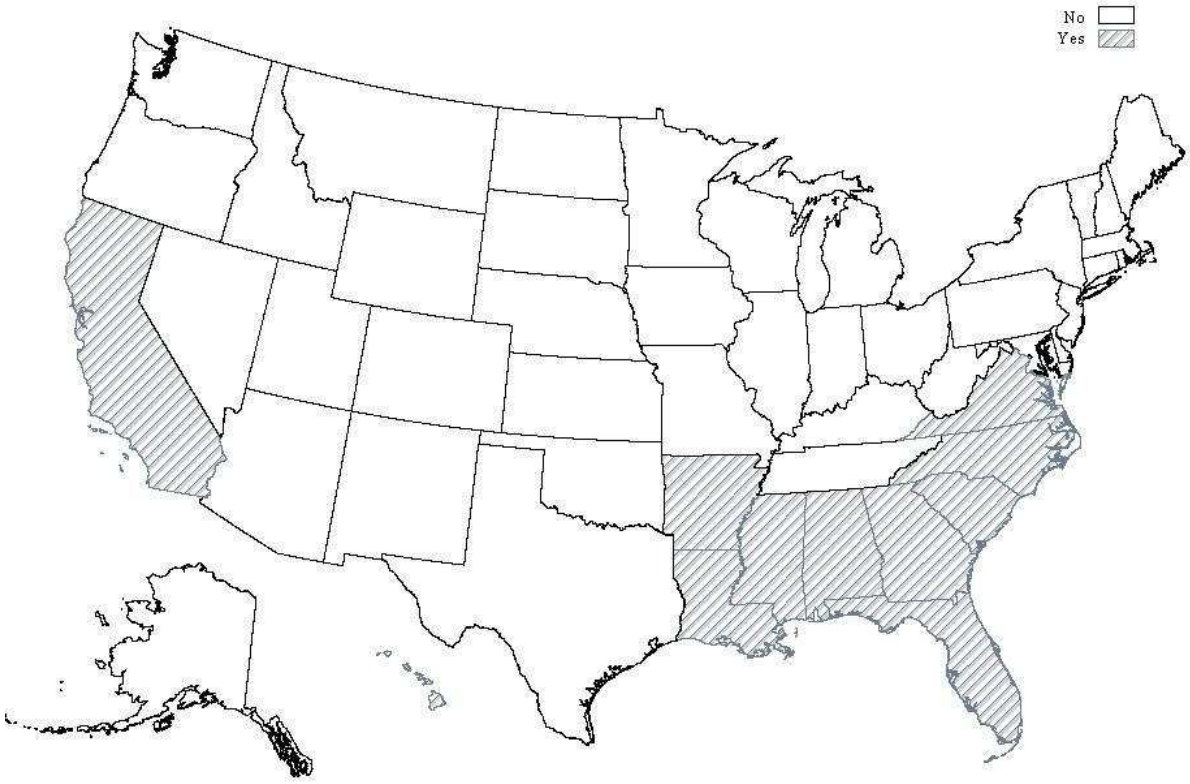

Figure 3. Distribution of states allowing the use of hounds for deer hunting.

Trends in Hound-Hunting Participation: Regional Examples

Trend data for hound-hunting participation and effort are limited. Many states survey hunters to determine participation and effort, but survey questions specifically designed to address hound-hunting are rare (M. D. Duda, Responsive Management, personal communication). A review of various hunter participation and effort surveys yielded no information specific to hound-hunter participation and effort (RM 2008).

Some anecdotal observations regarding hound-hunter participation and effort have been made in conjunction with other data collection efforts. While reviewing raccoon hunting and dog training regulations, Rogers (1995) noted that raccoon hunting levels had decreased in recent years. In South Carolina, data collected as part of the Antlerless Deer Quota Program indicated that enrolled acreage being dog-hunted has decreased 89% and the number of dog-hunting clubs enrolled has decreased 94% since 1986 (Ruth 2007). These data should be viewed with caution, as these studies were not designed specifically to investigate hound-hunter participation or effort.

One trend in hound-hunting has been the reduction in number of states, or areas within states, open to big game hunting with hounds. Citizen initiatives in Colorado, Massachusetts, Oregon, and Washington have prohibited bear hunting with hounds in those states (Minnis 1998). Texas eliminated deer hunting with dogs in 1990 (Campo and Spencer 1991). In Alabama, the number of counties open to dog-hunting for deer has been reduced in recent years (C. Hill, AL Wildlife and Freshwater Fisheries Division, personal communication). In Georgia, the area open to dog-hunting for deer has decreased from 63 counties in 1949 to 41 counties, or parts thereof, in 2004 (Bowers et al. 2007). Based on license sales, it is estimated that 10,000-12,000 deer hunters (approximately 4%) use dogs in Georgia (J. Bowers, GA Wildlife Resources Division, personal communication).

Contemporary Overview of Hound-Hunting in Virginia

Today, approximately 40% of hunters in Virginia use dogs to pursue game (Jagnow et al. 2008). Of those who hunt with dogs, 65% hunt deer, 33% hunt rabbits, 11% hunt raccoons, 7% hunt bear, and 5% hunt foxes. Other popular game species hunted with dogs include waterfowl (9% of dog-hunters), squirrels (8%), and quail (7%). Statewide, 30% of deer hunters in Virginia use dogs; however, more than 65% of deer hunters in the Tidewater region (roughly east of Interstate 95) use dogs. Approximately 35% of bear hunters in Virginia use dogs (Jagnow et al. 2007, 2008). At least 90% of raccoon and rabbit hunters likely use dogs. Fox hunter participation is being investigated through the 2007-2008 annual hunter survey (a survey mailed to a random sample of licensed hunters following each season).

Most modern hound-hunters use an assortment of equipment to facilitate the chase and the retrieval of their hounds. Like other hunters, houndsmen use four-wheel drive trucks and all-terrain vehicles (ATVs) to access hunting locations, but they may also use these vehicles to monitor or intercept the chase and to retrieve dogs. Hound-hunters often use CB radios to communicate between vehicles. Radio-telemetry collars are used on hounds to monitor the chase, to permit more timely retrieval of hounds, and to improve safety for hounds and humans through reduced accidents. Truck-mounted dog boxes and dog-handling gear are used for transporting hounds and restraining those not actively involved in the chase. Equipment unique to specific types of hound-hunting is mentioned within species sections below (e.g., horses for foxhunting, lights for raccoon hunting).

HOUND HUNTING FOR BEARS

While most bears in Virginia are harvested opportunistically by deer hunters, hunting bears with hounds is the traditional method for hunters who exclusively hunt bears (Higgins 1997). Currently, hound-hunting for bears is allowed along and west of the Blue Ridge Mountains (with a few exceptions; e.g., Floyd County) and in select counties in southeastern Virginia (see below). A nonharvest bear hound-training season is open in the majority of counties west of the Blue Ridge Mountains and in 7 counties in the Piedmont and Tidewater regions.

Bear Hunting Styles and Techniques

Description of a Typical Hunt – A bear hunt using hounds has 3 segments: (1) find a trail fresh enough for the dogs to follow, (2) locate the bear and chase it, and (3) tree the bear to allow hunters to catch up (Elowe 1990). Bears are located by using "strike dogs" trained to indicate when a bear trail is present. Hunters either put the strike dog on an elevated area of a vehicle while driving or walk it on a leash. Hunters search along roads (typically low-speed forest roads) for signs of bear crossings (Elowe 1990). Once the strike dog detects a scent, dogs are released on the trail with the goal of treeing a bear. Hunters maintain contact with their dogs using radio-telemetry and/or by listening to the chase. Distinctive baying of the hounds signal that the bear has been treed.

Not all bears chased will be treed. In Virginia, hound-hunters chased bears on 53.1% of their hunts and treed 30.7% of the bears chased (Higgins 1997). Feeding of bears was permitted at the time of this research, which may have influenced chase success.An average pack of hounds that has been trained by knowledgeable handlers may tree 30 % of the bears they run, whereas an exceptional pack may tree 80% (Elowe 1990). When a bear is treed during the training season, dogs are removed from the area and the bear is allowed to leave. During the hunting season, the bear may be harvested if it meets the legal requirements; i.e., at least 100 pounds live weight with no cubs present (VDGIF 2007*c*).

Primary Purposes—Hound-hunters in Virginia are shifting their emphasis from harvesting to chasing bears (Higgins 1997). In Michigan, harvesting a bear was much less important for bear hunters using hounds than for still hunters, bait-only hunters, and generalists. Seeing and hearing one's dogs work was a very important factor for hound-hunters (Grise 1994). The bond between hunter and dog, being outdoors, the admiration for the bear as a quarry, and the adventure of the chase are important values to bear hunters using hounds (Davenport 1951, Beck et al. 1994, Grise 1994).

Types of Dogs Used –Hound breeds commonly used to hunt bears in Virginia include Plotts, Treeing Walkers, Blueticks, Redbones, and Black and Tan coonhounds (see Table 1 for descriptions).

Bear Hound Training Methods—Virginia bear hunters may train their hounds legally during bear hound training season. Additionally, many Virginia bear hound-hunters take advantage of year-round chase opportunities in North Carolina. Other training methods may include bear-baying field trials where hounds are competitively scored. Virginia houndsmen have designed and fabricated mechanical bears to simulate baying, treeing, and racing opportunities for bear hounds. The use of tethered, live bears for bear baying is legal only in South Carolina.

Timing and Scale of Bear Hunts

Seasonal and Daily Timing of Hunts—The bear-hound training season in Virginia currently is open from mid-August to late September in the western part of the state and 3 cities around the Great Dismal Swamp (Suffolk, Chesapeake, and Virginia Beach). In these areas, hound training is allowed on Sunday. Sunday chase is not allowed during the 2-week, early-December bear hound-training season in Lunenburg, Mecklenburg, Brunswick, and Greensville Counties. During the training season, hunting hours extend from ½ hour before sunrise until 4½ hours after sunset (an extension effective July 1, 2008; VDGIF 2007*c*).
Bear hunting during the harvest season occurs from late November through early December in the western part of state and during October and November around the Great Dismal Swamp. Hunting hours during the bear hunting season are ½ hour before sunrise through ½ hour after sunset (VDGIF 2007*c*).

Duration and Spatial Requirements of Hunts—The number of hounds released can determine the amount of ground covered (Elowe 1990). In Virginia, the average length of a chase ranged from 0.1 to 4.6 hours (Higgins 1997). Willey (1980) found that bear chases with hounds averaged 2-3 hours but ranged between 1 minute and 8 hours. Allen (1985) reported an average chase time of 3.2 hours, ranging from 10 minutes to over 12 hours and average chase distance of 4.0 miles (range 0.3 miles to 14.4 miles).

Party and Pack Sizes—During a study on bear hound-hunting in western Virginia, the average number of hunters ranged from 4.5 to 12.3 per hunt, and the average number of hounds used per hunt ranged from 2.5 to 20.5 (Higgins 1997). During the same study, a mail survey of bear hound-hunters indicated the average hunting party consisted of 10.4 hunters and 8.4 hounds. During the 1970s, bear hound-hunters in Virginia owned a median of 4 hounds, had 11 hunters in their hunting party (range 1-75), and used 8 hounds per chase (range 2-35) (DuBrock et al. 1978).

Bear Hunter and Harvest Statistics in Virginia

Hunter Participation—The 2006-2007 hunter survey indicated approximately 20,000 resident bear hunters spent nearly 130,000 days pursuing black bears in Virginia (Jagnow et al. 2008). In Virginia, the percentage of resident bear hunters using dogs has remained relatively constant at 35% during the past 3 years (Jagnow and Steffen 2005, Jagnow et al. 2007, 2008). At least 4,300 hunters participated in the 2006-2007 bear dog training season (Jagnow et al. 2008).

Harvest—Hound-hunting is considered a selective hunting method that offers the hunter an opportunity to examine a bear before it is killed (Litvatis and Kane 1994). In Virginia, bear hunters using hounds reported being selective in their harvest, only harvesting 24% of the bears they treed (Higgins 1997). Check card data indicate that bears taken by hound-hunters in Virginia compose approximately 32% of the total statewide harvest of approximately 1,500 bears. Further, the proportion of female bears harvested by hunters using hounds averages approximately 32% whereas the proportion of female bears harvested by nonhound-hunters averages approximately 50%. Although hound-hunters in Virginia apparently select male bears,

it does not appear that they select older bears. The age structure of bears harvested by hound-hunters and Nonhound-hunters is similar (J. Sajecki, VDGIF, unpublished data).

HOUND HUNTING FOR DEER

Virginia deer hunting is characterized by 2 distinct zones of tradition and regulation: east and west of the Blue Ridge Mountains (VDGIF 2007*a*). Deer hunting east of the Blue Ridge Mountains, where use of hounds is allowed during a 7-week general firearms season, is rooted strongly in a private land hunt club tradition practiced by organized hunt clubs and small groups. Deer hunting with hounds, effective at low deer densities, was important as deer populations recovered in eastern Virginia during the mid-1900s. Hounds may only be used during the general firearms season in counties where it is allowed, not during archery and muzzleloader seasons. Conversely, west of the Blue Ridge Mountains, hunting deer with hounds is prohibited by state law, hunt clubs are less common, nearly 2 million acres of public lands are available for hunting, and the general firearms season is 12 days long in most counties. Eight southwestern Piedmont counties (or portions thereof) east of the Blue Ridge Mountains were incorporated into the "western" framework during the 1950s and 1960s (Figure 4, Peery and Coggin 1978). Historically, bag limits and either-sex deer hunting opportunities in western Virginia have been more conservative than those in eastern Virginia.

Deer Hunting Styles and Techniques

Description of a Typical Hunt—There are 2 general styles of hunting deer with hounds. The more traditional deer hunt with hounds involves placing hunters on stands around the area to be hunted and leading hounds into the cover. Once a deer has been "jumped," hounds are released and the chase begins with the hope of moving the deer toward or past waiting hunters (Hanenkrat 1974).

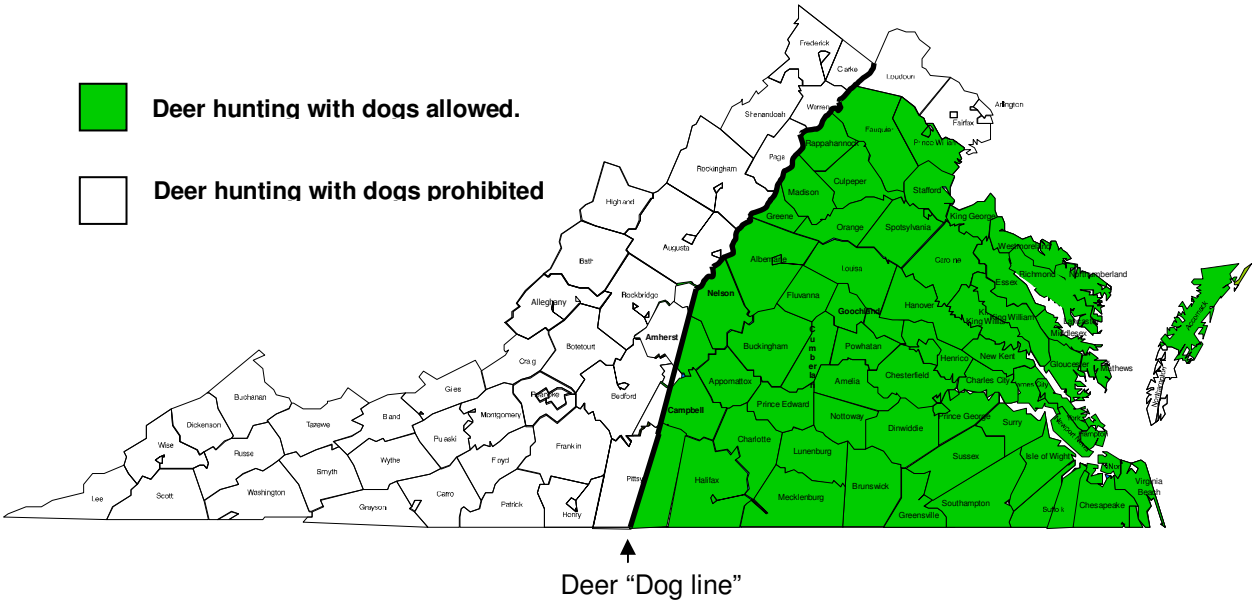

Figure 4. Areas open and closed to deer dog-hunting in Virginia, demarcated by the "dog line."

Once the hounds have pushed the deer out of the area being hunted, more hounds may be released into the area, or the club may move to another area to begin the process over again. Hounds are collected at the end of the day with the assistance of radio tracking collars.

Some hunters prefer using vehicles to follow hounds. Again, the hounds are led into cover to "jump" and chase the deer. As the chase progresses, hunters coordinate their efforts via radios describing where the chase is heading and possible points of interception. This style of hunt may be used throughout the entire season but is used frequently on weekdays when few hunters are available to hunt large tracts of land with numerous deer crossings (G. Askins, VDGIF, personal communication).
Hunters often use a combination of these styles. Some hunters are assigned to "stand" at likely crossing points, and hounds are released into the area. If the chase proceeds out of the area being hunted, several hunters may continue to follow the hounds, while the standers wait for the next pack of hounds to be turned out into the original area.

Harvest Methods—For most deer hound-hunters, a shotgun is the weapon of choice due to its versatility. Hunters cite the relative safety of shotguns during group hunts and their effectiveness for harvesting moving game. In Virginia, 29 counties (all of which are open to hound-hunting) only allow a shotgun for hunting deer during the general firearms season (VDGIF 2007*c*).

Types of Dogs Used—Hounds used to hunt deer in Virginia include American Foxhounds (especially Walkers), Plotts, Black and Tans, Redbone, Blueticks, Beagles, and Bassett Hounds (see Table 1 for descriptions). Several nonhound breeds are used primarily for jumping, moving, and driving deer: German Shorthaired and Wirehaired Pointers, Labrador Retrievers, Irish Setters, and English Setters (AKC 2008).

Deer Hound Training Method—Many deer hound owners train their puppies in foxhound training enclosures, where young hounds learn to find and follow a track. There is no deer hound-training season outside of the hunting season; however, some individuals train their hounds during continuous open chase seasons for foxes and raccoons.

Timing and Scale of Deer Hunts

Seasonal and Daily Timing of Hunts—The general deer season, during which the use of hounds is legal in many areas east of the Blue Ridge Mountains, begins in mid-November and extends through early January. The cities of Chesapeake, Suffolk (east of the Dismal Swamp line), and Virginia Beach have a general deer season which runs from October 1 through November 30. Statewide, legal hours for hunting deer during any season are ½ hour before sunrise until ½ hour after sunset (VDGIF 2007*c*).

Duration and Spatial Requirements and Hunts—Historically, hound-hunts for deer took place on farms with continuous areas in excess of 20,000 acres (Gooch 1990). Today, most deer clubs

have access (through ownership, leases, or informal agreements) to areas 1,000-5,000 acres in size, much of which is fragmented (Shumaker 2007). A sample of 149 properties east of the Blue Ridge Mountains enrolled in Virginia's Deer Management Assistance Program (DMAP) indicated that those properties where hounds were used averaged 3,400 acres while those only still-hunted averaged 1,300 acres. Organized deer hunting with dogs is practiced on various-sized acreages, sometimes as small as 20 acres (J. Hackett, deer hunter, personal communication).

The average deer chase lasted 33 minutes and extended 2.4 miles in Alabama, Florida, and South Carolina (Marchinton et al. 1970, Sweeney et al. 1971); 24 minutes and 1.0 mile in Texas (Campo et al. 1987); and 11 minutes and 0.8 miles during a contained chase in Virginia (Gavitt et al. 1975). Shorter chase times were likely due to hounds switching trails, a situation where hounds lose the initial deer being chased and begin chasing another (Sweeney et al. 1971, Gavitt 1973). Hounds switched trails during 90% of the chases in the Texas study (Campo et al. 1987). In contrast to hunting red deer with hounds in Europe, white-tailed deer in the United States are pursued over much shorter distances and time periods and are very infrequently "brought to bay" or captured by the hounds (Marchinton et al. 1970, Corbett et al. 1971, Sweeney et al. 1971, Gavitt et al. 1975, and Campo et al. 1987, Bateson and Bradshaw 1997, Burns et al. 2000).

Party and Pack Sizes—Deer hunting parties vary in size depending on the number of members in a hunt club and the amount of land being hunted. Although the number of dogs released varies depending on the number of hunters, land being hunted, weather, etc., hunters in eastern Virginia will typically release 3-4 packs of 4-8 hounds each in different parts of the property hunted (Howlett 2008).

Deer Hunter and Harvest Statistics in Virginia

Hunter Participation—During the 2006-2007 hunting season, nearly 57,000 deer hunters (30% of all firearms deer hunters in Virginia) used dogs at least once during the season (Jagnow et al. 2008). In the Tidewater, Southern Piedmont, and Northern Piedmont regions, 65%, 36%, and 32% of deer hunters used hounds during the 2005-2006 season, respectively (Figure 5; Jagnow et al. 2007). The average number of days hound-hunters participated in the general firearms deer season was 14.2 days, compared to 10.8 days for all deer hunters combined (Jagnow et al. 2007).

Harvest—During the 2005-2006 hunting season, deer hunters who indicated they used dogs harvested 45% of all deer taken during Virginia's general firearms season (n = 143,000 total; C. Jagnow and M. Knox, VDGIF, unpublished data). It is not known how many used dogs exclusively. In the Tidewater region, 86% of all deer harvested during the general season were taken by hunters who used hounds. In the Southern Piedmont of Virginia, 50% of does and 48% of bucks harvested during the general season were taken by hunters who used hounds. In the Northern Piedmont of Virginia, 28% of does and 46% of bucks harvested were taken by hunters who use hounds (C. Jagnow, VDGIF, unpublished data). These regional percentages should be viewed with caution due to small sample sizes for some regions (n = 57-123).

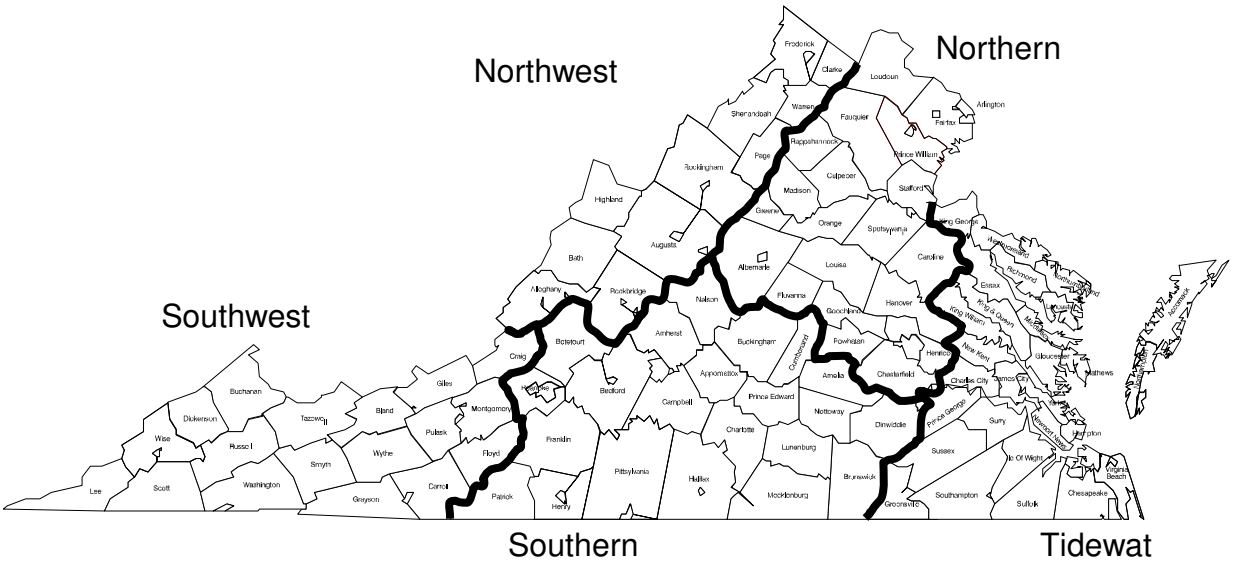

Figure 5. Regions of Virginia referenced in this report (VDGIF administrative regions).

HOUND-HUNTING FOR FOXES

The sport of pursuing foxes with hounds has been a tradition in the Commonwealth since the arrival of the first Europeans. The earliest record of foxhounds in America was from Robert Brooke when he arrived in Maryland with his family and hounds in 1650. Much of what is known about the early history of fox hunting in Virginia comes from the writings of George Washington and Thomas, Sixth Lord Fairfax. Lord Fairfax established the first organized hunt in 1747 for the benefit of a group of fox hunters in Northern Virginia. Washington was in part responsible for developing what is now considered the American foxhound by crossing French and English foxhounds (MFHA 2008).

The type and style of fox hunting in Virginia and North America have maintained much of the old English traditions, but are different in several ways. One of the most notable differences is the general emphasis of an American hunt on the chase versus the kill. A hunt usually ends when the fox goes to ground or tree and is "accounted for" (MFHA 2008).

Though the red fox is the primary quarry, foxhounds will also chase gray foxes, bobcats, and coyotes. The species chased by foxhounds varies regionally. Fox hunters in northern and central Virginia chase more red foxes, whereas hunters in southern and western Virginia report chasing more gray foxes and bobcats. Many fox hunters report chasing an increasing number of coyotes (E. Wykel, personal communication).

Regardless of the style of hunt, the primary purpose is usually the chase. The tradition of rearing and training foxhounds, and listening to and watching the chase, is deeply rooted in Virginia

culture. For mounted hunters, much emphasis is placed on the hunting customs and the cooperative nature of the pack of hounds while hunting. For the nonmounted-hunter, the focus is on the sounds of the chase and the individual ability of the hounds (Mackay-Smith 1988, White and Foster 1984).

Fox Hunting Styles and Techniques

Mounted Fox Hunting—There are 3 distinct styles of fox hunting/training in Virginia. The oldest and often most visible style is mounted fox hunting. Mounted hunts are patterned after the old English style and consist of a Hunt Master(s), huntsman, whippers-in, and the field of hunters (Mackay-Smith 1988). The Hunt Master is responsible for leading the hunt and overseeing the care of the hounds. The huntsman, who is sometimes also the Hunt Master, is responsible for the care and hunting of the hounds. The whippers-in are responsible for keeping the hounds in their defined territory. The field of hunters observes the hunt and follows the chase. Mounted hunts are formal and have a well-defined hierarchy where everyone answers to the Hunt Master. The dress code consists of black leather boots, traditional riding breeches, black hat, tie or stock tie, and riding coat. Members who have been awarded colors, particularly hunt staff (huntsmen, whippers-in, and masters), wear a scarlet coat called a "hunting pink" to distinguish them from the rest of the field (Ellet 1981, MFHA 2008).

Nonmounted Fox Hunting—Nonmounted fox hunters are less formal and do not use horses to follow their pack of hounds. Like mounted fox hunters, chase is the primary goal, but the techniques and purpose of the hunt are quite different. Rather than using one pack of hounds from a single club or owner, as mounted hunts generally do, nonmounted hunts often consist of hounds from different owners that are bred and trained to hunt individually rather than cooperatively as a pack (Mackay-Smith 1988). Some nonmounted hunters also participate in foxhound field trial events where individual dogs compete and are judged on their desire, trailing ability, speed, and endurance (White and Foster 1984).

Foxhound-Training Enclosures—There are currently 31 active foxhound-training enclosures, also called "fox pens," in Virginia (D. Waller, VDGIF, unpublished data). Fox pens are fenced enclosures where foxes are released to provide a higher density of foxes than would naturally occur. The primary purpose of these enclosures is the training of foxhounds. Most foxhound field trails are also held in enclosures. Pens are required to have 1 dog-proof escape area (natural or artificial) per 20 acres of enclosure to minimize fox mortality. These enclosures provide an opportunity to contain the chase, ensuring that hounds do not stray onto adjacent properties, into roads, or chase nontarget quarry (e.g., deer) and hunters can more easily retrieve their hounds.

In 2001, 88% of nonmounted clubs used fox pens compared to 13% of mounted hunts (R. Farrar, VDGIF, unpublished data). On average, a nonmounted club will use a fox pen for 32 hunts per year, which is typically more than half of their total hunting effort. Nonmounted hunters use fox pens for training, chasing during the hunting season, and field trial competitions (R. Farrar, VDGIF, unpublished data). The relatively few mounted fox hunters who use pens use them to train and exercise their dogs.

Equipment and Dogs Used—A 2001 survey indicated Virginia fox hunters spent over $10 million per year in support of their sport (R. Farrar, VDGIF, unpublished data). Much of the money spent by fox hunters is for the care of their hounds and horses (see Chapter 3). For mounted fox hunters, horse trailers and tack accompany every hunt. Fox hunters in Virginia use a variety of strains of the American Foxhound: Walker, Trigg, July, Goodman, Penn-Marydel, and American-English cross (see Table 1 for descriptions). The American Foxhound is the state dog of Virginia (VTC 2008).

Foxhound-Training Methods—Hound-training begins in the spring and early summer for young hounds. They are trained on foot to listen and respond to commands (J. Fendley, personal communication). Fox pens are used for training young hounds by both mounted and nonmounted hunters. Hunters may train and work with their hounds on live quarry year around because of the continuous open chase season.

Timing and Scale of Fox Hunts

Seasonal and Daily Timing of Hunts—Except for certain public lands in western Virginia, there is a continuous open season for chasing foxes with dogs. The statewide season for hunting foxes with firearms runs from the beginning of November through the end of February, but is closed in several Northern Piedmont counties. Foxes may be legally chased or hunted during any hour of the day (VDGIF 2007*c*). However, the daily timing of a hunt depends largely on hunting style. Mounted hunters chase foxes during the early morning and midday to watch the hounds and quarry and safely navigate terrain on horseback. Nonmounted hunters are more flexible. Surveyed in 2001, 66% of nonmounted hunters reported hunting during daylight hours and 64% hunted at night (R. Farrar, VDGIF, unpublished data).

For mounted hunts, the year begins in August with an informal "cubbing" season. The "cubbing" season is designed to train young dogs and exercise the older dogs, horses, hunters, and quarry for the hunting season. Most mounted hunts begin hunting 2-3 times a week and will continue to hunt with that frequency throughout the season (J. Fendley, personal communication). September and October begin the general hunting season which usually runs through the month of March.

Duration and Spatial Requirements of Hunts—During warm summer months, hunts average about 1.5 hours in length. As the weather cools and the hounds develop better conditioning, hunts become longer. An average hunt in the fall is about 3 hours but may be as long as 5 hours (J. Fendley, personal communication). The area covered during a chase depends on the species being pusued. Where the red fox is the primary quarry, clubs prefer to hunt a minimum of 2,000 continuous acres and may hunt as many as 5,000 acres (J. Fendley, personal communication). Where red foxes are less common, clubs chase gray foxes and bobcats more frequently; these 2 species cover less area so clubs chasing them may hunt on parcels of 600 acres (E. Wykel, personal communication).

Party and Pack Sizes—During the formal fox hunting season in the fall, hunts typically involve 14-30 hounds and include 5-15 hunters, but may have as many as 30-50 hunters (Mackay-Smith 1988).

Fox Hunter and Harvest Statistics

Hunter Participation—Virginia's 2006-2007 hunter survey indicated 2.1% of all Virginia hunters hunted foxes with dogs (Jagnow et. al. 2008). The Masters of Foxhounds Association of North America lists 28 different mounted hunts in Virginia, more than any other state in the United States (MFHA 2008). Not all mounted fox hunters are registered with MFHA. A few unregistered clubs, referred to as "farmer packs," also exist in Virginia, but there are likely less than 10 of these clubs in state (D. Foster, MFHA, personal communication).

Nonmounted fox hunters do not follow their hounds on horseback but monitor the chase from key listening points in the area. Based on the number of field trial permits issued by the VDGIF in 2007, there are at least 27 nonmounted fox hunting clubs in Virginia. The 106 applications for fox field trials in 2007 (D. Waller, VDGIF, unpublished data) attest to the popularity of this form of competition.

Harvest—The primary focus of fox hunting with hounds is on chasing rather than harvesting. Perhaps 95% of the foxes chased during hunting season end up in their den (Ellet 1981). The combined 2005-2006 harvest from all methods of take (hound-hunters, hunters with calls, incidental take by other hunters, and trappers) was 20,474 red foxes and 28,784 gray foxes (Jagnow et. al. 2007).

Gray Fox, Coyote, and Bobcat Hunting

The red fox is the preferred quarry of most fox hunters because of its tendency to run larger, straighter patterns across open fields (particularly during the breeding season), making the chase more visible. Gray foxes run smaller, less linear patterns that often cover half the acreage of red fox chases. Gray foxes also tend to use thicker cover and are capable of climbing trees, making the chase shorter.

As the numbers of coyotes in Virginia increases, they are an increasingly important quarry for fox hunters. The coyote generally runs a straight pattern similar to the red fox, but covers a much larger area. Because of the greater distances, many clubs pull their dogs off of a chase if it is determined to be a coyote (E. Wykel, personal communication). Although not permitted in Virginia, the demand for putting coyotes in fox pens has increased across the United States. Coyotes are preferred by some fox pen operators because they are more active during the day and offer more daylight chase opportunities. They also cover larger areas during a chase and are more visible to judges during organized field trial events (M. Fies, personal communication).

Very little is known regarding the hunting of bobcats with hounds in Virginia. Few hunters are believed to intentionally pursue bobcats with hounds. Hunting bobcats with hounds is likely more common in the western mountains of the state.

HOUND-HUNTING FOR RABBITS

Rabbit hunting with hounds is a popular activity in Virginia. Beagles of varying size and color are the predominant hound used for rabbit hunting. The cottontail is the most widespread and commonly hunted rabbit or hare species in Virginia.

Rabbit Hunting Styles and Techniques

Description of a Typical Hunt—Rabbit hunters enter likely rabbit habitat behind the hounds. A rabbit's primary method of protection is hiding, as a rabbit emits little scent and is difficult to locate until it moves. Thus, hunters and hounds traverse the area attempting to jump a rabbit. Once a rabbit is jumped, the hounds will begin the chase. Most hounds will then follow a rabbit by scent trailing. Seldom do the hounds see the rabbit, and often the hounds are a substantial distance behind the rabbit. As the chase progresses, hunters spread out to get in position for a shot.

Some rabbit hunters in the Northern Piedmont are organized in groups called hunts. These hunts are similar in structure and formality to mounted fox hunts. These groups collectively maintain packs of beagles and/or basset hounds (J. Fendley, Virginia Foxhound Club, personal communication). Members have duties and titles such as huntsman and whippers-in. The hunts assemble regularly from early fall to late winter. Rabbits are rarely harvested during these hunts. Numerous fenced enclosures exist in Virginia for the purpose of rabbit chasing and field trials. These running grounds range in size from several acres to more than 50 acres. Virginia regulations allow rabbits to be trapped on private lands for release or restocking purposes, including the stocking of rabbits into enclosures. Small enclosures are used for training puppies. Larger enclosures are often used for field trial events. A well established field trial network exists, governed by national organizations such as the American Kennel Club (AKC 2008).

Types of Dogs Used—The rabbit dog of choice is the beagle, although a few hunters use basset hounds (see Table 1 for descriptions).

Rabbit Hound-Training Methods—A variety of methods are used to train hounds to hunt rabbits (Fisher 1992). An established training method is to expose puppies to rabbits and allow the dogs' natural instincts to take over. During summer and early fall, many puppy trainers locate rabbits feeding in the open during the morning or evening hours and allow the puppies to chase the rabbits For puppies, trial and error, combined with positive reinforcement, will be sufficient to train them to chase rabbits.

Some enclosure owners train beagle puppies through the introductory stages of rabbit hunting for a fee. This process is called "starting" a hound. Enclosures offer an opportunity for puppies to access rabbits and to run for prolonged periods without direct supervision. A primary benefit of enclosures for training is that hounds are typically not exposed to deer or foxes, which they may choose to run if not properly trained. Typically, started dogs are offered further training by allowing the puppies to chase rabbits with older experienced dogs.

Timing and Scale of Rabbit Hunts

Seasonal and Daily Timing of Hunts—Virginia allows hunters to pursue rabbits year round during daylight hours on private property. Beagle owners often train throughout the year. Additionally, hunters will use enclosures, also called running grounds, throughout the year to train hounds or hold competitive field trials. Rabbit hunting season extends from the first Saturday in November until the end of February. Rabbit hunting is particularly popular following the close of the deer season (1st Saturday in January). Hunting hours are ½ hour before sunrise until ½ hour after sunset (VDGIF 2007*c*).

Duration and Spatial Requirements of Hunts—Pursued cottontail rabbits make a circuitous route within an approximate 5-acre home range, returning close to where the chase started (Whitaker and Hamilton 1998). Chased rabbits will sometimes enter an underground burrow, or "hole up," particularly when they are closely pursued or injured (Fisher 1992). Most chases begin and end within a few acres.

Party and Pack Sizes—Rabbit hunts typically include 3 to 6 hunters, although larger groups and solitary hunters are not uncommon. Similarly, the number of dogs used varies. Packs average 3-6 dogs, although it is not uncommon for pack size to exceed 12 hounds (Wilson 2008).

Rabbit Hunter and Harvest Statistics in Virginia

Hunter Participation—Approximately 13% (29,100) of all Virginia hunters pursue rabbits with hounds (Jagnow et. al. 2008). The highest percentage of rabbit hunters (33%) are in the Southern Piedmont region (Figure 5). The Tidewater and Northern Piedmont regions each host approximately 20% of Virginia's rabbit hunters, and the Southwest Mountain and Northwest Mountain regions have 16% and 10%, respectively (Jagnow et al. 2008). Rabbit hunters spend about 6 days per year pursuing their sport (Jagnow et al. 2008). Statewide, 86 permits were issued by VDGIF for rabbit hunting field trials during 2007 (D. Waller, personal communication).

Harvest—Rabbit hunters harvested an average of 7.5 rabbits during the 2006-2007 hunting season. The statewide harvest was estimated to be over 350,000 (Jagnow et. al. 2008).

HOUND-HUNTING FOR RACCOONS

Raccoon hunting is an American tradition that dates back to our pioneer ancestors (Minser and Pelton 1982) The sport is still popular today and Virginia hunters spend more time afield pursuing raccoons than any other furbearer. Although farm and forest lands throughout Virginia have provided ample raccoon hunting for many decades, the best hunting opportunities are currently found in areas with well-distributed wetlands and riparian habitats (McKeever 1959, Johnson 1970). As a result, raccoon populations are higher in eastern Virginia where these types of habitats are more abundant. In recent years, residential and commercial development has reduced the extent of lands available to Virginia hunters. Raccoon hunters rely to a greater

extent today on public hunting areas, and these lands are much more available to western hunters. National Forests alone offer 1.7 million acres to hunters in Virginia, although many of these uplands are only poor to fair habitats for raccoon.

Raccoon Hunting Styles and Techniques

Description of a Typical Hunt—There are two distinct styles of raccoon hunting: traditional raccoon hunting and competition hunting. Traditional raccoon hunters usually hunt locally in small groups consisting of family members and friends. Hounds are released in likely foraging areas to find, chase, and tree raccoons after a short pursuit. Treed raccoons are typically either killed with a rifle, or the hounds are gathered up and taken to another location for a new chase. .

Competition hunts, also known as field trials, involve larger groups of hunters, more hounds, and cover a larger area than traditional hunting. Field trials are organized by local hunting clubs and sanctioned by national organizations. Individual field trials typically occur over a 1-2 night period and use various locations throughout a several-county area for hunting activities. Hunters often travel long distances to participate in field trials (Rogers and Tucker 2001, Olfenbuttel 2007). Each field trial has a designated Master of Hounds responsible for conducting the hunt and reporting competition results. The Master of Hounds selects up to 4 hunters and their dogs and assigns a judge to each "cast." Judges escort the cast to a pre-selected hunting area and observe the performance of the dogs, awarding points to each for trail striking and treeing abilities. Killing a raccoon is prohibited during most sanctioned hunts (Hart 2004). At a pre-determined time, all judges report their results to the Master of Hounds and prizes are awarded.

Primary Purposes—Traditional hunts focus on dog training and acquisition of fur or meat. Competition hunts are focused on rating dog performance and usually do not result in the take of raccoons. Camaraderie and recreation are important aspects of both raccoon hunting types.

Equipment and Dogs Used—Raccoon hunting equipment includes rechargeable battery-powered lights and small-caliber rifles (Ausbund 1988). Hunters once carried equipment to force raccoons to the ground when treed, such as tree climbing or cutting equipment. However recent regulation changes prohibit these hunting practices in Virginia. Black and Tan, Bluetick, English, Redbone, and Treeing Walker coonhounds, as well as Plott Hounds, are commonly used in Virginia by raccoon hunters (see Table 1 for descriptions).

Raccoon Hound-Training Methods—Having a hound that exclusively chases raccoons has become essential as deer numbers increase. The most important training technique is hunting a young hound frequently with experienced, well-trained dogs. Shock collars are sometimes used to break young dogs from running game other than raccoons. However, other dog training methods using rewards for appropriate behavior are also very effective (D. Sexton, Southwest Virginia Coonhunters Federation, personal communication). It was once common practice to shake raccoons from trees and allow dogs to kill them for training purposes (Pauley 1974), but this practice is now illegal in Virginia. Some hunters have a professional train their young dogs at considerable expense (D. Sexton, personal communication).

Timing and Scale of Raccoon Hunts

Seasonal and Daily Timing of Hunts—During the last 20 years, the raccoon hunting season has been lengthened and the training season has been liberalized in Virginia. The raccoon hunting season currently extends from mid-October through mid-March statewide. In most areas east of Route 29, there is a year round chase season for raccoons on public and private lands. West of Route 29, hunters may only chase raccoons from August through May on private lands, and there is no chase season on most public lands. Raccoons may be pursued at any hour of the day (VDGIF 2007*c*).

Duration and Spatial Requirements of Hunts—Adult raccoons generally tree quickly when pursued by dogs, and chases usually last less than 30 minutes (D.Sexton, personal communication). A raccoon hunt can occur entirely on a 300-acre parcel, although having access to a larger area greatly reduces the probability of incursion onto adjacent properties (D. Sexton, personal communication).

Party/Pack Sizes—Party size averaged 2.5 hunters in a study of traditional raccoon hunting in western North Carolina (Porterfield 1981). Pleasure hunters typically use 3-4 dogs per hunt, and competition hunts usually involve 3-4 dogs per cast (L. Price, raccoon hunter, personal communication).

Raccoon Hunter and Harvest Statistics in Virginia

Hunter Participation—Virginia's 2006-2007 hunter survey indicated 4.2% (9,400) of all hunters pursued raccoons with hounds (Jagnow et. al. 2008). The average raccoon hunter spent 15.6 days a field. Raccoon hunting effort was generally highest in the Southwest Mountains and Southern Piedmont, moderate in the Northern Piedmont and Northwest Mountains, and relatively low in Tidewater (Figure 5, Jagnow et al. 2008). The number of raccoon field trial events in Virginia has increased over the last decade, with over 200 currently held per year (D. Waller, VDGIF, unpublished data).

Harvest—An estimated 95,000 raccoons were harvested by Virginia hunters during the 2006-2007 season (Jagnow et al. 2008). The average number of raccoons harvested per hunter was 8.9. Fur dealers reported transactions of 9,109 raccoon pelts at an average price of $6.61 in 2007, but only 800 came from hunters (Fies 2007). Both the number of pelts sold and the average price per pelt have declined substantially over a 30-year period. However, raccoon pelt prices have increased slightly during the past several years.

SUMMARY AND CONCLUSIONS

Table 2 provides a summary of the 5 different types of hound-hunting in Virginia described in this chapter, focusing on attributes important both to hound-hunters and citizens impacted by hound-hunting. Participation and harvest levels indicate the importance of hound-hunting. Other attributes compared (e.g., party and pack size, extent of chase, season length) may be

useful for considering potential impacts on landowners, nonconsumptive-recreationists, and other citizens of Virginia.

The tradition of hunting with hounds is still practiced widely throughout the United States. Though the species pursued and style of hunting varies, the bond between hunter and hound, the love of the outdoors, the admiration of the quarry, the thrill of the chase, and the cry of the hounds are common themes for all hound-hunters. These values produce a strong passion for the sport and desire to preserve the tradition for future generations.

Table 1. Common hound breeds used for hunting in Virginia. Information obtained from American Kennel Club (AKC), United Kennel Club (UKC), and other sources.*

Hound Breed	Quarry	Registration (AKC/UKC)	Treeing vs. Trailing	Average Height (to withers)	Average Weight (pounds)	Breed Development
American Black & Tan Coonhound	Bear Deer Raccoon	1900 UKC 1945 AKC	Treeing	25	70	Ancestry is American Foxhound and Bloodhound. Tracking breed developed in the southern United States. The American Black & Tan was the first coonhound breed to be admitted into registry with UKC. The Black and Tan is noted for staying on track no matter how faint the scent.
American Foxhound Strains: Walker Goodman Trigg July Penn-Marydel	Fox Fox Deer Raccoon	1905 UKC AKC	Trailing	24	70	Mid-1600s in America, English, French and Irish Foxhounds mixed to increase speed and stamina. There were 4 basic purposes for the breed: a hound for hunting fox, trail or drag hounds, pack hounds, and a field trial hound. American Foxhound is more lightly built, has a better voice, and will hunt more independently than the English hound. It was developed for hunting the open farmland of Virginia, where great speed is essential to stay with the fox.
Basset Hound	Deer Rabbits	1928 UKC 1885 AKC	Trailing	14	60	Originated in France as early as 1585. Believed to be brought to America as a gift to George Washington. In Europe, used chiefly for slow trailing rabbits, hare, and deer. Bred to trail, but not kill, game.
Beagle	Deer Rabbits	UKC AKC	Trailing	13	24	Doubts about origin. Early development of beagles took place primarily in Great Britain. The beagle was originated to hunt/trail small game by scent. The larger breeds of foxhounds were developed from the crossing of beagles and other scent hounds.
Bluetick Coonhound	Bear Deer Raccoon	1946 UKC	Treeing	25	70	Ancestry traced to English Foxhounds in the 1500s.

Table 1 (continued). Common hound breeds used for hunting game in Virginia. Information obtained from American Kennel Club (AKC), United Kennel Club (UKC), and other sources.*

Hound Breed	Quarry	Registration (AKC/UKC)	Treeing vs. Trailing	Average Height (to withers)	Average Weight (pounds)	Breed Development
English Coonhound	Raccoon	1905 UKC	Treeing	24	50	Ancestry traced to the English Foxhound. Imported foxhounds from Europe were the foundation of the "Virginia Hounds," from which the present day English Coonhound developed.
English Foxhound	Fox	AKC	Trailing	21-25	70	English Foxhounds are more heavily built than American. They have shorter ears and less cry. They are hot-trailing hounds with great speed, but slower than the American. They take more direction from their huntsman than do the American strains. They were developed in England where the primary objective was to run down and kill foxes.
Plott Hound	Bear Deer Raccoon	1946 UKC 2006 AKC	Trailing and Treeing	22	50	Unlike coonhounds and foxhounds descending from the English Foxhound, this breed descended from German hounds used to hunt wild boar. Brought to North Carolina in 1750, the breed was used to hunt bear. The dog's working claim to fame is cold trailing bear and raccoons.
Redbone Coonhound	Bear Deer Raccoon	1902 UKC	Treeing	25	60	Original ancestry is traced to English Coonhound. Developed further in the American South. A Bloodhound cross is said to have been part of ancestry.
Treeing Walker Coonhound	Bear Raccoon	1945 UKC	Treeing	24	60	Tracing its ancestry to English Foxhound, the breed was further developed in Kentucky.

* 2008 Dog Breed Info Center Homepage, http://www.dogbreedinfo.com/; 2008 National Beagle Club of America, http://clubs.akc.org/NBC/NBC_FAQs.html

Table 2. Comparison of hunter participation, harvest and chase data for species commonly hunted with hounds in Virginia.[1]

SPECIES	PORTION OF VA IMPACTED	NUMBER OF PARTICIPANTS[2]	% OF HARVEST FROM HOUNDS	SEASON[3]		# HOUNDS PER PARTY	# HUNTERS PER CHASE	EXTENT OF CHASE	
				HUNTING	TRAINING			AREA/DISTANCE	DURATION
Bear	West of Blue Ridge, Southeast Virginia	6,400	32%	12/1 – 1/3	8/9 – 9/27	8 (2 – 35)[4]	11 (1 – 75)[4]	4.0 miles	2 – 4 hrs
Deer	East of "dog line" (see Figure 4)	56,700	28 – 86%	11/15 – 1/3	closed[5]	12 – 32	20	0.8 – 2.4 miles	11 – 33 min.
Fox	Statewide	4,700		11/1 – 2/28	open[6]	14 – 30	5 – 15[7]	2,500 acres	3 – 5 hrs[8]
Raccoon	Statewide	9,400		10/15 – 3/10	open[6]	3-4	2.5	300 acres	30 min.
Rabbit	Statewide	29,100		11/1 – 2/28	open[6]	3 – 6	3 – 6	5 acres	

[1] Citations for all statistics are cited in chapter text.
[2] Number of licenses sold (222,346) multiplied by the percentage of hunters who reported using hounds to hunt each species during Virginia's 2006-2007 season.
[3] Dates shown are for the 2007-2008 hunting season.
[4] Parenthesis indicate range of data observations.
[5] There is no open season for training deer hounds.
[6] Season is generally open year round in much of Virginia, but some areas have site specific restrictions.
[7] Large field trials and mounted hunts may have 50 or more hunters.
[8] Represents total duration of hunts, which can include multiple chases.

CHAPTER 3—HOUND-HUNTING VALUES

INTRODUCTION

Diverse biological, sociological, and economic values are associated with hunting in general, and hound-hunting in particular. Documented benefits of hound-hunting include wildlife population control, individual hunter satisfactions, and community benefits (e.g., research assistance, wildlife damage abatement, capturing wild animals involved in human attacks, land conservation, and substantial economic contributions).

BIOLOGICAL VALUES OF HOUND-HUNTING

Hound-Hunting as a Population Management Tool

An important biological value of hound-hunting is its contribution to wildlife population control for bear, deer, and occasionally other species. Wildlife population management is necessary to address human-wildlife conflicts (e.g., property damage, agricultural losses, animal-vehicle collisions) and ecosystem damage (e.g., deer over-browsing; VDGIF 2002, 2007a). Regulated hunting has been the method of choice for managing wildlife populations since 1910 (Strickland et al. 1994). Specific population objectives are achieved by adjusting season length, season timing, and legal methods of take to manipulate the number, sex, and age of animals harvested. Substantial harvest of females is generally necessary to control wildlife populations. Harvested animals provide wildlife managers with data to assess population status.

Bear—During 2003-2007, hound-hunters in Virginia have accounted for an average of 35% of the annual bear harvest, according to check card data (VDGIF, unpublished data). During the same period, female bears have composed 36% of the annual harvest during the firearms season, on average.

Mobility of hound-hunters makes both male and female bears vulnerable to harvest. Hounds may cross multiple bear home ranges, giving hound-hunters access to more female bears and, consequently, more opportunity to impact bear populations than still hunters (Bunnel and Tait 1980, Allen 1985, Elowe 1990, Litvaitis and Kane 1994). However, houndsmen apparently select more for male bears than other types of hunters (McIlroy 1972, Elowe 1990, Litvaitis and Kane 1994). Hound-hunters select males by only putting their dogs on the trail of large bears (based on track size) or by only shooting large bears from trees (Allen 1985). Smaller bears taken by hound-hunters are sometimes mistaken for larger bears when treed (Rieffenberger at al. 1981).

The efficiency of hound-hunting for bears varies depending on the season timing, the skill of hunters and hounds, and other factors (Elowe 1990). Late fall bear seasons have lower harvests by houndsmen than earlier seasons, especially if bears are congregated around localized food sources (e.g., scarce acorns). An Idaho study found that hound-hunter success was twice that of

hunting with bait only, 3 times that of still-hunting, and 8 times that of incidental hunting (Beecham and Rohlman 1994).

In a study of hound-hunters in Virginia, the number of bears chased or treed did not differ between training seasons and firearm seasons (Higgins 1997). Bear hunter surveys and diaries indicated that houndsmen harvested a bear in at most 20% of their hunts. Houndsmen chased a bear in approximately 60% of all hunts, treed approximately half of bears chased, and harvested half of the bears treed. Since houndsmen were relatively successful in chasing a bear, it appears that hounds provide a distinct advantage. However, the low harvest rates demonstrate that hunters may be selective and that hounds are used as much for the chase as the harvest (Higgins 1997). The potential for greater harvest is available if necessary to assist in population management.

Deer—The Virginia Deer Management Plan (VDGIF 2007*a*) identifies regulated hunting, both with and without hounds, as the primary deer population management strategy for free-ranging deer across most of Virginia. During the 2005-2006 hunting season, deer hunters who used dogs accounted for 30% of hunters, but they harvested 45% of all deer taken, during Virginia's general firearms season (C. Jagnow, VDGIF, unpublished data). Definitive evidence is lacking that hound-hunting is necessary to control deer populations on a landscape scale in Virginia. However, numerous writers and researchers have suggested that dog-hunting may be the best method for managing deer herds in the Southeast in thick or swampy habitats (Ruhl 1956, Marchinton et al. 1970).

Studies from the Southeast suggest that deer hunting with dogs is more efficient than still hunting (FGFWFC 1991). For example, in a study on an Arkansas wilderness area, dog-hunters saw significantly more deer per hour than still hunters, although harvest rates and indices of deer density were similar in their respective zones (Nelson 1989). On Florida's Ocala National Forest, deer densities were lower and mean age of harvested deer was lower (indicative of a more heavily exploited population) on dog-hunted than still-hunted areas (Brooks and Abbott 1986, cited in FGFWFC 1991). In South Carolina, deer were 2.4 times more susceptible to being killed by dog-hunting than still hunting, although the magnitude of difference could have been affected by selectivity (Novak et al. 1991). Dog-hunting was the most efficient of 4 deer hunting methods monitored in Georgia based on kill per unit effort (Johnson 1991).

Fox— Fox hunting generally does not have long-term population impacts, even in areas where fox control is a desired objective of hunting (Burns et al. 2000). The high reproductive and dispersal capabilities of foxes allow populations to quickly recover from high levels of natural and human-caused mortality. Models indicate fox populations are minimally affected by mortality rates as high as 65% (MacDonald and Johnson 1996). Virginia fox hunters who use hounds generally make no attempt to kill the foxes they pursue; therefore, it is unlikely that fox populations are affected in areas they hunt. Although intensive trapping or hunting can reduce localized fox populations in the short-term, changing land-use patterns will likely continue to be the most important factor affecting long-term populations at the landscape scale (Andrews 1981).

Although data are lacking, the average number of foxes killed by hound-hunters per unit effort is expected to be very low. According to 2006-2007 hunter survey data, harvest for all types of fox hunters (hound and nonhound combined) averaged 0.2 red foxes per day and 1.2 per season (Jagnow et al. 2008). An average of 0.3 gray foxes were killed per day and 2.0 per season. Harvest rates for hound-hunters are likely much lower than average because few chases end in harvest.

Rabbit—With few exceptions, rabbit hunting is generally believed to have little or no impact on rabbit populations (Chapman et al. 1982). As a result, rabbit hunting with hounds is unlikely to have much utility as a population management tool. Since overharvest is possible on small areas that are intensively hunted (Chapman et al. 1982), there may be situations where targeted hunting could reduce rabbit numbers temporarily.

Annual hunter survey data in Virginia is not specific enough to estimate rabbit hunter success for hound-hunters alone. Hunter harvest for all types of rabbit hunters (hound and nonhound combined) averaged 1.3 per day and 7.5 per season (Jagnow et al. 2008). On Amelia Wildlife Management Area in central Virginia, hound-hunters jumped an average of 5.3 rabbits and killed 3.0 rabbits per party trip (M. Fies, VDGIF, unpublished data). If these data are representative of rabbit hunters overall, approximately 57% of rabbits jumped are harvested by hound-hunters.

Raccoon—Hunter harvest accounts for a substantial portion of overall raccoon mortality throughout the species range (Clark et al. 1989) and overharvest can cause population declines (Minser and Pelton 1982). As a result, hunting could theoretically be used as a tool for reducing raccoon abundance in target areas. The potential effectiveness of this tool is likely greater in western Virginia where habitats are less productive, riparian habitats are easily accessible, and hunter interest is high. Harvest effects are less likely to be observed in better quality habitats, leading some biologists to believe that the potential effects of hunter harvest may be overestimated in some areas (Sanderson 1987). Population impacts were not observed in Iowa until harvest exceeded 40% of the fall raccoon population (Clark 1990). Achieving this level of harvest would be more likely in western Virginia than in the Piedmont and Tidewater regions where raccoon numbers are higher and hunter access is more limited.

Trapping raccoons is generally viewed as a more effective means of population control than hunting because it requires fewer man-hours per raccoon taken (Sanderson 1987). However, intense hunting efforts can be quite effective in removing raccoons from target areas. Hunters removed more raccoons in a shorter period of time than trappers (1,677 versus 359) during population control efforts on 19,000-acre refuge in Alabama (Atkeson and Hulse 1953). Raccoon hunters with quality hounds can be very effective at locating raccoons. In West Virginia and North Carolina field trial events, participants treed and observed 0.8 and 1.0 raccoons per party hour, respectively (Rogers and Tucker 2001, Olfenbuttel 2007).

According to 2006-2007 Virginia hunter survey data, raccoon hunters killed an average of 0.3 raccoons per day and 8.9 per season (Jagnow et al. 2008). Although hunter harvest rates from this survey appear lower than field trial observation rates reported in other states, it should be

noted that averages are expressed by hunter rather than by party. Raccoon hunters do not shoot all raccoons treed, but the percentage passed up is unknown.

Habitat Management

Hunters commonly improve habitats on lands they own or lease, benefiting a variety of wildlife species in addition to the primary quarry. Intensive habitat management (e.g., food plots, timber management) has increased among both deer dog- and still-hunting clubs in recent decades. Organized rabbit hunter groups, primarily beagle clubs, often manage habitat on lands they own or lease. In Tennessee, beagle clubs improved rabbit habitat by planting food plots, creating brush piles, and strip-mowing (Welborn and Pelton 1973). Mounted fox hunters often promote or actively manage wildlife habitat on areas that they hunt and some hunts are involved in land conservation efforts (see next section). In England, vegetative cover, plant species diversity, and butterfly diversity was higher in areas managed by fox hunters than in unmanaged areas (Ewald et al. 2006). Habitat improvements included tree planting, tree felling, and maintenance of open areas around the hunt perimeter. Another study showed that farmers who participated in fox hunts were less likely to remove hedgerows than farmers who did not hunt foxes (MacDonald and Johnson 1996). Opportunities to manage habitat are limited for bear and raccoon hunters in Virginia because they often do not own or lease the lands they hunt; however, these hunters may support habitat management on public lands that benefit these species.

SOCIOLOGICAL VALUES OF HOUND-HUNTING

Sociological Values of Hunting in General

The term "nature-deficit disorder" has been used to describe the absence of exposure to nature in modern society and how that absence has contributed to obesity, attention disorders, and depression (Louv 2005). A number of studies show that outdoor experiences improve physical, mental, and emotional fitness of children and adults (Louv 2005). Primary reasons people hunt are to experience the outdoors, pursue a challenging quarry, and obtain meat (Kellert 1978). While a reasonable expectation of harvest is important, high value is placed on other components of hunting satisfaction (Langenau 1979). Hunting for meat is decreasing while hunting to be close to nature is increasing (Duda et al. 1998). Hunter affiliation or companionship has also been identified as a primary value of hunting (Kennedy 1970, Hautaluoma and Brown 1979). Rural family and community traditions are closely linked to hunting with hounds in some areas (Loker et al. 1994).

Sociological Values Exemplified by Hound-Hunting

Tradition and Heritage—Hound-hunters are passionate about and committed to their hounds, their sport (Gooch 1990), and horsemanship (Audibert 2008). Hounds provide a source of pride for the houndsmen, as some hound lines have been with families for multiple generations (Anderson 2004). Hounds are often named after family members (DuPuy 1976). Houndsmen teach the tradition to younger family members and friends in hopes of preserving the heritage for future hunters (Anderson 2004; R. Farrar, VDGIF, unpublished data). Many deer hound clubs in

Virginia have been in existence for over 50 years, with current members that trace their lineage back to the founding fathers of the club (Christner 1994, Quaiff 2003, Audibert 2008). Some mounted fox hunts in Virginia date back more than 100 years (e.g., Piedmont Fox Hounds, Upperville, 1840; Warrenton Hunt, Warrenton, 1887; Orange County Hunt, The Plains, 1900; J. Fendley, Virginia Foxhound Club, personal communication).

Companionship and Community—Input from focus group participants suggests that family customs and camaraderie are important satisfactions for Virginia hound-hunters (S. Lupis Kozlowski, Virginia Tech, unpublished data). Spending time with hunting companions was much more important for bear hound-hunters in Michigan than for still hunters (Grise 1994). Many deer hound-hunting clubs in Virginia have youth days to introduce new hunters to the practice and traditions of hunting with hounds (Quaiff 2003). Many mounted fox hunts hold annual camps and clinics to introduce and mentor young or beginning foxhunters (J. Fendley, personal communication). The whole family is frequently involved in hound-hunting activities. Hound-hunting clubs contribute to the social network of rural Virginia communities, hosting dinners, picnics, dances, and fund raisers for their membership and for charities. Spending time at the hunt club is a highlight of the year for many hunters (Hanenkrat 1974). Evening gatherings often celebrate events of the day (Howlett 2008).

Challenge of the Sport—In recent decades, Virginia bear hound-hunters have generally shifted their focus from harvesting to chasing bears (Higgins 1997, VDGIF 2002). In Michigan, harvesting a bear was much less important for hound-hunters than for other hunters. Seeing and hearing hounds work was a very important factor for Michigan hound-hunters, but the least important factor for other hunters (Grise 1994). Experiencing the chase is important for many types of hound-hunters, fostering appreciation for and understanding of the quarry. In Virginia, bear hunters were more knowledgeable about bears and bear management than other stakeholders; experience was a key correlate with increased knowledge (Lafon et al. 2003).

Competition between hounds during the hunt led to field trials events (Gildea 1979). Field trials are held for fox, squirrel, rabbit, and raccoon hounds in Virginia. Awards increase the value for breeding hounds. Field trials also provide opportunities to exercise hounds during the off-season and spend time outdoors with family and friends (Gooch 1999).

Hound-related and Horse-related Values—Hunters take pride in watching and listening to their hounds during the chase (DuBrock et al. 1978, Audibert 2008). Mounted fox hunters develop considerable horsemanship (Cooper 1993, MFHA 2008). Hounds and horses are often shown on competition circuits and field trials to exemplify the training and skills achieved. Youth working with horses and dogs develop responsibility, respect, and leadership skills, as demonstrated through the Virginia 4-H Program (V4H 2008).

Societal Benefits from an Experienced Hound-Hunting Community

Both hunters who do, and do not, use hounds contribute substantially to controlling wildlife populations at levels compatible with human needs. Hound-hunters also provide unique benefits to society that are developed through their experiences with hounds and live quarry. Houndsmen

assist with wildlife research, wildlife damage abatement, public safety incidents involving wildlife, invasive species control, and land conservation.

Research Assistance—Hound-hunters have assisted with a number of research projects throughout the United States (Gore 2003). Since the 1960s, experienced houndsmen have helped researchers tree mountain lions in the western United States (Deurbrouck 2007).

One of the earliest studies to use hounds for live bear research relied on hunters using Plott and Walker hounds to capture bears and bear families in Vermont (Willey 1980). In Massachusetts, trained bear hounds were used to capture black bears while investigating bear reproductive success and habitat use (Elowe 1984, Elowe and Dodge 1989). In Virginia, bear hunters assisted the Cooperative Alleghany Bear Study by treeing target bears, completing surveys, and reporting harvests to researchers (Higgins 1997; M. Vaughan, Virginia Tech, personal communication). Willey (1980) stressed the importance of teamwork and experience between hounds and hunters used for bear research.

Raccoon hound-hunters have helped researchers and managers in several ways. Observation rates reported by raccoon hunters participating in field trials are used as an index to raccoon populations by some state wildlife agencies. Raccoon field trial surveys have been conducted since 1987 in North Carolina (Olfenbuttel 2007) and since 1992 in West Virginia (Rogers and Tucker 2001). These surveys are a cost-effective and efficient method of obtaining data, and provide an opportunity to develop working relationships between houndsmen and wildlife agencies (Rogers and Tucker 2001, Olfenbuttel 2007). U. S. Department of Agriculture – Wildlife Services (USDA-WS) personnel in several states have used raccoon hunters to help collect samples and other data for rabies surveillance (J. Cromwell, USDA-WS, personal communication).

Wildlife Damage Abatement—Hounds are sometimes used to chase, capture, or aversively condition nuisance bears (Gore 2003). In West Virginia, nuisance bears were often chased with hounds until citations were issued for hound trespass. A law change in 2005 removes liability for hunters whose hounds stray onto other properties, so chasing is once again a viable nonlethal bear management option (C. Ryan, WV Department of Natural Resources, personal communication). In North Carolina, a year-round chase season enables hound-hunters to chase bears out of urban and agricultural areas; success is more limited with bears already habituated to humans than with bears that are simply passing through (C. Olfenbuttel, NC Wildlife Resources Commission, personal communication). In Massachusetts, where bear hunting with hounds was prohibited by ballot in 1996, a few hound permits are issued annually for nuisance bears (J. Cardoza, MA Division of Fisheries & Wildlife, personal communication).

Public Safety Animal Capture—Hounds are used to locate bears and mountain lions involved in human attacks in the western United States (Deurbrouck 2007). USDA-WS personnel in California maintain hounds specifically for the purpose of capturing public safety lions; tracking with hounds is often the most efficient means of locating the specific lion involved (D. Updike, CA Department of Fish and Game, personal communication). USDA personnel in California obtain their hounds from bobcat or bear hunters and train the hounds using special pursuit or

predation permits issued by the Department of Fish and Game (C. Coolahan, personal communication). In Utah, hounds are routinely used on public safety bears and lions, both by USDA-WS personnel and local houndsmen. A bear involved in a human fatality in 2007 was euthanized after having been found by hounds the same day the attack occurred (K. Bunnell, Utah Division of Wildlife Resources, personal communication; Caudill 2007). The 1996 ban on hound-hunting for bears and cougars in Washington has made it more difficult to find houndsmen to assist with tracking public safety animals because they have no legal means to train their hounds (Deurbrouck 2007).

Invasive Species Control—Hounds are frequently used in invasive species control efforts. Of chief concern in the United States is the feral hog (Clay 2007). Feral hogs are legally pursued by hounds in at least 21 states, either for recreational hunting or nuisance control. Hunting with hounds is a time-tested control method that can be effective for feral hogs (Mapston 1999) with well-trained hounds and handlers, especially when integrated with other techniques (T. Campbell, USDA National Wildlife Research Center, personal communication). Hounds are not used for hog control in some states (e.g., Florida) due to concerns about houndsmen trespassing onto adjacent properties and/or establishing new hog populations to perpetuate sport hunting (J. Dunlap, USDA-Wildlife Services, personal communication). In Virginia, bear hound-hunters have assisted with identifying feral hog locations and killing hogs on National Forests (W. Lipps, U. S. Forest Service, personal communication).

Hunting with hounds has proven to be an effective technique in eradicating feral pigs, goats, rabbits, and opossums on Pacific islands (Veitch and Clout 2002). Hounds - used in conjunction with trapping, still hunting, aerial hunting, and night spotlighting - are particularly useful at low prey densities when surviving target prey have become wary to other eradication methods. Thick vegetation and steep slopes made hound-hunting the most effective method on some islands (Veitch and Clout 2002).

Land Conservation—Hunters promote conservation of open spaces and wildlife habitat by working with land owners to place conservation easements on hunted properties. Hound-hunters may have a greater incentive to protect land from development than still hunters because of larger spatial requirements for their sport. Easements with specific terms to maintain open space for hunting are very rare, but lands protected for other conservation objectives are supported by and provide benefits for hunters (J. Moore, Piedmont Environmental Council, personal communication).

Mounted fox hunters have successfully recruited a number of landowners for conservation easements in Northern Virginia. The greatest concentration, and largest area, of lands under easement in the Piedmont Environmental Council's 9-county work area are in northern Fauquier County and southern Loudoun County. These easements were largely facilitated by members belonging to the Orange County Hunt, which moved from Orange County, New York for less developed hunting lands in Virginia. Although stated objectives of these easements addressed watershed protection and other conservation priorities, a primary purpose was to ensure a landscape conducive to mounted fox hunting in the future (H. Richards, Piedmont Environmental Council, personal communication). In 1998, the Orange County Hunt was awarded the first

Land Conservation Award by Masters of Foxhounds Association, an organization which has its own Hunting Habitat and Land Conservation Committee (MFHA 2008).

ECONOMIC VALUES OF HOUND-HUNTING

Economic Values of Hunting in General

In 2006, there were 12.5 million hunters in the United States who hunted 220 million days and spent $22.9 billion. Hunting expenditures declined 14% from 1996-2006 but remained relatively stable from 2001-2006 (USFWS 2006). Virginia hunters spent $481 million and 6.8 million days afield (USFWS 2006). As a population management tool, hunting is valuable for reducing economic costs associated with wildlife damage. Without deer hunting, an additional 50,000 injuries per year and $3.8 billion in additional auto repair costs might occur as a result of increased deer-vehicle collisions (AFWA 2006).

Economic Values Unique to Hound-Hunting

Quantifying economic impact of hound-hunting is complicated due to a lack of specific data on financial investments and expenses incurred by hunters. Hound-hunters purchase special equipment, in addition to purchasing and maintaining hunting hounds. The purchase, sale, training, and maintenance of hounds require large investments of time and money (Elowe 1990). In Vermont, bear dogs were valued as high as $3,000 to $5,000 each 30 years ago (Willey 1980). Economic data for foxhound-training preserve operations are not collected in Virginia, but it is estimated that a large field trial event can bring in $25,000 (M. Fies, VDGIF, personal communication). An informal survey of numerous deer-dog hunt clubs in the southern Piedmont of Virginia in 2008 estimated an average annual expenditure of $3,000 per member for fuel, dog care, equipment, and other hunting-related expenses (R. Cook, Virginia Hunting Dog Alliance, personal communication). Virginia hunting license revenue attributable to hound-hunters is unknown, as basic hunting licenses cover multiple game species and seasons. Although no special hound permits are required in Virginia, some states sell permits for black bear hunting (MDIFW 2003), black bear pursuit (UDWR 2000), and deer dog-hunting (Bowers et al. 2007).

A VDGIF fox hunter survey conducted in 2001 revealed the average investment in foxhounds was $9,300 for mounted hunters and $4,500 for nonmounted hunters (R. Farrar, VDGIF, unpublished data). Mounted fox hunters had average investments of $8,100 on kennels, $1,700 on dog boxes, and $1,600 on kennel equipment; nonmounted fox hunters spent an average of $3,500, $900, and $900 for these items, respectively. On average, mounted and nonmounted fox hunters, respectively, annually spent $5,600 and $1,500 for boarding hounds, $3,100 and $2,200 for feeding hounds, $4,400 and $600 in veterinary fees, $1,200 and $500 for vaccinations, and $400 and $1,100 for training fees.

Horse-related expenditures and investments by mounted fox hunters are significant. In 2001, average horse-related investments per mounted fox hunter totaled $29,000 in horses, $5,400 in horse tack, and $10,900 for horse trailers or vans (R. Farrar, VDGIF, unpublished data). Barns and stables cost an average of $78,000. Annual horse-related costs were $8,300 for boarding,

$3,900 for food, $2,000 in veterinary costs, and $800 for vaccinations. Mounted fox hunting and cross-over interests of its participants in thoroughbred breeding and racing, horse showing, trail riding, cross country events, etc. contribute to a multi-billion-dollar equine industry in Virginia (NASS 2008; J. Fendley, personal communication).

Pelts are a relatively minor source of income for most houndsmen, but do provide some income for raccoon hunters. For the 2006-2007 season, there were 9,109 raccoon pelts sold in Virginia with an average pelt price of $6.61 (M. Fies, VDGIF, unpublished report). Of these pelts, 800 were harvested by hunters, generating approximately $5,300 in revenue.

SUMMARY AND CONCLUSIONS

Hound-hunting (in combination with other types of hunting) can be an effective tool to manage bear, deer, and, in some cases, raccoon populations. Hound-hunting also provides social values to hunters, hunting families, hunt clubs, and communities. Experienced hound-hunters may benefit the general public through their contributions to wildlife research, wildlife damage abatement, public safety animal capture, invasive species control, and land conservation. Hound-hunter expenditures support wildlife management funding as well as equipment and services vendors in local communities.

CHAPTER 4—HOUND-HUNTING CONCERNS

INTRODUCTION

The biological, sociological, and economic benefits derived from the use of hounds for hunting are often accompanied by concerns from other hunters, landowners, and the public, including biological concerns, sociological issues, and economic costs. An objective discussion of hound-hunting must address both values and concerns. Stakeholders and wildlife management agencies must understand the conflicts and unfavorable impressions that challenge hound-hunting in order to respond to present concerns or those on the horizon. Hound-hunting concerns are documented from a range of geographic locations and indicate that Virginia is not alone in addressing these issues. Trends observed elsewhere can affect hunting in Virginia. .

BIOLOGICAL CONCERNS ASSOCIATED WITH HOUND-HUNTING

Biological considerations have not been major aspects of the public controversies over hound-hunting (Peyton 1998); most of the concerns have been sociologically based (Elowe 1990). The major biological consideration for any hunting method, including the use of hounds, is the influence it has on achieving specific wildlife population management objectives. Biological concerns related to more subtle changes in physiology, behavior, and social structure have also been implicated with hunting and the use of hounds. Although definitive studies of biological impacts are often lacking, specific examples and general knowledge of population ecology and physiology have suggested the possibility for some biological concerns..

Physiological stress is discussed below for deer and bear, but a general synopsis for all species chased with hounds is warranted. Some level of short-term (acute) stress is likely during any chase. Acute stress is a normal physiological response to predation or danger and does not result in long-term problems for the animal (Fowler and Miller 2008; J. Sleeman, Wildlife Veterinarian, VDGIF, personal communication). The more biologically meaningful issue is whether chronic stress occurs. Chronic stress will occur when animals cannot escape from the stressor or undergo repeated stressful events over a prolonged period of time. Chronic stress is more likely to result in health (e.g., suppressed immunity) and reproductive issues (Fowler and Miller 2008; J. Sleeman, personal communication).

Bear

Overharvest Concerns—Hunting mortality affects population growth and is the major limiting factor in most black bear populations (Cowan 1972, Bunnell and Tait 1981). Depending on harvest levels, bear populations increase, decrease, or remain the same in the presence of hunting (McIlroy 1972, McCaffrey et al. 1976, Lindzey et al. 1983). Unless population reduction is the objective, bear hunting seasons should be conservative because depleted populations are slow to recover due to low reproductive potential (Miller 1990). The impact of regulated black bear harvest by hunters using hounds is ultimately controlled by a combination of season length, season timing, and bag limits to achieve specific population objectives. As such, concerns are

minimal for overharvest of bears during regulated hunting seasons. Growing and expanding bear populations across Virginia indicate that overharvests are unlikely under current harvest restrictions in most areas (VDGIF 2002).

Extensive road access in heavily hunted areas increases the efficiency for hunting bears (Allen 1985). Bears were more vulnerable to hound-hunters in areas of North Carolina and Tennessee with good road access (Landers et al. 1979, Carr 1983, Brody and Pelton 1989). Inaccessible areas of bear home ranges were considered a critical component of habitat in areas where dog-hunting was prevalent (Landers et. al. 1979).

Other factors may influence the effectiveness of hunting bears with hounds: hunter selectivity, hunter perception of population size, sex of the animal (females with cubs may be more vulnerable), reproductive status, food availability, and weather conditions (Hugie 1982, Allen 1985, Litvaitis and Kane 1994). Although many Virginia hound-hunters try to avoid harvesting female bears, surveyed hunters could not determine the sex of bears they treed 40% of the time (Higgins 1997).

Mortality—Although hounds may fight with bears during a chase (Massopust and Anderson 1984, Allen 1985, Elowe 1990) and occasionally injure bears (VDGIF, unpublished data), there has been little documentation of direct bear mortality attributed to bear hounds. Cubs can climb well enough to prevent injury from the hounds in most cases (Elowe 1990).

Indirect causes of mortality due to hound-hunting have also been rare. Suggested indirect causes of chase-related bear mortality have included increased collisions with vehicles, heat exhaustion, physiological stress (ruptured spleen), female abandonment of cubs, and cub orphaning due to harvest of the mother (Massopust and Anderson 1984; Allen 1985; Higgins 1997; VDGIF, unpublished data).

A number of factors impact the frequency of bear collisions on highways. Although complete road-kill data for bears are not available in Virginia, 55% of all reported bear road kills since 1992 have occurred during the hound-training season; 78% of the road kills have occurred during any open take or chase bear season (VDGIF, unpublished data). Despite some apparent correlation between vehicle collisions and bear seasons, there may be no cause and effect relationship. Increased road kills may be related to changes in activity patterns as bears spend additional time feeding in preparation for winter denning.

Bears temporarily leave home ranges when chased by hounds (Allen 1984, Masopust and Anderson 1984). As a result, bears may become more vulnerable to other forms of mortality (e.g., predation by larger bears) in unfamiliar territory (Massopust and Anderson 1984, Allen 1985, Higgins 1997, Koehler and Pierce 2003). Orphaned cubs or separated family groups may also die from starvation or increased risk of predation (Poelker and Hartwell 1973, Koehler and Pierce 2003).

Impacts on Reproduction—Compared to still hunters, hound-hunters may encounter and harvest more female bears with the potential to reduce the productivity of bear populations (Litvaitis and

Kane 1994). However, evidence suggests that many hound-hunters in Virginia try to avoid harvesting females (VDGIF, unpublished data). Additional concerns related to hunting or other forms of disturbance include abandonment of dens and cubs and interference with uterine implantation of fertilized eggs (Jonkel 1967, Poelker and Hartwell 1973, Beecham et al 1980, Eiler 1981, O'Pezio et al. 1983).

Impacts on Movements—Most bears chased from their home ranges return within a short period of time (Allen 1984, Massopust and Anderson 1984, Elowe 1990). In Maine, 47% of experimentally chased bears left their home ranges but returned shortly afterwards (Allen 1985). Bears chased for a second time remained away from their home ranges longer. Chased bears generally returned to the most secure and inaccessible portions of their home range (Allen 1985). Changes in habitat use may marginalize foraging opportunities or reproductive success of chased bears (Allen 1985).

Behavioral and Social Changes—Separation of family groups may be more prevalent when hound-training activity is constant (Allen 1985). When cubs were small, family movements were more limited and less able to sustain a long chase (Allen 1985). Females often put their cubs up a tree at the beginning of a chase and then led the hounds away. Once the chase ended, mother bears usually returned to the cubs (Elowe 1990). In Maine, experimentally chased females with cubs always treed after short chases but never with their cubs (Allen 1984). Family groups pursued after August may have a better chance of staying together because cubs can better keep up and tree nearer the mother (Elowe 1990).

Den locations can be impacted by human disturbance. Bears moved away from dens during the first week of deer season in Washington; most did not return to the original dens. In nonhunted areas, study bears did not abandon dens (Koehler and Pierce 2003). Ryan (1997) concluded that some bears likely denned on private or nonhunted land to avoid hound-hunters in Virginia.

Physiological Stress—Literature on physical exertion by bears suggests that activity associated with hound-hunting could lead to myopathy, heat exhaustion, or ruptured internal organs (Allen 1985, Massopust and Anderson 1984, Klenzendorf 2002). Myopathy is a complex muscular disease of wild animals, generally resulting from extreme exertion or restraint, particularly when predisposed by high temperatures or nutritional stress (Davidson 2006). Suggesting a possible delayed effect on bears after being chased by hounds, the highest deep-body temperatures in polar bears occurred one hour after bears were worked on a treadmill (Allen 1985). However, a study in Wisconsin found no physical effects 7 months after bear were chased by hounds (Massopust and Anderson 1984).

Deer

Overharvest Concerns—Deer are less vulnerable to overharvest today than when populations were rebuilding 30-40 years ago; in fact, management objectives call for reducing deer populations in many parts of Virginia (VDGIF 2007a). Modern hunting season regulations account for hound-harvest efficacy to achieve population objectives and sustainable harvests.

However, as an efficient harvest method, hunting deer with dogs has the potential to overharvest deer in localized areas.

Deer hunting with dogs has been proposed as a primary reason deer were extirpated from the mountains of North Georgia during the late 19th century (Jenkins 1952). Intensive dog-hunting, combined with vehicles, 2-way radios, and no restriction on doe kill, can potentially decimate a local deer population (Marchinton et al. 1970, Johnson 1991).

A negative relationship has been observed in eastern Texas between deer density and the percent of deer range hunted with dogs (Spencer 1986). The generally lower deer densities were attributed to more efficient harvest and/or higher crippling loss in areas hunted with dogs (Campo et al. 1987). In Florida, dog-hunted areas had lower deer densities than still-hunted areas, but some of the impact may have been related to greater illegal harvest of does by dog-hunters (FGFWFC 1991).

Mortality—Direct deer mortality due to hunting hounds is relatively rare in most habitats. In Alabama, Florida, Georgia, and South Carolina, where movements of 57 radio-collared deer on 8 different dog-hunting areas were monitored, no deer were caught by dogs and there was no evidence of detrimental changes in behavior or other ill effects (Marchinton et al. 1970). On study areas in Alabama, Florida, and South Carolina, deer escaped the dogs in all 65 experimental chases involving 6 deer chased by hunting hounds (Sweeney et al. 1971). Deer utilized swamps or other bodies of water for escape when available. In east Texas, no deer were caught during 53 experimental deer dog chases (Campo et al. 1987). Only 1 deformed piebald fawn was caught by dogs during studies at the Radford Army Ammunition Plant in western Virginia; all healthy deer escaped (Gavitt et al. 1975).

Dogs might have greater impacts in mountainous terrain (Perry and Giles 1970). Studies in the mountains of North Carolina showed that dogs were capable of killing some experimentally chased deer in rugged mountain terrain (Corbett et al. 1971); however, the animals killed by dogs were predisposed by severe malnutrition or disease. Compared to the Coastal Plain, escape routes in mountains were more predictable, and deer apparently suffered some injury being chased in the rugged terrain.

In contrast to hunting hounds, free-ranging dogs have long been portrayed to have negative impacts on deer populations and have been identified as deer predators under certain circumstances (e.g., in deep snow, in newly stocked areas). In Virginia, one of the early prerequisites for deer stocking in a county was laws regulating the control of dogs (Reeves 1960). Documented deer losses at 2 release sites suggested that dog predation was an important deer management factor in Southwest Virginia in the 1970s (Guthrie and Spiers 1978). Although dogs have been portrayed as the most serious predator of deer (Horsley 1956), free-running dogs accounted for only 6% of the annual mortality in a survey of wildlife management areas in 10 southeastern states in the 1960s (Barick 1969).

Low mortality rates from dogs (2-3% annually) have been observed in Virginia (Peery 1978, Perry and Giles 1970) and other states (Gavin et al. 1984, Sarbello and Jackson 1985, Nelson and

Woolf 1987, Fuller 1990). Domestic dogs have been shown to be an ineffective predator on deer with little effects on populations of well-established, healthy deer herds unless snow or other factors contribute (Marchinton and Hirth 1984, Torgerson and Porath 1984).

Other forms of deer mortality may be indirectly related to hunting with hounds. These include myopathy, crippling losses, and vehicle collisions. Fatal myopathy caused by muscle damage after a long chase or an intense struggle related to capture has been demonstrated in white-tailed deer (Berringer et al. 1996). Myopathy has not been identified as a mortality factor in white-tailed deer hunted with hounds in the southeastern United States (Marchinton et al. 1970, Sweeney et. al. 1971, Corbett et al. 1971, Gavitt et al. 1975, Campo et al. 1987).

Crippling losses from dog-hunting may be greater than for other forms of deer hunting. In east Texas, 38% of deer were shot but not retrieved on a dog-hunted area compared to 12% on a still-hunted area (Campo et al. 1987).

Deer chased by hounds are occasionally struck by vehicles, but data collected by the Virginia Department of Transportation are inadequate to analyze potential hound-hunting impacts on deer-vehicle collisions. Even with adequate vehicle-collision data, deer movements associated with the fall breeding period and nocturnal activity patterns (D'Angelo et al. 2004) would likely mask any discernable impacts of hound-hunting on deer-vehicle collisions.

Impacts on Reproduction—One of the primary concerns regarding dog deer hunting is the potential impact on reproduction and productivity. Surveyed game wardens and biologists in Virginia during the 1960s believed that chasing deer during pregnancy was detrimental and would seriously affect productivity (Perry and Giles 1970). However, research in Virginia found no evidence that dog chases affected reproduction; does repeatedly chased by dogs were as productive as does that were not chased (Gavitt et. al. 1975). Chases were conducted during pregnancy to increase chances of detecting impacts.

Impacts on Movements—In a series of deer studies conducted in Alabama, Florida, and South Carolina in the 1960s, 78% (51 of 65) of deer chased by dogs left their home ranges. In each case, the deer returned within 1 day. Deer not actively pursued by hounds would often move away from active chases, but on occasion, would remain bedded when dogs chased another deer within 30 yards (Sweeney et al. (1971). No extreme deer movements were observed after experimental deer-dog chases in east Texas (Campo et al. 1987). Deer remained within their home ranges during managed deer hunts with dogs in Georgia (Marshall and Whittington 1968). In a similar study in the mountains of North Carolina, approximately 70% of chases resulted in deer leaving their home ranges, and half took more than 1 day to return (Corbett et al. 1971).

Raccoon hunting with dogs did not affect deer movements in the Coastal Plain of South Carolina; only 1 of 26 radioed deer was chased by raccoon hounds (Westerhold et al. 1996). Day time movements of deer were not affected by raccoon hunting the night before.

Behavioral and Social changes—Deer were more active and used a greater proportion of their seasonal home range during a managed dog-hunt on the Savannah River Site in South Carolina;

however, deer tended to remain stationary for longer periods as the hunt progressed (D'Angelo et al. 2003). In a Georgia study of 5 radio-monitored deer subjected to heavy dog-hunting pressure, daytime movement patterns were different prior to and following the hunt (Marshall and Whittington 1968).

Physiological Stress—A few studies suggest that stress from hound-hunting is likely only in young deer or following very long chases that are not typical of those in the southeastern United States (see Chapter 2). In a 1971 study in South Carolina, white-tailed fawns harvested after being run by dogs had higher urinary indicators of stress than fawns not run by dogs (Urbston 1984). Deer (primarily adult) experimentally chased in an enclosure in Virginia appeared to accept the dog chases in a relaxed manner, stopping frequently to observe the dogs, and never appeared to be under much stress (Gavitt et al. 1975). Especially in areas with high deer densities, hounds frequently switch trails among deer (Gavitt et al. 1975, Campo et al. 1987), which may minimize the stress on any one animal.

Fox

Overharvest Concerns—Hunting is a significant source of mortality for foxes in some areas (Storm et al. 1976), but evidence of overharvest by fox hunters is lacking. High reproductive rates and dispersal potential allow fox populations to withstand high levels of hunting mortality without long-term population effects (Voight 1987). Even in England, where hunters try to kill all foxes while hunting, harvest levels appear insufficient to have long-term population impacts (Macdonald and Johnson 1996).

In Virginia, fox hound-hunters are even less likely to affect populations, since most hound-hunters do not intentionally kill foxes they pursue. Although data are lacking to accurately quantify statewide fox harvest by Virginia hound-hunters, hunter survey information suggests that the total harvest is very low. Using 1999-2000 hunter survey data, only 5.5% of the red fox harvest and 4.0% of the gray fox harvest can be attributed to hunters who specifically targeted foxes and possibly used dogs (Wright 2001). Most of the Virginia's total fox harvest (85.0% for red fox and 51.9% for gray fox) was taken by hunters pursuing other game (Wright 2001).

Mortality—Chasing without killing is the primary objective of most fox hunters who use hounds in Virginia. Even when the goal is to kill the fox, a majority of foxes (up to 85%) successfully evade the hounds (Thomas and Allen 2000). Hound ability to capture foxes is affected by habitat quality, scent conditions, skill of the hounds, and the experience and vigor of the fox. Young foxes are more likely to be caught by hounds because they are more prone to make a tactical mistake during the chase (Thomas and Allen 2000).

Fox mortality from hounds in fenced, foxhound-training enclosures is affected by pen size, habitat quality, availability of escape structures, foxhound density, and fox acclimation time. In Virginia, foxhound-training enclosures are required by VDGIF permit conditions to be at least 100 acres in size and have at least 1 dog-proof escape area per 20 acres. That frequent stocking is necessary to maintain quality chase opportunities in heavily-used enclosures suggests that fox mortality can be high.

Other Concerns—No evidence was found that hound-hunting caused physiological stress that negatively impacted fox reproduction. Research is also lacking to suggest that hound-hunting had long-term effects on movement patterns, habitat use, or social behavior.

Unique Concerns with Fox Pens—Some user groups, particularly mounted fox hunters, have expressed concerns that trapping foxes for foxhound-training preserves has reduced fox numbers in the areas they hunt. Although short-term population reductions may be possible in local areas that are heavily trapped to supply fox pens, the overall number of foxes transported to training facilities is insufficient to impact statewide populations. During the 2006-2007 permit year, trappers supplied 1,271 wild-caught foxes to foxhound-training facilities (M. Fies, VDGIF, unpublished data). This total represented only 2.3% of the total combined fox harvest by hunters (Jagnow et al. 2008) and fur trappers (Fies 2007) during 2006-07.

Importation of dangerous disease organisms is a serious concern associated with the translocation of wild foxes for foxhound-training enclosures. In 1992, the South Carolina Wildlife and Marine Resources Department confiscated 56 red foxes, 18 gray foxes, and 13 coyotes that had been illegally imported into the state for stocking in fox pens. Of the 18 gray foxes, 15 were incubating canine distemper (Davidson et al. 1992). Serologic tests of all animals revealed evidence of past exposure to a variety of viral diseases including canine parvovirus, canine coronavirus, canine herpesvirus, and canine parainfluenza virus. In addition there were 23 species of parasites found, including several with serious pathogenic capabilities. The human pathogen *Echinococcus multilocularis*, not endemic to the southeastern United States, was found in red foxes. Based on these findings, Davidson et al. (1992) concluded that wild canid translocation for stocking fox pens presented significant biological risks.

Illegal importation of foxes and coyotes has also been a known problem in Virginia. During a recent covert investigation, 12 Virginia fox pen operators who were offered illegal coyotes from undercover agents elected to purchase the animals, with the full understanding that the animals came from another state. Red foxes were also imported illegally (M. Fies, VDGIF, unpublished data). Apparently, some fox pen operators imported animals from other states, even when a local supply was available.

Raccoon

Overharvest Concerns—Hunting has been documented to reduce raccoon abundance in Alabama, Florida, Kansas, and South Carolina (Minser and Pelton 1982). Public hunting reduced a dense raccoon population on the Wheeler National Wildlife Refuge in Alabama following an unsuccessful trapping effort (Atkeson and Hulse 1953). In Florida, track counts and dog censuses indicated a decline in raccoon populations after heavy hunter harvest (Caldwell 1963). In Kansas, raccoon hunters reported driving larger distances as the hunting season progressed, suggesting that hunter harvest may have reduced populations in their local area (Stains 1956). Hunter success before and after a 10-year closure on the Savannah River Plant in South Carolina suggested that the raccoon population more than doubled in the absence of hunting (Cunningham 1962).

Most reports of potential raccoon overharvest are in mountainous regions with relatively poor raccoon habitat. In a recent study in southwestern Virginia, the demand for raccoon hunting was reported to exceed the region's ability to maintain high populations (Schrading 1991). Hunting impacts in aquatic and bottomland hardwood habitats with a higher raccoon carrying capacity appear to be minimal (Chamberlain et al. 1999). Although raccoon survival may be affected by habitat quality and degree of exploitation, most biologists agree that legal hunter harvest accounts for a substantial portion of total raccoon mortality throughout the species range (Clark et al. 1989).

In Virginia, concerns regarding overharvest of raccoons are most relevant in areas west of the Blue Ridge Mountains. Much of this region is characterized by poor habitat, easy hunter access to riparian areas, low raccoon numbers, and significant hunting pressure. In areas east of the Blue Ridge Mountains, particularly the Tidewater region, the potential for overharvest is much lower. Aquatic and bottomland hardwood habitats preferred by raccoons are more abundant in eastern Virginia and hunter access to these habitats is often limited.

Mortality—During a typical raccoon hunt, direct capture of raccoons by hounds seems to be an infrequent occurrence. Most studies suggest that adult raccoons are adept at escaping hounds. In Mississippi, radio-collared raccoons treed quickly when pursued by hounds during the summer months (Hodges et al. 2000). Even though dog captures of adult raccoons are believed to be uncommon, a few reports have been documented. In Tennessee, a nursing radio-collared female and an untagged male were caught and killed by dogs during an experimental dog-training season (Cantrell 1989).

Young raccoons are considerably more vulnerable to dog capture, particularly in open areas (e.g., old fields) where trees are not readily available for escape. In Tennessee, hunters on a wildlife management area reported that young raccoons were killed by their dogs in cornfields during the training season (Minser and Pelton 1982). Impacts of this mortality are likely to be more significant in areas with low raccoon populations and liberal dog-training opportunities. Conversely, areas with high quality habitat and an abundance of raccoons are unlikely to be affected by hound-related mortality. On a wildlife management area with high quality habitat in Mississippi, a conservative summer hunting season had no effect on annual raccoon survival (Chamberlain et al. 1999).

Impacts on Reproduction—Although some researchers have suggested that summer dog training for raccoons may have detrimental effects on rearing of young or pregnant females (Minser and Pelton 1982), data are lacking to demonstrate population impacts. Young raccoons are not self-sufficient until at least 3 months of age (Johnson 1970) and the death of a nursing female can result in the loss of an entire litter. Because female raccoons decrease their home range size and daily movements when caring for young (Cantrell 1989), they may be easier to tree and more vulnerable to illegal harvest by hunting parties during summer training seasons. This hypothesis was not supported by a study that found no difference in female raccoon survival during the young rearing season on hunted and unhunted areas in Mississippi (Chamberlain et al. 1999).

Impacts on Movements—Disturbance by hunters and their dogs might be expected to cause raccoons to use different habitats, reduce their movements, or change their periods of activity; however, recent research does not support these theories. In Iowa, there were no observed differences in home range size or habitat preference among radio-collared raccoons monitored before and after harvest seasons (Glueck et al. 1988). In Tennessee, no differences in home range size, distance between activity centers, and nocturnal movement rates for female raccoons were observed prior to and during experimental summer dog-training seasons (Cantrell 1989). No differences in home range size and movement rates between hunted and unhunted raccoons were found in Mississippi (Hodges 2000). Frequent harassment by free-roaming dogs has been documented to cause raccoons to abandon denning areas (Minser and Pelton 1982), but these observations were not associated with hunting or dog-training activities. Cantrell (1989) did report a single instance of a radio-collared female raccoon abandoning her offspring after she was chased and treed during a dog training session in Tennessee.

Rabbit

Overharvest Concerns—The effects of hunter harvest on rabbit populations are poorly documented. The general belief among wildlife managers is that rabbits cannot be overhunted in suitable habitats with regulated hunting seasons (Chapman et al. 1982). A study conducted in Virginia concluded that heavy rabbit harvest during the hunting season had no negative effects on rabbit populations the following year (Payne 1964). Although hunter harvest has little impact on rabbit numbers throughout most of Virginia, it may be possible to overharvest rabbits in localized areas with limited escape cover and intense hunting pressure. In Ohio, possible harvest-related declines in cottontail numbers have been documented on several heavily hunted wildlife management areas (Chapman et al. 1982). Potential impacts of late season harvest appear greater than harvest earlier in the year. In Mississippi, rabbit harvest on areas not hunted in February tripled the following season, while harvests remained stable on areas hunted until the end of February (Bond 1999).

Mortality—Hound-related mortality for cottontail rabbits is believed to be very low. Nestling rabbits are occasionally killed by beagles during spring and summer training, but these incidences are uncommon and likely represent an insignificant source of overall rabbit mortality. Adult rabbits rarely are captured by hounds. In a Tennessee rabbit chasing enclosure, the primary mortality factor was predation from hawks and owls (Brady and Pelton 1978). There was no reported mortality from hunting dogs.

Impacts on Reproduction—Female cottontails harvested in February are usually pregnant and often have well-developed fetuses (Bond 1999). Since many of these rabbits would likely have survived to produce offspring, population effects of late-season harvest may be additive. Cottontails born early in the year are also capable of breeding during their first summer, perhaps magnifying the impacts of early litter loss. Although experimental evidence is lacking, reducing the number of early born litters may reduce the number of potential breeders. In Illinois, breeding juveniles contributed 23% of the fall population available to hunters in November (Lord 1963). Population contributions may be lower in areas where fewer early litters are born.

No evidence was found that chasing rabbits during the breeding season caused physiological stress that resulted in reduced reproduction. In a Georgia rabbit enclosure, almost daily chasing from February through August had no apparent effect on population size (Murphy et al. 1997).

Nontarget Species

Most studies investigating impacts of dogs on wildlife have focused on free-ranging dogs or pets rather than hunting dogs, but despite the expected behavioral differences between hunting dogs, feral canids, and free-ranging pets, some findings may apply to any unrestrained dog in wildlife habitat. Impacts of hunting hounds on nontarget wildlife (i.e., wildlife not intentionally pursued during a chase) are uncertain and typically focus on impacts to individual animals rather than the more important population implications (Sime 1999).

Documentation of dogs harassing wildlife (primarily deer) dates back to the 1950s (Horseley 1956, Barick 1969, Perry and Giles 1970). Denny (1974) found that 86% of the wildlife agencies he surveyed considered uncontrolled companion animals to be a problem for wildlife. Allen (1985) also reported complications to his study on hounds chasing bears due to the chasing of other wildlife.

Impacts of domestic and free-ranging dogs on wildlife may be broadly classified as disruption of normal maintenance activities (e.g., feeding, bedding, or grooming), injury, or death (Sime 1999). Free-ranging or pet dogs have been shown to disrupt habitat use, foraging, breeding, nesting, and roosting by birds (Baydack 1986, Yalden and Yalden 1990, Keller 1991, Hoopes 1993, Sime 1999,). Free-ranging dogs infrequently kill adult turkeys, although they can be significant predators of turkey nests and poults (Miller and Leopold 1992). Dogs have been implicated in introducing diseases and parasites into wildlife populations, physically destroying burrows, and causing alarm reactions (Stuht and Youatt 1972, Thorne et al. 1982, Durden and Wilson 1990, Mainini et al. 1993, Sime 1999).

Summary – Biological Concerns

Hunting with hounds is an effective method to harvest game and undesired population impacts are minimal. Wildlife mortality, reproductive, and behavioral influences from hound-hunting that affect population size are ultimately managed through hunting regulations. Despite the negligible impact on wildlife populations, hound-hunting may influence wildlife behavior and movements. Biological considerations have not been major aspects of the public controversies over hound-hunting (Peyton 1998); most of the concerns have been sociologically based (Elowe 1990).

SOCIOLOGICAL CONCERNS ASSOCIATED WITH HOUND-HUNTING

Public stakeholders interested in the mission of the VDGIF have become increasingly diverse. This diversity not only includes values of hunters and anglers but also those of wildlife watchers, farmers, homeowners, motorists, and other citizens. For state wildlife management agencies, the

increasing societal interest in diverse wildlife management issues (including hunting practices) is garnering mainstream attention with additional accountability to all stakeholders (Minnis 1998).

The public expresses concerns about some aspects of hunters and hunting (e.g., the use of bait, season lengths, predator management, Sunday hunting). Popular sentiments can especially be affected when a charismatic species (e.g., bears) is coupled with a method of hunting that is viewed as inhumane and unsporting (Minnis 1998). As a relatively visible sport, hound-hunting may heighten the public perceptions about bear or deer hunting (Elowe 1990). The use of dogs has at times attracted public interest, documented in the form of public surveys, ballot initiatives, and other legal processes. This attention on hound-hunting generally has not been anti-hunting in nature, but focuses more on specific practices viewed as unacceptable by some publics (Peyton 1998).

With 78% approval, most citizens in the United States support legal hunting (Duda and Jones 2008). In particular, the public supports hunting to obtain food, to manage wildlife populations, and to protect humans. However, opposition toward specific forms of hunting is affected by the public perception of hunter behavior, safety, fair chase, and animal welfare (Klein 1973, Rohlfing 1978, Lorenz 1980, Duda et a. 1998, Duda and Jones 2008). Demonstrating public concern for animal welfare, a large majority (79%) of Americans approve of animals being used by people, but only "as long as the animal does not experience undue pain" (Duda et al. 1998). Additionally, the majority of Americans (64%) – and even 49% of hunters - believe that many hunters violate the law or are unsafe while hunting (Duda et al. 1998).

There have been several approaches to characterize sociological concerns with hunting, but the opposition to types of hunting may be based simply on (1) ideological differences (primarily fair chase and animal welfare concerns) and (2) conflicts of interest with other hunters and landowners (including objectionable behaviors; Langenau 1979).

The following documentation is provided to increase awareness about the range of conflicts and unfavorable impressions that challenge hound-hunting today. Stakeholders and wildlife management agencies must understand the societal conflicts and unfavorable impressions that challenge hound-hunting in order to respond to present concerns or those on the horizon. Hound-hunting concerns are documented from a range of geographic locations and indicate that Virginia is not alone in addressing these issues. Trends observed elsewhere can affect hunting in Virginia.

Public Surveys

Because hound-hunting issues often have been the subject of public controversies, numerous surveys have been conducted to determine the acceptability of using hounds among hunters, landowners, and the public. The following review summarizes survey results and not the background for conducting the surveys. Regardless of the reasons for conducting the surveys, nonhound-hunting stakeholders have generally expressed disapproval for hunting with hounds.

Bear—Although surveys generally have indicated approval for bear hunting in general, the public has expressed overwhelming disapproval for bear hunting with hounds. Even among other hunters, hound-hunting for bears has not been well-accepted. Survey results from several states include.

Colorado: - Surveys during 1989 and 1991 indicated the public supported bear hunting, but opposed the use of hounds (Loker et al. 1994). Even though 62% of Colorado citizens approved of hunting black bears, 73% opposed hunting bears with dogs (SACA 1991).

Idaho: - Only 28% of hunters and 12% of nonhunters approved of hunting black bears with dogs (IDFG 1992).

Michigan: - Of the nonhunters who supported hunting, 66% felt that hunting bears with dogs was unacceptable (Peyton and Grise 1995, cited by Peyton 1998**).**

Utah: - During 1998, 69% of the public, and 46% of hunters, disapproved of bear hunting with hounds. Overall, only 20% of Utahans approved of bear hunting with hounds. Metropolitan areas showed lower approval than rural areas (Krannich and Teel 1999, Teel et al. 2002). Hound-hunting was more accepted for cougars than for bears (Teel et al. 2002).

Washington: - Although hound-hunting was illegal, 86% of licensed hunters supported the idea of using dogs to control bear and cougar populations (RM 2002).

West Virginia: - During 2006, the majority of the public surveyed supported hunting black bear with a gun (76%) or a bow (60%). However, only 23% of the public supported (68% opposed) hunting bears with dogs. Most opposition to the use of dogs was strong opposition. Even among hunters, the majority opposed hunting bears with dogs (57%) and dog training for bear year-round (58%). Public opposition (61%) also exceeded support (28%) for the training season, with most opposition being strong (RM 2006).

Virginia: - Most surveys about bear hunting and the use of dogs have been conducted among hunters. In 1993, 49% of hunters were neutral about the bear chase season, with 32% opposing and 19% favoring. Among bear hunters, 54% of the nondog bear hunters did not favor the chase season. As would be expected, a large majority (82%) of the dog bear hunters favored the training season in Virginia (VDGIF 2002). During the mid-1970s, 74% of incidental bear hunters (primarily deer hunters) wanted to eliminate bear hunting with dogs (DuBrock et al. 1978).

- During 2000-2001, several stakeholder groups in Virginia were surveyed. While 100% of the members of the Virginia Bear Hunters Association supported bear hunting with dogs, only 38% and 10% of the members of the

Virginia Beekeepers Association (VBA) and the Virginia Chapter of The Nature Conservancy (TNC) supported bear hunting with dogs, respectively. Although they disapproved of using dogs, a large majority (73%) of the VBA supported bear hunting in general; only 34% of the TNC supported any form of bear hunting (Lafon 2002, Lafon et al. 2003).

- Based on a 2006 survey, 56% of hunters were opposed to Sunday hunting for bears with dogs. Except for deer hunting with dogs (59%), no other game species had opposition that exceeded 40% for Sunday hunting. Excluding bear and deer hunting with dogs, the average opposition to Sunday hunting for all other species (including bear and deer hunting without dogs) was 34% (VDGIF 2007*b*).

Deer—State surveys conducted about deer hunting with dogs have generally involved only landowners and hunters, both of whom have expressed disapproval of using hounds to hunt deer. The general public in Georgia also disapproved of deer hunting with dogs.

Alabama: - During the early 1980s, only 38% of Alabama farm operators felt that dog-hunters respected landowners' rights, but only 13% thought the use of dogs to hunt deer was a serious problem. There was a large variation among landowner opinions based on whether they hunted with dogs themselves (Exum et al. 1985).

Georgia: - In a 1983 landowner survey in counties with dog-hunting for deer, 64% opposed, and 12% favored, the use of dogs for hunting deer (Kurz 1984). In 2004, landowner opposition to using dogs to hunt deer was similar (62%) to the 1983 survey (RM 2004). In 2004, 58% of the general public opposed, and 29% supported, deer hunting with dogs. Among hunters, 51% opposed, and 39% supported, using dogs to hunt deer (RM 2004).

Texas: - Opposition to deer dog-hunting in east Texas increased from 1984 to 1989, when 75% of landowners and 73% of hunters were opposed. Most landowners (82%) would not permit dog-hunting on their property, which resulted in only 5% of deer range being available to hunting deer with dogs (Campo and Spencer 1991).

Virginia: - Exceeding opposition to bear dog-hunting, 59% of hunters opposed Sunday hunting for deer with dogs. The average opposition to Sunday hunting for all other species (including bear and deer hunting without dogs) was 34% (VDGIF 2007*b*).

Other Species—Opinions about hunting other species with hounds vary widely. Surveys show that using dogs for cougar hunting generally is opposed, but more accepted than for bears. Rabbit hunting was accepted more and led to fewer conflicts than other forms of dog-hunting. Some specific results include:

Cougars: - In Utah, 61% and 33% of the Utah public and hunting license buyers, respectively, disapproved of cougar hunting with hounds. Cougar hunting with hounds was more accepted than bear hunting with hounds (Krannich and Teel 1999).

Rabbits: - Fewer nonhunters in Michigan felt that dog-hunting for rabbits (48%) was unacceptable than for bear (66%, Peyton 1998). Only 13% of West Virginians felt that rabbit hunting created problems during dog training (compared to 31% and 25% for raccoons and bears, respectively; RM 2006).

Ballot Initiatives

Ballot initiatives provide another measure of public opinions about hound-hunting issues. In some states, citizens can collect enough petition signatures to get laws or constitutional amendments on the ballot (IRI 2008). Animal rights groups have successfully petitioned for ballot initiatives to restrict more vulnerable aspects of hunting (e.g., hunting cougars; hunting bears with hounds, in the spring, and with bait) and trapping (e.g., leghold traps) (Williamson1998). Only 22 states, mostly in the western U. S., have a ballot initiative process to make laws (IRI 2008). East of the Mississippi River, only Maine, Massachusetts, Michigan, and Ohio have such processes; the Constitution of Virginia does not provide for public ballot initiatives to establish law but a public referendum is required for any constitutional amendments (IRI 2008). The first wildlife-oriented ballot initiative occurred in 1930 when 69% of Massachusetts voters supported a measure that "banned the use of trapping devices that caused suffering to wildlife" (Minnis 1998:76).

The following review focuses on ballot initiatives as expressions of public opinion. Given that initiatives have addressed other management issues in addition to hound-hunting (e.g., baiting, spring hunting), levels of disapproval shown below may not be tied exclusively to the use of hounds. However, public surveys conducted before and after the vote in Colorado (SACA 1991, Loker and Decker 1995) indicated that the use of hounds to hunt bears was an important consideration for voters in that state. Regardless of the motives that generated the ballot initiatives, when given the opportunity, the public has often expressed disapproval for hunting with hounds (frequently linked with other wildlife management issues).

Bear—Since 1992, bear hunting with dogs has been the subject of 8 different ballot initiatives in 7 states. Concerns regarding hound-hunting for bears often have been linked with those for other species (e.g., cougar, bobcat, lynx) and other bear hunting issues (e.g., spring seasons, hunting over bait). Hunting bears with hounds was banned by public ballot in Colorado, Massachusetts, Oregon, and Washington (Table 3). Similar initiatives in Idaho, Maine, and Michigan failed. Ballot initiatives have occurred in all 3 states east of the Mississippi River that have both bear hunting and the initiative process for laws available (Maine, Massachusetts, Michigan). The details about these ballot initiatives include:

Colorado: - In 1992, Colorado was the first state where a ballot initiative banned hound-hunting for bears (Gore 2003). Overturning previous rulings made by the Colorado Division of Wildlife - which had relied most on input from traditional stakeholders - the ban on hound-hunting, baiting, and spring hunting for bears was approved by 70% of the voters (Loker et al. 1994, Loker and Decker 1995, Minnis 1998, Decker et al. 2001). Spring-hunting and baiting were greater concerns for parties pushing the ballot proposal (J. Apker, CO Division of Wildlife, personal communication). However, for voters who supported the ban, hound-hunting was equally opposed (69% vs. 71% for spring hunting) and had the same self-reported effect on voting (68% vs. 70%, respectively, noting moderate or great effect; Loker and Decker 1995).

Idaho: - Proposition 2, rejected by 60% of voters in 1996, would have banned dog-hunting and baiting for bears and eliminated the spring bear hunt (Minnis 1998, Gore 2003).

Maine: - In 2004, Maine residents narrowly rejected an initiative to outlaw the use of bait stations and hounds for black bear hunting; 47% supported the ban (MSLLRL 2008)

Massachusetts: - The Massachusetts Wildlife Protection Act of 1996, approved by 64% of voters, prohibited the pursuit of bears and bobcats with dogs, baiting of bears, and foothold and body-gripping traps for all species (Minnis 1998, SCMA 2008). Today, hounds may be permitted for damage control or research (J. Cardoza, MA Division of Fisheries & Wildlife, personal communication).

Michigan: - In 1996, 38% of Michigan voters supported a ban on the use of baiting and hounds for hunting bears. The debate focused as much on the authority and ability of the Michigan DNR to manage bears as the specific issues (Minnis 1998, Gore 2003).

Oregon: - A ban on hunting black bears and cougars with hounds or bait was passed by 52% of Oregon voters in 1994. The ban was upheld in 1996 when 56% of voters rejected an effort to repeal the ban (Minnis 1998, Gore 2003) and a proposal that sole authority to set these regulations would be given to the Oregon Fish and Wildlife Commission (Peyton 1998).

Washington: - A ban on using bait and hounds to hunt black bears, bobcats, lynx, and cougars was approved by 63% of Washington voters in 1996. Efforts to repeal the ban in 2004 eased restrictions for cougars, but not for bears (Minnis 1998, Gore 2003).

Deer—No ballot initiatives have addressed dog-hunting for deer. Arkansas and California are the only states that allow both dog-hunting for deer and a ballot initiative process for laws.

Mississippi and Florida have a ballot initiative process for constitutional amendments only (IRI 2008).

Other Species—As previously described, several other species and practices were involved with ballot initiatives for bears (Table 3). Ballot initiatives have affected hound-hunting for cougars (Oregon, Washington), bobcats (Massachusetts, Washington), and Lynx (Washington; Minnis 1998, Gore 2003).

Legislation / Regulation Changes

Public concerns about hunting with hounds are sometimes demonstrated in the form of legislation, agency regulations, and litigation (Table 3). This review focuses on legal actions as reflections of citizen conflicts or public dissatisfactions with hound-hunting. This review does not address the many complex reasons that legal remedies were sought or the larger political ramifications. To address issues associated with hound-hunting, citizens, their representatives, or agencies have sometimes resorted to legal approaches.

Bear—Laws regulate the use of hounds in every state that allows bear hunting. Some states have completely outlawed the use of hounds while bear hunting (e.g., Pennsylvania, 1935) while other states have imposed restrictions on dogs (e.g., Vermont has a permit and pack-size limit for bear hounds; Ternent 2006). Some notable legal actions have occurred in the following states:

California: - In 1985, the spring and summer dog-training season for bears was eliminated in California, in part to reduce illegal kill. Hound-hunting is still allowed during the general bear season (Burton et al. 1994, CDFG 1998). Claiming noncompliance with the California Environmental Quality Act, a court order stopped all bear hunting in California during 1989, but it was reinstated in 1990 (Koch 1994). In 1997, bills were introduced to restrict dogs for hunting bears and bobcats in California (Peyton 1998). Over the last 8 years, several attempts by animal rights organizations to completely ban hunting with hounds have not succeeded due to efforts of hunting organizations (D. Updike, California Department of Fish and Game, personal communication).

Massachusetts: - In 1990, the Massachusetts Division of Fisheries and Wildlife responded to growing public concerns about hunting bears with dogs by imposing restrictions: hunter permits, pack size limits (6 for hunting, 4 for training), specific training periods, and no telemetry equipment for hunting (allowed for training; J. Cardoza, personal communication). Despite these actions, the 1996 ballot initiative outlawed hound-hunting for bears.

Virginia: - In response to a long-standing concern by residents, VDGIF advertised, but ultimately rejected, a 2003 regulation proposal to ban the use of dogs for bear hunting in a portion of Roanoke County.

- The dog retrieval law (Code of Virginia §18.2-136, see Chapter 5) has

received frequent attention in the General Assembly. Primarily driven by bear and deer hunting issues, recent legislative considerations and actions associated with this law have included:

- 2008 – SB263; increase penalties for dog-retrieval violations; failed
- 2007 – HB2531; repeal §18.2-136; failed
- 2007 – SB884; require hunters to identify themselves during retrieval; passed
- 2006 – HB150; prohibit release of dogs on or near posted land; failed
- 1996 – HB459; prohibit following dogs on posted land after "downed game;" failed
- 1995 – SB937; allow retrieval only "after written notice to the landowner;" failed

Deer—States have mitigated deer-dog issues in a various ways, from separating dog and no-dog deer seasons (e.g., Mississippi) to complete bans in some areas (e.g., Virginia). Recent changes and considerations in deer dog-hunting laws reflect increasing public concerns:

Alabama: - By 1997, some Alabama counties had shorter seasons and minimum acreage for using dogs to hunt deer (Peyton 1998). Dog-hunting has been eliminated from 15 counties and placed under a permit program with acreage minimums in 5 counties (C. Hill, AL Wildlife & Freshwater Fisheries Division, personal communication).

Florida: - The Florida Game and Freshwater Fish Commission adopted policy guidelines to reduce conflicts regarding deer dog-hunting in 1991 (Peyton 1998). To address continued trespass and other complaints, a pilot program requiring dog registration began during 2004-05 in northwest Florida, and has been expanded statewide (R. Vanderhoof, FL Fish and Wildlife Conservation Commission, personal communication).

Georgia: - Because conflicts had escalated and resulted in proposals to eliminate deer hunting with dogs in Georgia, the Georgia Dog Hunters Association promoted a law to protect both landowner and deer dog-hunting interests in 2003 (Bowers et al. 2007). This law now requires a dog-deer license and a minimum acreage (J. Bowers, GA Wildlife Resources Division, personal communication).

South Carolina: - The South Carolina General Assembly has recently considered bills similar to the Georgia model. In 2008, the South Carolina Department of Natural Resources was directed to begin a stakeholder process to address issues related to deer hunting with dogs (C. Ruth, SC Department of Natural Resources, personal communication).

- In a 2002 lawsuit, International Paper Company (IP) was held liable for creating a nuisance for adjoining landowners from its hunting leases with

South Carolina dog-hunting clubs. Subsequently, IP banned deer dog-hunting on their properties in other areas (e.g., Georgia) (GON 2004).

Texas: - The Texas Parks and Wildlife Department (TPWD) shortened the dog season for deer hunting during 1986-87 to address tensions between landowners and hunters. This change only seemed to "intensify the discord between dog and nondog-hunters" and decreased support for TPWD (Campo and Spencer 1991:240). The TPWD prohibited the use of dogs for deer hunting in 1990.

Virginia: - See the discussion about dog-retrieval legislation under *Bears* above.

Other Species—

Cougars: - Primarily due to growing lion populations, bans on cougar hunting with hounds have been modified in Washington and Oregon. The 1996 Washington law was modified in 2004 to allow a pilot hound-hunting program to control lion populations in selected counties (Washington Administrative Code 232-28-285). Modifying the 1994 Oregon ban, HB 2971 reinstated limited hound-hunting for cougars in 2007.

Furbearers: - A Missouri state wildlife agency proposal to require landowner permission when dogs were released to hunt furbearers drew protests from dog-hunters, who viewed the restriction as a greater threat to their sport than landowner concerns (Peyton 1998).

Fair Chase and Animal Welfare Concerns

Concerns over animal welfare, animal rights, fair chase, and hunter ethics are based on diverse personal values regarding the use and treatment of animals. Accepting most uses of animals, individuals concerned with animal welfare focus on treating animals with compassion and avoiding cruelty. However, animal rights proponents advocate equal moral and legal rights for all species with a motive to end any exploitation or human use of animals (Cockrell 1999, Muth and Jamison 2000). "Concern for animal welfare has the potential to be a powerful and motivating component of many dog-hunting issues, as well as the larger issue of public acceptance of hunting. This is especially true when welfare concerns are redefined to include unfair chase or unethical hunting practices" (Peyton 1998:547). Value differences about the use of hounds for hunting have centered on fair chase of game animals and welfare of both game animals and dogs.

Bear—Anti-hunting sentiments (i.e., opposition to hunting in general or bear hunting in general) have been a relatively minor reason expressed for opposing bear hunting with hounds. Instead, issues of fair chase, sportsmanship, ethical objections to using dogs, and animal welfare have been important considerations for opposing hunting bears with hounds. Only 10% of Coloradans opposed hunting while 70% supported the 1992 initiative to ban aspects of bear hunting (i.e.,

hounds, spring hunting, bait; Loker and Decker 1995). Post-election surveys determined that most people were concerned about animal welfare and other issues of fair chase, sportsmanship, and the ethics of using dogs (Loker et al. 1994, Loker and Decker 1995). Although animal welfare issues are of greater importance to the public than concerns about animal rights (Duda et al. 1998), animal rights organizations are often key activists in championing public issues related to animal welfare (Cockrell 1999).

Primary reasons given by the public and hunters opposed to bear hunting with dogs are that it is perceived to be inhumane and unethical, which leads to an unfair advantage for the hunter (Elowe 1990, UDWR 2000, Gore 2003). The use of advanced technology (e.g., 2-way radios, tracking collars, 4-wheel-drive vehicles) and road access contributes to the perception of an unfair advantage for bear hunters using hounds (Elowe 1990, UDWR 2000). To some people, letting dogs "harass" wildlife is inhumane, while others think that bear hounds chase all wildlife (Elowe 1990). Because bear hounds sometimes get killed or injured while hunting, animal welfare concerns often get extended to the dogs themselves (Elowe 1990, Gore 2003).

Documentation of fair chase and animal welfare concerns about bear hound-hunting include:

Fair Chase: - Prevalent concerns for 45% of Michigan citizens who opposed hunting bears with hounds were that it is unsporting and unethical. Of Michigan bear hunters who did not use dogs, 39% considered the use of dogs to be unethical (Peyton 1998).

Welfare: - Colorado voters reported that their concern for the welfare of cubs was more important than animal rights (Loker and Decker 1995, Peyton 1998).

- Surveys conducted by the Idaho Department of Fish and Game indicated that the primary reason for public opposition to a special bear-dog training season was that it would be cruel and abusive to bears (Lafon 2002).

- Animal protection concerns were expressed during Oregon's ballot initiative when the Humane Society of the United States and the Animal Protection Institute were pitted against hunter groups like Safari Club International (Gore 2003).

- Animal welfare concerns also have provided an avenue for legal challenges of hunting in California. To be compliant with state law, hunting seasons must consider the "welfare of individual animals." Issues of "individual pain and physiological and emotional suffering" need to be considered in setting hound-hunting regulations (Koch 1994).

- A concern for animal welfare was a common reason for opposing bear hunting with dogs in West Virginia. Of those citizens who opposed hound-hunting, 19% felt that it disturbs black bears (RM 2006).

- A 1995 telephone survey of over 700 Michigan citizens found that more

respondents were concerned for the dogs (20%) than for the bears (11%) as a reason to oppose hunting bears with dogs (Peyton 1998).

- Bear baying, legal only in South Carolina, also may inflame animal welfare concerns associated with hound-hunting for bears. Bear baying involves a chained, captive bear being confronted (bayed) by dogs. Recent media coverage and the associated negative public reaction have resulted in legal opinions from the Attorney General in South Carolina and actions from the South Carolina Department of Natural Resources to limit the use of captive bears for these events (AP 2005, McMaster 2008).

Deer—Fair chase and animal welfare concerns also have been documented for using dogs to hunt deer, although less frequently than for bears.

Fair Chase:
- In 2004, 54% of the Georgia public who opposed deer dog-hunting said their main reason for disapproval was that it was unfair for deer. Fair chase was also the primary reason for opposition among other hunters (62%) and landowners (48%) (RM 2004).

- In Texas, a primary reason landowners and hunters opposed the use of dogs for hunting deer was that the practice was "unsporting or unnatural" (Campo and Spencer 1991:238)

Welfare:
- In Georgia, concern for inhumane treatment of deer was the primary reason to oppose dog-hunting for 31%, 27%, and 28% of the general public, hunters, and landowners, respectively (RM 2004).

- Deer hunters have been known to abandon dogs or allow them to run uncontrolled after the hunt (Marchinton et al. 1970).

- Humane concern for dogs was the least important reason for landowners and hunters in Georgia to oppose dog-hunting, but was still the main reason for 9% of hunters, landowners, and the general public (RM 2004).

- A recent article (and reader reactions) in the Richmond Times-Dispatch also focused on deer hounds that were presumed to be abandoned by hunters (Caggiano 2008).

Conflicts of Interest and Objectionable Behavior

Hunting with hounds has been blamed for contributing to conflicts among hunters, landowners, and other citizens (Gore 2003). Objectionable behavior by some hunters also contributes to additional societal conflicts impacting all hound-hunting and a negative image of other hound-hunters.

Conflicts between hunters who do and do not use hounds include hunting season competition (e.g., allocation of harvest, season dates), differences in ethical standards (e.g., fair chase), or direct interference during concurrent seasons (Peyton 1998, Elowe 1990). Conflicts among specialized hunter groups can heighten visibility of hunting methods, creating an image problem for the hunting community, raising questions about hunting practices, and eroding agency credibility (Peyton 1998).

Issues of trespass and access to private property have been commonly associated with hound-hunting across the United States (Peyton 1998). Landowners claim their property rights are violated and hunters view access restrictions as a threat to their right to use hounds (Peyton 1998). Urban residents who become rural landowners tend to be less tolerant of traditional hunting methods (Brown et al. 2000, Teel et al. 2002). Increasing land fragmentation increases trespass potential (Peyton 1998).

The future of hunting can be damaged by poor hunter behavior (Duda et al. 1998). Perceptions that hound-hunters are involved disproportionately with road-hunting, illegal activities, and interference with citizens may contribute to a poor public image of all hound-hunters. Hunting methods that attract negative public attention or divide hunters can erode public support for hunting and wildlife management (Klein 1973, Duda and Young 1998, Peyton 1998, RM/NSSF 2008).

Bear—Public conflicts with bear hound-hunting have been related primarily to landowner concerns and problems associated with hunter behavior. For example:

Hunter Conflicts:

- In Michigan, 77% of still hunters thought the use of dogs interfered with their bear hunting (Peyton 1989).

- Hound-hunting for bears has resulted in conflicts between bear hunters and deer/elk hunters in Utah (UDWR 2000).

Landowner Conflicts:

- Trespassing has been among the most common problems associated with bear hound-hunting (Beck et al. 1994, Elowe 1990, Gore 2003), but may be less of an issue in western states with larger tracts of land (Loker and Decker 1995, Peyton 1998).

- Bear hunter trespass was the most common problem cited by West Virginians during the training-season (31% of the problems) (RM 2006).

- In 1987, landowners in northern Michigan protested against use of dogs for hunting bears because of trespass and disturbance caused by dog packs (Peyton 1989). In fact, the drive to ban bear hunting with hounds in 1996 was started by 1 private landowner frustrated with trespassing bear hound-hunters on his land (Minnis 1998).

- Changes in Massachusetts bear hunting regulations also were the result of

confrontations between landowners and trespassing bear hunters and noisy hounds (J. Cardoza, personal communication).

Objectionable Behavior:

- Objectionable behaviors sometimes have been associated with bear hound-hunting and may occur if cubs are shaken out of trees to hounds (Elowe 1990), bears get killed during training seasons to protect or train hounds (Elowe 1990), bears are trapped for use in training (Elowe 1990), threats are made to people (RM 2006), illegal baiting occurs to facilitate chase, or individuals pursing bears during closed seasons pose as hunters of other species in season (e.g., raccoons, fox).

- The bear dog-training season was closed in 1985 in California, in part because enforcement officers found that excessive illegal activity, such as killing bears, was occurring (Burton et al. 1994).

Deer—Based on available literature, hunter and landowner conflicts are apparently more commonly associated with hound-hunting for deer than for bear or other species. Still hunters often report that dogs running deer detract from their enjoyment and preempt their form of hunting. Hound disturbance can lead to increased demands for still-hunting recreation at the expense of dog-hunting opportunities. For landowners, problems commonly associated with dog-hunting for deer include trespass by dogs and hunters. These problems are amplified in areas with human population growth and changing population demographics (Walsingham 1996). Because some groups hunt in ways that the public may find objectionable, deer dog-hunters also get accused of road-hunting. These include taking stands along heavily traveled roads, blocking traffic, and using vehicles to intercept deer pursued by dogs (Marchinton et al. 1970). Hound-hunters who appear to be road-hunting or impeding traffic may sometimes be attempting to prevent accidents by slowing traffic or intercepting hounds coming toward the roadway (J. Hackett, personal communication).

Some specific documentation about deer-hound conflicts and objectionable behaviors includes:

Hunter Conflicts:

- Hunting-opportunity conflicts and disruption among hunters have been noted in Missouri (Porath et al. 1980), Louisiana (Porath et al. 1980), and Texas (Campo and Spencer 1991).

- Still hunters in east Texas complained about dogs driving deer off their leases (Simmons 1996).

- Marchinton et al. (1970) noted that more still hunters than dog-hunters can usually be accommodated on a given area to hunt deer. Conflicts between these hunter groups may be more intense on heavily used areas like public wildlife management areas..

- In Virginia, 33% of still hunters in dog-hunting areas reported being disturbed by dogs during the 2005-06 deer hunting season. The highest disturbance

occurred in the Tidewater (37%) and Northern Piedmont (35%, Figure 5). Only 8% of the deer dog-hunters reported being disturbed by dogs (C. Jagnow, VDGIF, unpublished data).

- Still hunters have not always reported negative consequences from dog-hunters. Still hunters in Ocala National Forest during the early 1970s felt that dogs added to their recreational experience (LaHart and Lucas 1972).

Landowner Conflicts:

- Landowner issues related to hunting deer with dogs (e.g., trespass, disturbance) have been documented in Alabama (Exum et al. 1985), Georgia (Kurz 1984, RM 2004, GON 2004, Bowers et al. 2007), Texas (Campo et al. 1987, Campo and Spencer 1991, Simmons 1996), Florida (Walsingham 1996), and Virginia (Bromley and Hauser 1984).

- Marchinton et al. (1970) noted that trespass problems (both intentional and unintentional) are especially a problem on small properties and concluded that dog-hunting for deer is best adapted to areas with large land ownerships.

- In Georgia during 1983, 35% of the landowners had experienced problems with deer dog-hunters, the most common of which were illegal trespass (20%), illegal hunting (5%), and property damage (5%) (Kurz 1984).

- In 2004, Georgia landowners noted the following problems with dog-hunters: trespass (75%), noise disturbance from dogs (25%), hunting from roads (25%), and damaging fences/leaving gates open (25%). Lesser concerns were damaging fields, damaging structures, littering, drinking, and being rude/discourteous (RM 2004).

- Hunter trespass, dogs frightening livestock, property damage, and poaching caused 73% of east Texas landowners to object to dog-hunting for deer (Simmons 1996). The most frequent complaint from Texas landowners was that dogs trespass onto private property (Campo et al. 1987). Because large tracts of land are necessary to prevent dog-hunting incursions on adjoining properties, most negative interactions with landowners occurred along property boundaries. Problems intensified as properties were posted and closed to dog-hunting, which forced dog-hunters onto more isolated tracts of land (Campo et al. 1987).

- In Alabama, only 38% of landowners felt that dog-hunters respected landowners' rights (Exum et al. 1985).

- Of 12 types of conflicts with hunters (e.g., open gates, road damage, deer poached), running dogs without permission was the second most reported problem (51%) behind hunting without permission (66%) for 1,500 Virginia Piedmont landowners randomly surveyed during 1981 (Bromley and Hauser

1984).

- Large timber and paper companies (e.g., International Paper Company, Weyerhaeuser, Plum Creek) in several Southeastern States have responded to trespass complaints from adjoining landowners by prohibiting deer hunting with dogs in their leases, or cancelling their leases with specific clubs that use dogs. These actions might be related to the 2002 lawsuit against International Paper for creating a nuisance (e.g., trespassing dogs) for adjoining landowners with their dog club leases (GON 2004).

- In a 2008 nationwide survey (Appendix 2), 70% of the states with deer hound-hunting reported that problems between landowners and hound-hunters were a serious concern. Only 6% of the states that do not allow deer hunting with hounds indicated a serious concern about hound-hunter conflicts with landowners.

Objectionable Behavior:

- Mississippi road-hunting violations were significantly more common during the deer-dog season than during the no-dog season. Road hunting citations in the deer-dog season were 5.9 and 4.2 times higher than the citations written in the no-dog deer season during 1980-81 and 1982-83, respectively (Steffen et al. 1983).

- Hunting from public roads also has been a basis of deer dog-hunting concerns in other states, including Texas (Campo and Spencer 1991), Georgia (RM 2004, Bowers et al. 2007), and Virginia (Bromley and Hauser 1984).

- In a 2008 nationwide survey (Appendix 2), road hunting was a serious concern for 60% of the states with deer dog-hunting, but only 19% of the states that do not allow deer hunting with hounds reported serious road-hunting problems.

- Walsingham (1996:682) noted that "some landowners are reluctant to confront abusive hunters for fear of reprisals." Reprisals of concern include arson and armed confrontations. Instances of intimidation, violence, and other landowner conflicts with deer dog-hunters came from Florida (1983, 1987, 1995), Texas (1994,1995), Alabama (1995), and Virginia (1981; Simmons 1996, Walsingham 1996). The Virginia data comes from Bromley and Hauser (1984), noted above, and refers to trespass and littering rather than threatening behaviors.

Other Species—Although most furbearer hunting (e.g., raccoon hunting) requires relatively small areas, furbearer habitat is often fragmented among ownerships, which may increase the potential for conflict (Peyton 1998). Trespass concerns associated with other types of hound-hunting (e.g., rabbits) receive little attention (Peyton 1998).

Hunter/ Trapper Conflicts:

- Raccoon-dog training seasons have caused conflicts among other user groups (e.g., other hunters, trappers) across the Southeast and Midwest (Hunter 1987, Rogers 1995).

- Some deer hunters have felt that raccoon hunting with hounds negatively affected their deer harvest potential; however, a South Carolina study found that raccoon hunting had no effect on deer hunter success (Westerhold et al. 1996).

- Conflicts between fox hunters and trappers in the Southeast have led to restrictive trapping regulations (R. Colona, MD Department of Natural Resources, personal communications). Examples have included closures on fox harvest statewide in Delaware and in select counties in Maryland, North Carolina, and Virginia (R. Colona, MD Department of Natural Resources; C. Olfenbuttel, NC Wildlife Resources Commission; and M. Fies, VDGIF, personal communication).

Objectionable Behavior:

- Significant numbers of violations by raccoon hunters have been documented in Kentucky. During raccoon dog-training seasons in the mid-1970s, conservation officers checked 1,925 raccoon hunters and found that 36% were in violation of game laws - 28% for infractions related to the potential illegal take of raccoons (i.e., carrying a gun; Wright 1977).

- A follow-up Kentucky study, based on 5,692 conservation officer contacts with raccoon hunters from 1983-84, found that 22% were in violation of one or more fish and wildlife regulations during both the take and the year-round training seasons. The majority of these violations were due to taking (or attempting to take) raccoons out of season (72%) and represented 16% of all hunters. Hunting without a license (23%) and trespassing (4%) were the next most common violations. During just the dog-training season, 80% of the violations (1 out of every 4 hunters checked) were for illegally taking or attempting to take raccoons (Edwards 1985).

- In a number of states in the past, raccoon hunting clubs illegally imported and released raccoons into favorite hunting areas (Minser and Pelton 1982, Rogers and Tucker 2001). This illegal activity has diminished substantially as raccoon populations have increased.

- In several states, some individuals maintain feeding stations to attract and maintain raccoons in areas where they hunt (Rogers and Tucker 2001; C. Olfenbuttel, NC Wildlife Resources Commission, personal communication). This practice is illegal in Virginia.

- Although normally infrequent, some hunters may create capture opportunities for their dogs and have openly admitted to shooting or shaking raccoons from

trees for the purpose of allowing their dogs to kill them (Minser and Pelton 1982). Providing their dogs with a "taste" for raccoons supposedly improved their hunting ability. In Virginia, intentionally crippling or dislodging raccoons from trees became unlawful in 2003 (4VAC15-40-284). The extent to which this practice continues is unknown.

ECONOMIC CONCERNS ASSOCIATED WITH HOUND-HUNTING

The significant economic benefits of hunting may be offset partially by economic costs. Although not unique to hound-hunting, maintaining populations of game animals (e.g., deer, bear) at levels acceptable to hunters sometimes produce costs sustained by the public. These costs are often in the form of property damage, agricultural losses, and vehicle collisions (VDGIF 2002, 2007*a*).

As with any method of hunting, it is difficult to quantify the negative economic costs specifically associated with hound-hunting. Certain economic concerns might be more unique to hound-hunting. Related to the sociological conflicts with hound-hunting, economic concerns can include losses to private property (e.g., gate damage, livestock losses), increased road maintenance costs, and additional government administrative demands (e.g., legislative considerations, enforcement costs).

SUMMARY AND CONCLUSIONS

Although hound-hunting can be an effective method to harvest game during legal hunting seasons, undesired population impacts are minimal. Mortality, reproductive, and behavioral influences from hound-hunting that affect population size are managed ultimately through hunting regulations. Despite the negligible impact on population size, other possible influences on behavior and movements may cause concern for some citizens.

Demonstrated by numerous survey results, ballot initiatives, and other legal actions from across the United States, the use of hounds for hunting has been a significant source of concern among hunters, landowners, and other citizens. Deer and bear hunting with hounds have fueled much of the debate. While most Americans support hunting, the use of dogs has generated concerns about fair chase, animal welfare, conflicts of interest, and objectionable behavior by hunters. Concerns about bear hound-hunting tend to focus more on fair chase and animal welfare issues, whereas deer hound issues focus more on conflicts of interest such as landowner trespass and disturbance to other hunters. Objectionable behaviors (e.g., road hunting, other illegal activities) also have been attributed to hound-hunters.

Table 3. Some statutory, regulatory, and voter-initiated actions that have limited hound-hunting in the United States.

STATE	DATE	SPECIES	ACTION	PROCESS	CITATION
Alabama	various	Deer	- Shortened dog season - Minimum acreage	Regulation / Law	Peyton (1998)
California	1985	Bear	- Eliminated spring & summer training season	Regulation / Law	Burton et al. (1994)
Colorado	1992	Bear	- Banned hound-hunting[1,2] - 70% approval	Ballot Initiative	Loker and Decker (1995) Minnis (1998) Gore (2003)
Florida	2004	Deer	- Dog registration	Regulation / Law	Vanderhoof (pers. comm.)
Georgia	2003	Deer	- Registering dogs / clubs - Minimum acreage to hunt	Regulation / Law	Bowers et al. (2007) Bowers (pers comm.)
Massachusetts	1990	Bear	- Required a permit - Restricted pack size: 6 for hunting & 4 for training - Prohibited telemetry for hunting (allowed for training).	Regulation / Law	Cardoza (pers comm.)
	1996	Bear Bobcat	- Banned hound-training & hunting [1,3] - 64% approval	Ballot Initiative	SCMA (2008)
Oregon	1994	Bear Cougar	- Banned hound-hunting [1] - 52% approval	Ballot Initiative	Minnis (1998) Gore (2003)
	1996	Bear Cougar	- Upheld 1994 ban - 58% approval	Ballot Initiative	Minnis (1998) Gore (2003)
Pennsylvania	1935	Bear	- Prohibited dogs	Regulation / Law	Ternent (2006)
Texas	1986	Deer	- Reduced deer dog-season length	Regulation / Law	Campo and Spencer (1991)
	1990	Deer	- Banned deer hunting with dogs	Regulation / Law	Campo and Spencer (1991)
Vermont	1972	Bear	- Limited pack size to 6 or less - Required registering of dogs	Regulation / Law	Ternent (2006)
Washington	1996	Bear Cougar Bobcat Lynx	- Banned hound-hunting [1] - 63% approval	Ballot Initiative	Minnis (1998) Gore (2003)

[1]Also banned the use of bait, [2]Also banned spring hunting, [3]Also banned aspects of trapping furbearers

CHAPTER 5—LEGAL ASPECTS OF HOUND-HUNTING IN VIRGINIA

INTRODUCTION

A basic understanding of laws and enforcement issues related to hunting with hounds is critical for decision-makers and stakeholders involved in the *Hunting with Hounds* process. Laws directly and indirectly related to hound-hunting or chasing game animals with hounds in Virginia are found in the Code of Virginia (hereafter referred to as code), Virginia Administrative Code (hereafter referred to as regulations), local ordinances, and the Code of Federal Regulations. The Constitution of Virginia authorizes the Virginia General Assembly to promulgate and adopt code. As provided for in code, all "subordinate" laws are promulgated and adopted by other governing bodies: state agencies (e.g., the Board of the VDGIF) adopt regulations and local governing bodies adopt ordinances. It should be noted that the term "dog(s)," not "hound(s)," is used in relevant laws and ordinances.

Unlike a number of states, the Constitution of Virginia does not provide for public ballot initiatives to establish law (IRI 2008). However, like most states, a public referendum is required for any amendments to the Constitution of Virginia. An amendment pertinent to hunting was ratified by Virginian voters on November 7, 2000 (*Article XI, Section 4*), which states: "*The people have a right to hunt, fish, and harvest game, subject to such regulations and restrictions as the General Assembly may prescribe by general law."*

VIRGINIA LAWS, REGULATIONS, AND ORDINANCES

Code of Virginia

Use of Dogs for Hunting—Twenty-seven (27) Virginia codes were found that are important to issues involving the use of hounds for hunting (including chasing, Table 4). Most (15) of these laws are found under Title 29.1 *(Game, Inland Fisheries and Boating).* One law is found in Title 3.1 (*Article 4, Authority of Local Governing Bodies and Licensing of Dogs)*, 4 laws are found under Title 15.2 (*Powers of Local Government),* and 7 laws are found under Title 18.2 (*Crimes and Offenses Generally).*

Applicable to hunting with hounds is §29.1-100, which defines hunting and trapping as "*the act of or the attempted act of taking, hunting, trapping, pursuing, chasing, shooting, snaring or netting birds or animals, and assisting any person who is hunting, trapping or attempting to do so regardless of whether birds or animals are actually taken; however, when hunting and trapping are allowed, reference is made to such acts as being conducted by lawful means and in a lawful manner. The Board of Game and Inland Fisheries may authorize by regulation the pursuing or chasing of wild birds or wild animals during any closed hunting season where persons have no intent to take such birds or animals."*

Only 2 codes were found that directly mention the use of dogs in hunting. §29.1-516 contains 2 important references: (1) "*it shall be unlawful to hunt deer with dogs in the counties west of the*

Blue Ridge Mountains;" and (2) "*There shall be a continuous open season for hunting with dogs only. The hunting or pursuit of foxes shall mean the actual following of the dogs while in pursuit of a fox or foxes or managing the dog or dogs while the fox or foxes are being hunted or pursued."*

§18.2-136, commonly referred to as the "dog retrieval law," states: "*Fox hunters and coon hunters, when the chase begins on other lands, may follow their dogs on prohibited lands, and hunters of all other game, when the chase begins on other lands, may go upon prohibited lands to retrieve their dogs, but may not carry firearms or bows and arrows on their persons or hunt any game while thereon. The use of vehicles to retrieve dogs on prohibited lands shall be allowed only with the permission of the landowner or his agent. Any person who goes on prohibited lands to retrieve his dogs pursuant to this section and who willfully refuses to identify himself when requested by the landowner or his agent to do so is guilty of a Class 4 misdemeanor."* "Prohibited lands" in Virginia include all private lands, regardless if posted, where permission to hunt has not been expressly granted by the landowner.

Of note are Attorney General Opinions that pertain to §18.2-136 (dog retrieval law) and §3.1-796.93 (local ordinances prohibiting dogs from running at large):
"Section 18.2-136 of the Code of Virginia authorizes fox hunters and coon hunters, in the appropriate season, to follow their dogs onto private or posted lands while in possession of a firearm or a bow and arrow, when the chase begins on other lands." (Op. Atty. Gen. 261, 1988 WL 408961, 11 Oct 1988)

Reference §3.1-796.93*, "local ordinance that prohibits dogs running at large does not prohibit person's right to hunt foxes with dogs on any land with landowner's consent. Fox hunters engaged in chase originating on permitted land may follow their dogs onto prohibited land to retrieve dogs, but not to continue chase. If fox hunters fail to retrieve their dogs from prohibited land, dogs may be deemed to be running at large."* (Op. Atty. Gen., 1999 WL 463381, 9 Feb 1999)

Landowner Liability and Rights—"Private property rights" are provided for in the Constitution of Virginia (*Article I, Bill of Rights*) and through a myriad of codes in different titles. Analysis and interpretation of this complex issue would require a substantial legal review (R. Davis, VDGIF, personal communication) beyond the scope of this project. However, Title 18.2 contains provisions for landowners to post their property against trespass by hunters, fishermen, and others. Within this same title, §18.2-136 allows certain hunters to retrieve their dogs from "prohibited lands."

§29.1-509 addresses landowner liability pertaining to hunting, fishing, trapping, and other activities. This is Virginia's equivalent of a "recreational use act." This law provides significant protection to landowners from liability claims from others using their lands unless there is gross negligence or willful or malicious failure to warn against a known danger. If the landowner charges a use fee (e.g., lease), protection from liability is reduced.

Table 4 . Laws from the Code of Virginia relevant to hound-hunting.

Angled headings refer to general topics addressed by the codes. Complete text of these laws is available at http://legis.state.va.us/Laws/CodeofVa.htm by searching on code numbers (e.g., "18.2-136").

Code	Local Governing Bodies	Interference with Hunting	Trespass Related	Retrieval Law	Use of Firearms, etc.	Definition of Hunting and Trapping	Regulatory Authority of VDGIF	Landowner Liability	Use of Dogs	Hunting and Trapping Restrictions	Law Enforcement Officers	Summary
§3.1-796.93	x											Local authority - dogs running at large
§15.2-1113.1	x				x					x		Local authority - hunting in certain areas
§15.2-1209	x				x					x		Local authority - weapons discharge in certain areas
§15.2-1209.1	x				x					x		Local authority - loaded firearms on public highways
§15.2-1210	x				x					x		Local authority - hunting in certain areas
§18.2-97.1		x							x			Removal of a dog collar; penalty
§18.2-131			x									Trespass upon licensed shooting preserve
§18.2-132			x									Trespass by hunters and fishermen
§18.2-134			x									Trespass on posted property
§18.2-134.1			x									Posting methods
§18.2-136				x					x			Dog retrieval law
§18.2-286					x							Shooting in or across road or in street
§29.1-100						x	x					Definitions (including hunting)
§29.1-202											x	Ex officio conservation police officers
§29.1-422							x					Permits for field trials
§29.1-501							x					Promulgation of regulations by VDGIF
§29.1-502							x					Adoption of regulations by VDGIF
§29.1-506										x		VDGIF Board to prescribe seasons and bag limits
§29.1-508							x					VDGIF Board to set seasons, bag limits, etc., on VDGIF lands
§29.1-509								x				Landowner liability; "recreational use act"
§29.1-516									x			No deer hound hunting WBR; continuous open fox season
§29.1-520									x	x		Bear hound training season
§29.1-521										x		Unlawful to hunt, trap, possess, sell or transport, etc.
§29.1-521.1		x										Willfully impeding hunting or trapping; penalty
§29.1-526	x									x		Local authority - hunting near highways
§29.1-527	x									x		Local authority - hunting near schools and parks
§29.1-550										x		Taking game during closed season; exceeding bag limit

Administrative Code of Virginia

Eighteen (18) regulations were found relevant to hunting or chasing game animals with hounds (Table 5). Whereas few laws in the Code of Virginia specifically address the use of dogs for hunting or chasing, the Virginia Administrative Code (under *Title 4, Conservation and Natural Resources)* contains many references to such activities. These regulations prescribe time of day, seasons of take and chase, areas open to hunting with dogs, etc.

Regulations may either prohibit or permit dog-hunting activities. For example, 4VAC15-90-260 prohibits the use of dogs for deer hunting in 11 counties (or portions thereof) and 4 Wildlife Management Areas east of the Blue Ridge Mountains, where the Code of Virginia would not prohibit hunting deer with dogs. A permissive regulation is 4VAC15-210-10, which provides for a continuous raccoon chase season with dogs in all counties east of Route 29 and portions of Loudoun and Prince William counties.

Local Ordinances

No attempt was made to contact all local governing bodies across Virginia. However, current law requires a locality to advise VDGIF following adoption of a local ordinance relevant to the mission of VDGIF. VDGIF maintains and annually publishes a list of local ordinances (VDGIF 2007*c*).

Hunting from Roads—At least 26 versions of local ordinances address hunting in or along roadways or transporting firearms in a vehicle. These ordinances involve 38 counties and 8 cities. Only 7 of these counties are closed to deer hunting with dogs, and 4 are west of the Blue Ridge (VDGIF 2007*c*).

Hunting Generally—The Code of Virginia grants local authority to restrict hunting under §15.2-1113.1,1209, 1209.1, and 1210. Two of these codes allow counties and municipalities to prohibit hunting and shooting firearms and bows in heavily-populated areas. Code of Virginia §29.1-526 and 527 provide cities and counties the authority to adopt local ordinances prohibiting hunting near primary and secondary roads, public schools, and regional parks. No review was conducted to determine how many localities have enacted ordinances under these provisions.

COMPARISON OF DOG-HUNTING LAWS BETWEEN STATES

Based on a survey of 50 state wildlife agencies (Appendix 2) and subsequent contacts with knowledgeable agency staff, Virginia and Minnesota appear to be the only 2 states where hunters can lawfully retrieve dogs even when access has been expressly denied by the landowner. In a number of states, retrieval of hunting dogs is legal unless the landowner expressly denies access, by posting or through other written or verbal notification (e.g., LA, MA, ME, MI, MS, ND, NH, VT). A comprehensive legal review, though potentially useful, was beyond the scope of this project.

Other examples obtained through the survey illustrate the legal complexity of dog retrieval:

- In Louisiana and Michigan - where hunters may retrieve dogs on posted lands unless specifically forbidden either verbally or in writing beforehand -landowners have the onus of notification but they ultimately control legal access to their property.
- In Alabama, hunters pursuing raccoons, foxes, or opossums with dogs only, at night, cannot be prosecuted for *hunting* without landowner permission but can be prosecuted for *trespass* (Alabama Law, 9-11-242).

- In New York, dog retrieval is undergoing legal scrutiny, with no definitive answer at present.
- In Oklahoma, hunting without landowner permission generally is prohibited, but interpreting *retrieval* as part of the act of *hunting* may fall to the county district attorney.
- In Utah, a hunter needs permission to retrieve dogs if land is posted or cultivated.
- In West Virginia, it is lawful for hunting dogs to stray onto other properties, but hunters must obtain landowner permission to retrieve them (Code of West Virginia §20-2-7).

Table 5. Regulations from the Administrative Code of Virginia relevant to hound-hunting. Angled headings refer to general topics addressed. Complete text of regulations is available at http://legis.state.va.us/Laws/AdminCode.htm by searching on code numbers (e.g., "4VAC14-40-60").

Regulation	Use of Firearms, etc.	Use of Dogs	Hunting and Trapping Restrictions	Summary
4VAC15-40-60	X	X		Dogs; weapons possession; certain locations; closed season
4VAC15-40-70		X		Open dog training season
4VAC15-40-283		X		Unlawful to chase, hunt or train from a baited site.
4VAC15-40-284		X		Prohibited: harming animals, dislodging from tree, certain use of radio tracking equipment
4VAC15-50-70		X		Bow and arrow hunting - use of dogs prohibited
4VAC15-50-71		X		Muzzleloading gun hunting - use of dogs prohibited
4VAC15-50-110		X		Unlawful use of dogs - certain locations and times
4VAC15-50-120		X		Bear hound training season
4VAC15-70-40		X		Bobcat hunting restrictions with dogs
4VAC15-90-70		X		Prohibits use of dogs when bow and arrow hunting during archery season
4VAC15-90-80		X		Prohibits use of dogs during muzzleloading deer season
4VAC15-90-260		X		Prohibits deer hunting with dogs in certain areas
4VAC15-110-10		X	X	Prohibits fox hunting on National Forests and certain WMA's (Feb - Oct)
4VAC15-110-90		X	X	Prohibits fox hunting during deer season in certain counties, National Forests
4VAC15-210-10		X	X	Authorizes racoon chase season east of Route 29 and other areas
4VAC15-210-20		X	X	Authorizes racoon chase season west of Route 29 and other areas
4VAC15-240-60		X	X	Prohibits use of dogs during early archery season
4VAC15-290-115		X	X	Field trials - authorized dates

FEDERAL LAWS RELATING TO HOUND-HUNTING

Although Virginia laws described above apply across the majority of the Commonwealth, there are exceptions on federal lands. State laws can be superseded by federal laws, as provided for under the Federal Supremacy Act (G. Wissinger, Shenandoah National Park, personal communication). As an example, the National Park Service may capture any free-ranging dog under the authority of Title 36 of the Code of Federal Regulations (CFR), section 2.15 (a) (2), which provides penalties for: "Failing to crate, cage, restrain on a leash which shall not exceed six feet in length, or otherwise physically confine a pet at all times" (G. Wissinger, Shenandoah National Park, personal communication).

Two federal regulations apply to dogs on national wildlife refuges (J. McCauley, U. S. Fish and Wildlife Service, personal communication). Title 50 CFR 26.21(b) states: "No unconfined domestic animals, including but not limited to, dogs, hogs, cats, horses, sheep and cattle, shall be permitted to enter upon any national wildlife refuge or to roam at large upon such as area, except as specifically authorized under [other] provisions." Title 50 CFR 28.43 states: "Dogs and cats running at large on a national wildlife refuge and observed by an authorized official in the act of killing, injuring, harassing or molesting humans or wildlife may be disposed of in the interest of public safety and protection of the wildlife."

At Rappahannock River Valley National Wildlife Refuge, special use permits are issued to dog-hunters for retrieval during the firearms season. Without the permit program, 50 CFR 26.21 would be enforced, and resulting fines would likely dissuade many dog-hunters from hunting private land near the refuge (J. McCauley, U. S. Fish and Wildlife Service, personal communication).

PRAGMATIC ASPECTS CONCERNING LAW ENFORCEMENT

Data on Complaints Associated with Hound-Hunting

The exact number and nature of hunting-related complaints is impossible to track at this time. Although improvements are underway, the current VDGIF dispatch system does not capture all calls or data of sufficient resolution (e.g., complete categories, complaint histories) to thoroughly characterize hound-hunting complaints (R. Henry, VDGIF, personal communication). VDGIF staff besides conservation police officers (CPOs), and staff of other agencies and organizations that receive complaints related to hound-hunting (e.g., VDOT, animal shelters), do not have a formal, centralized reporting system. Many calls for CPO service currently are run through local sheriff's offices and are not shared with DGIF dispatch (K.Clarke, VDGIF, personal communication).

The VDGIF Law Enforcement Division has recently begun implementing 2 new communication systems**.** Computer Assisted Dispatch (CAD) will be used in concert with the Statewide Agency Radio System (STARS). Currently, STARS is functional in approximately 40% of CPO vehicles. Following implementation of both systems, the majority of calls related to hunting will flow through DGIF dispatch.

The 867 calls received by VDGIF dispatch during September 2005 - December 2007 represent only a portion of complaints related to hound-hunting. Of these calls, 474 were related to hunting in roadways, 369 were related to trespass/dog retrieval complaints, and 24 referenced both (VDGIF unpublished data). It is unclear how many of those calls were due to actual infractions and how many were the results of misunderstandings by the callers.

Enforceability of Current Dog-Hunting Laws

Challenges to law enforcement include current CPO staffing levels and certain laws that are open for abuse. As of March 2008, there were 121 CPOs on active field duty, which equates to an average of 1.2 field officers per county. There were 8 counties in Virginia with CPO vacancies (VDGIF, unpublished data). Virginia State Police generally have 10-20 officers assigned to a county, and a typical sheriff's office or police department may have 30-50 officers (R. Henry, VDGIF, personal communication).

Several laws, or lack of laws, enable hound-hunters to engage in activities that lead to conflicts with other citizens or that are viewed as objectionable by the public. Individuals can chase bears or deer with hounds under the guise of chasing foxes or raccoons during legal seasons for these latter species (Code of Virginia §29.1-516, 4VAC15-210-10). An individual can abuse Code of Virginia §18.2-136 to conduct man and/or dog drives on prohibited lands under the guise of retrieving hunting dogs. Road-hunting is challenging to enforce due to a lack of consistent laws among localities and difficulty in making cases even where laws exist. Until individuals are seen shooting across a road, a case is almost impossible to make under current Virginia law. Allowing dogs to run on private property without permission is not considered trespass, and is not illegal unless there are local leash laws. An individual can chase game through prohibited lands onto permitted properties; any risk that a dog may linger on prohibited lands is mitigated by the right to retrieve (§18.2-136).

Impacts of Hound-Hunting on Law Enforcement Agencies besides VDGIF

Hound-hunting affects many law enforcement agencies in Virginia. The Virginia State Police and county sheriff's offices often are called upon to respond to complaints or illegal activities associated with hunting. Under Code of Virginia §29.1-202, *"All sheriffs, police officers or other peace officers of this Commonwealth shall be ex officio conservation police officers."* Some officers are ambitious in enforcing game laws, but many are hesitant to act from a lack of knowledge and experience in this area (R. Henry, VDGIF, personal communication).

Problems related to hound-hunting that are addressed most often by state troopers and sheriff's deputies involve public safety on roads. Safety concerns include hunters blocking roads, speeding and reckless driving, and hunting or shooting from public roads (R. Henry, VDGIF, personal communication).

Many counties employ an animal control officer who generally is supervised by the county sheriff's office but typically is not an *ex officio* CPO. Although specific data are lacking, animal control officers devote resources each year to collecting hounds that presumably were lost or

abandoned by hunters. The extent of this problem is unknown, but sufficiently visible to gain media attention (Caggiano 2008) and to mobilize citizen interest (L. C. Compton, VA Representative for Dogs Deserve Better, personal communication).

SUMMARY AND CONCLUSIONS

The Constitution of Virginia authorizes the General Assembly – which authorizes state regulatory agencies and local governing bodies - to adopt laws. Laws relevant to hound-hunting in Virginia include at minimum 27 codes, 18 regulations, and 26 versions of local ordinance. The Constitution of Virginia does not provide for ballot initiatives to establish law but does require public referenda for constitutional amendments. An amendment ratified in 2000 guarantees Virginians the right to hunt, subject to laws and regulations.

Laws of particular importance to hound-hunting issues include the dog retrieval law, the continuous open season for fox chasing, and authority for localities to restrict hunting. Regulations impacting hound-hunting are permissive (e.g., raccoon chase seasons) or prohibitive (e.g., no deer hunting with dogs in certain counties). A number of states permit retrieval of hunting dogs without landowner permission under certain conditions (e.g., unposted property), but Virginia appears to be one of only 2 states where hunters can lawfully retrieve dogs when access has been expressly denied by the landowner.

Significant challenges to enforcement of hound-hunting laws include inadequate staffing levels and difficulty in differentiating intent to hunt species that are in, versus out, of season. VDGIF law enforcement officers are assisted by other state and local law enforcement agencies. Significant resources are devoted to highway safety and animal control issues related to hound-hunting. Definitive data on complaints and violations relating to hunting with hounds is lacking, but new systems under development offer improved methods to track and report such incidences.

CHAPTER 6—APPROACHES USED TO ADDRESS HOUND-HUNTING ISSUES

INTRODUCTION

Hound-hunting issues may be addressed by a variety of approaches. To help reduce concerns associated with hound-hunting, these approaches involve regulatory or nonregulatory alternatives. Regulatory actions (e.g., changes to the Code of Virginia, the Virginia Administrative Code, or local ordinances) might alter laws that govern citizen behavior, access to property, hunting season participation, and hunting methods. Citizen behaviors also may change in the absence of legal mandates. Nonregulatory approaches that may influence the awareness, opinions, and behavior of citizens would include programs that encourage outreach and education, citizen self-governance, stakeholder collaboration, and property access management under existing laws.

Even if existing legal and educational frameworks sufficiently address hunter and citizen conflicts, adequate staffing and financial support are still required to effectively educate constituents and achieve compliance with laws. New educational or law enforcement initiatives would likely require additional financial support. Additional funding sources for programs designed to target hound-hunting issues might include supplemental agency appropriations, rearranging existing priorities and financial support for other competing programs, and other nongovernmental support.

The following sections describe some approaches to mitigating hound-related issues that have been attempted in Virginia and in other states, categorized by the type of approach (e.g., nonregulatory vs. regulatory). Categories generally are organized from least- to most-restrictive of hound-hunting.

NONREGULATORY APPROACHES

OUTREACH AND EDUCATION

Educational programs encourage citizens to obey laws, respect the rights of others, and understand diverse points of view, including appreciation of hunting traditions. Behavior by hunters and other citizens can sometimes be improved through educational programs. Jackson and Norton (1979) concluded that, to improve hunter ethics and responsibility, (1) education is more effective than regulation or managing hunting conditions, (2) hunters must take primary responsibility to ensure standards among themselves, and (3) hunter education must include opportunities for hunters to become directly involved with wildlife and educational programs.

Virginia Hunter Education

The Virginia Hunter Education Student Manual (VDGIF 2006) includes a section on ethics that stresses the importance of hunter behavior and image – actions, appearance, speech – and respect for hunting companions, nonhunters, landowners, the law, and wildlife. Instructors often put

more emphasis on laws and issues relating to hound-hunting in areas where participation and/or conflicts are greatest; development of a special module on hound-hunting has been discussed during the last year pending recommendations from the *Hunting with Hounds* project (D. Dodson, Hunter Education Coordinator, VDGIF, personal communication).

Masters of Foxhounds Educational Foundation

The Educational Foundation is the education and information arm of Masters of Foxhounds Association of North America. It provides "educational materials and seminars covering all elements of the sport from the breeding, training and hunting of hounds, game management, historical treatises, and how to enjoy yourself more fully as a member of the mounted field" (MFHA 2008). The role of the Foundation is one of disseminating information rather than public advocacy. Just one example of its products is *Covertside*, a quarterly publication (MFHA 2008).

HUNTER/CITIZEN SELF-GOVERNANCE

Self-governance occurs when groups of similar individuals (e.g. sportsmen groups) voluntarily control their own behavior without legal intervention. Self rule is often guided by ethical codes of group conduct designed to avoid criticism, resolve grievances, and discourage the development of outside regulations. Many of these groups also have a well-defined mission statement that encourages ethical behavior. Examples of large sportsmen organizations that have developed codes of conduct or mission statements include the Masters of Foxhounds Association of North America (MFHA), United Eastern Virginia Hunting Dog Association (UEVHDA), and Virginia Bear Hunters Association (VBHA).

Masters of Foxhounds Hunting Code and Accreditation

Virginia foxhunting organizations affiliated with the MFHA conduct their activities in accordance with a strictly-enforced Code of Hunting Practices (MFHA 2008). Key elements of this code include humane treatment of both hounds and hunted quarry. Fair chase is emphasized, with specific guidelines to protect the welfare of the fox (e.g., bayed animals cannot be chased again, escape areas must remain accessible). Responsible hunting behavior and respect for landowners are also important components. For example, the MFHA Code does not allow hunts to interfere with traffic or landowner activities. Accidental damage to property must be rectified. Their code also mandates courtesy to other outdoor users and avoidance of accidental trespass.

MFHA member groups are held accountable for their actions. By accepting membership in MFHA, hunts are bound by MFHA policies as well as relevant hunting laws. Members must cooperate with investigations by MFHA into allegations of misconduct and accept final decisions of MFHA (MFHA 2008).

Foxhunting groups can be sanctioned by the MFHA only after meeting strict accreditation standards (MFHA 20008). Dogs must be well trained and controllable to avoid conflicts with landowners. A territory policy ensures coordination among member groups and provides

exclusive hunting access that promotes positive long-term relationships with landowners. This combination of established accreditation standards and hunting guidelines has helped many Virginia foxhunting groups maintain a positive public image in the communities where they hunt (MFHA 2008).

Organization Mission Statements

The United Eastern Virginia Hunting Dog Association, Virginia Bear Hunters Association, Safari Club International, and Boone and Crockett Club are examples of other hunting groups that promote ethical hunting behavior through established goals, defined mission statements, or codes of ethics (BCC 2008, SCI 2008, UEVHDA 2008, VBHA 2008). Respect for private landowners, fair chase, and projecting a positive image are common elements of their missions. The UEVHDA also promotes responsible animal husbandry and the VBHA encourages involvement with the local community and charitable organizations. Procedures for ensuring member accountability and adherence to policies are well-defined for some organizations (e.g, MFHA, SCI, BCC). However, for most sportsmen's groups, the positive mission statements are not enforced as an expectation of membership.

STAKEHOLDER COLLABORATION

Collaboration among stakeholders with competing interests may result in acceptable solutions or compromises when the process encourages joint stakeholder input, informed discussions of alternative points of view, mutual understanding, and shared decision-making. Occurring on a local or statewide scale, collaboration among diverse stakeholders to resolve conflicting interests may result in regulatory and/or nonregulatory recommendations.

Local Stakeholder Collaboration

Fort Lewis Mountain (Roanoke County, VA) Bear Hunter and Landowner Collaboration—Primarily focused on dog-retrieval issues, landowners surrounding Fort Lewis Mountain had long-standing concerns about bear hunting with hounds. After the VDGIF Board of Directors proposed, but did not approve, a 2003 regulation to close the Fort Lewis Mountain area to bear hunting with dogs, VDGIF biologists facilitated collaborative discussions between key landowners and bear hunters. A series of meetings among 4 landowners and 11 bear hunters introduced stakeholders to each other, identified the problems, and provided information about bear hunting methods and values. Informed discussions fostered mutual respect among conflicting stakeholders and resulted in written guidelines of acceptable behavior for both hunters and landowners. Continued mutual respect among stakeholders and the observance of guidelines have kept hound-related problems between landowners and bear hunters to a minimum.

Virginia Northern Neck and Eastern Shore Deer Hunter/Landowner Advisory Committees.—In response to attempts in 1980 and 1986 to outlaw deer hunting with hounds, the King George County Board of Supervisors formed the King George Hunter/Landowner Advisory Committee in 1986 to investigate and respond to ongoing problems (P. Fines, Jr., communication). The

committee was comprised of 12 individuals representing landowners, law enforcement personnel, and hunt club members. Providing a forum where problems could be discussed, the committee met at least once per year, mitigated anticipated future problems, and reported results to the Board of Supervisors. In 2005, after the original Committee Charter expired, the Committee formed a new charter to continue serving the needs of the landowners and hunting community. Modeled after the King George experience, similar advisory committees have been established in Westmoreland (1996), Accomack (1997), and Richmond (2004) Counties (P. Fines, Jr. and county officials, personal communication).

These Committees have addressed hunting-related issues that include parking on the road (hunter visibility), loaded firearms along roads, dog trespassing, property rights, use of kill permits, and running dogs out of season. Although individual situations (e.g., problems between a landowner and neighboring hunt club) have been resolved, countywide solutions typically have not been offered.

Statewide Stakeholder Collaboration

Arkansas Furbearer Council—During the 1980s, a council of raccoon hunters, trappers, fox hunters, deer hunters, and state agency personnel in Arkansas was assembled to address user conflicts and problems of mutual interest (Hunter 1987). The group was respected by the Arkansas Game and Fish Commission, and Council recommendations were often approved. Over 20 items of general agreement were developed by the Council, including: marking traps, avoidance of turkey hunting areas by houndsmen during spring, furbearer research support, leash law exemptions for hunting dogs, and mutually agreeable hunting season dates (Hunter 1987).

Louisiana Deer Dog Task Forces and Advisory Committees.—In 1989, the Louisiana Deer Management Task Force recommended investigating biological impacts of dog hunting and hunter preference for dog vs. still hunting. The group identified issues of land fragmentation into small parcels, conflicts between houndsmen and still hunters, conflicts between houndsmen and landowners, and biological impacts of dog-hunting in habitats with low deer densities and little escape cover (D. Moreland, LWFC, unpublished report).

In 1991, the Louisiana Deer Season Advisory Committee recognized that hunting deer with dogs could be outlawed if the issues were not addressed. At that time, the two primary issues were hunting from the road and hunter trespass. The Committee made specific recommendations to LWFC (D. Moreland, LWFC, unpublished report):

- remove dog retrieval as a defense for trespass;
- require collars with hunter's name and driver's license number;
- establish a civil penalty for trespass by dogs;
- curb road-hunting violations;
- hold formal public input processes when considering opening dog-hunting areas;
- equitably allocate deer hunting days between still and dog hunters.

Outcomes of these recommendations included expanding an area for dog-hunting in swampy habitats, allocating hunting days equally for dog-hunting and still hunting, delineating some new

still-hunting-only areas, and a regulation allowing the use of dogs for tracking wounded deer. No requirements for dog hunters (e.g., dog collar information) were developed. During this time, trespass laws were changed by the Louisiana legislature, but the onus remains on the landowner to notify hunters they cannot enter property to retrieve dogs (D. Moreland, LWFC, personal communication).

During January-November 2006, the Hunting Regulations Committee of the Louisiana Wildlife and Fisheries Commission (LWFC) conducted 5 meetings of the Louisiana Deer Dog Task Force. The Task Force was made up of deer hunters who use dogs, still hunters, private landowners, and federal and state land management agency representatives. The central issue the group was tasked with addressing was hunter trespass, particularly in the Atchafalaya Basin where chases are started on small public and private properties where boundaries are not clearly marked. The charge of the Task Force was to resolve differences between parties and arrive at administrative measures for regulation of deer hunting with dogs. Strategies discussed included permits for deer hunting with dogs on private lands and state wildlife management areas, changing deer hunting season dates in problem areas, and prohibiting deer hunting with dogs. No consensus was reached, as votes broke on user group lines. The Hunting Regulations Committee did not make any regulation recommendations to LWFC, and concluded that the issue was one of civil trespass and outside the purview of the LWFC. The Task Force was adjourned because the group could not reach consensus on a proposal(s) that could be addressed administratively by LWFC (D. Moreland, LWFC, unpublished report).

South Carolina Deer Dog Hunting.—A bill was filed in the South Carolina Senate in late 2007 to require a permit for deer hunting with dogs. The bill was tabled during the 2008 session in committee, and the South Carolina Department of Natural Resources (SCDNR) was asked to conduct a stakeholder involvement approach to make a recommendation. SCDNR and Clemson University are currently leading an ongoing collaborative process involving landowners and deer hunters who do and do not use hounds. Recommendations from the Dog Deer Hunting Stakeholders Working Group should be available in July or August 2008 (C. Ruth, SCDNR, personal communication).

Hunting with Hounds in Virginia: A Way Forward.—This ongoing project was initiated in 2007 by VDGIF, in cooperation with Virginia Tech. The rationale and the goal of the process are described in Chapter 1 of this report. Among the many avenues of public participation in the process is an 18-member Stakeholder Advisory Committee (SAC), which is collaborating with the VDGIF Technical Committee to review public input and technical information to make recommendations addressing hound-hunting issues. Members of the SAC represent landowners, hunters who do not use hounds, nonconsumptive-recreationists, agricultural interests, animal welfare interests, and hunters who use hounds to hunt bear, deer, foxes, rabbits, and raccoons. The process and recommendations will be fully described at the conclusion of the process. In the meantime, periodic updates are provided through newsletters and online at http://www.dgif.virginia.gov/hunting/hounds/.

PROPERTY ACCESS MANAGEMENT

In some instances, existing laws and regulations may already provide citizens with options for solutions to hound-related conflicts. An example of managing issues associated with hunting and hunters under existing laws is property access management through posting and lease restrictions.

Posting Private Property

In Virginia, hunting on unposted property without the permission of the landowner is unlawful and punishable by a fine of up to $500 (Code of Virginia §18.2-132). Landowners may post their property using either signs specifically prohibiting hunting, fishing, or trespassing or a 2-inch-wide by 8-inch-long mark of aluminum paint placed 3-6 feet above ground or normal water level and visible while approaching the property (§18.2-134.1). Hunting on posted property without written permission is punishable by a fine of up to $2500 and/or 12 months in jail (§18.2-134). Within this same Code of Virginia title, §18.2-136 allows certain hunters to retrieve their dogs from "prohibited lands."

In North Carolina, the Registered Lands program allows landowners to control who enters their property for hunting and fishing. To participate, a landowner must register a specific property with the North Carolina Wildlife Resources Commission (NCWRC) and post it according to the program guidelines (e.g., sign size specifications, landowner information on signs). Entry permits issued by NCWRC are required for individuals to hunt and/or fish on a participating property (G. Faircloth, NCWRC, unpublished information).

Corporate Property Restrictions

In several southeastern states, corporate timber companies have reduced or eliminated opportunities to hunt deer with dogs. Due to a substantial number of complaints regarding hound-hunting clubs, Vision Forestry, which administers the hunting rights on approximately 8,600 acres on the Eastern Shore of Virginia, changed their lease agreement to disallow the use of hounds during the deer firearms season on those lands in 2007 (Quaiff 2007; L. Walton, Vision Forestry, personal communication).

Due to complaints from adjoining landowners regarding hunting with hounds, International Paper Company (IP) and Weyerhaeuser have changed their lease agreements since the 1980s to disallow the use of hounds for hunting deer on properties in several southeastern states (GON 2004). Plum Creek Timber Company still allows dog-hunting for deer on a number of its leases in Georgia through the Department of Natural Resources (GDNR) permit system, described below. Plum Creeks has cancelled leases on properties where the company has determined that hunting deer with dogs is not compatible with surrounding land uses. These changes have sometimes coincided with GDNR action against deer dog-hunting permittees where problems have been persistent (J. Bowers, GDNR, personal communication).

In South Carolina, an adjoining private landowner brought suit against IP in 2002 regarding the issue of deer hunting with hounds. The basis of the suit was a claim of nuisance arising from the disruption caused by trespassing hounds from the hunt clubs who leased IP land. The court ruled that IP was responsible for causing a nuisance; however, the adjoining landowners request for a temporary injunction to prohibit deer hunting with hounds was not upheld by the court (*FOC Lawshe, L.P. V. International Paper Co.* 352 S.C. 408, 574 S.E.2d 228 2002). The case has been settled out of court. Although the lawsuit has not been cited as the reason, IP and the subsequent buyer of its holdings have either prohibited or restricted deer hunting with dogs on its leases in several states (C. Ruth, personal communication).

Much of IP's holdings in Virginia have been purchased by the Westervelt Corporation, which continues to allow hound-hunting on its leases in the state. A number of clubs leasing with Westervelt are Deer Management Assistance Program cooperators and they have developed successful quality deer management programs working with VDGIF and Westervelt biologists (J. Smith, Westervelt Wildlife Services, and M. Knox, VDGIF, personal communication).

STATUTORY AND REGULATORY APPROACHES

Many states have addressed hound-hunting concerns through implementation of laws, frequently making hunting seasons and regulations more restrictive for hunters, hunt clubs, and dogs.

INCREASED PENALTIES FOR EXISTING LAWS

Increased penalties (e.g., fines, jail time, loss of hunting privileges) for violation of hunting laws might improve compliance and raise awareness of existing laws. Penalties and judicial latitude in application are authorized by legislative actions. Although it ultimately failed during the 2008 session of the Virginia General Assembly, SB263 proposed an increase in the penalties for violations of the dog-retrieval law (Code of Virginia §18.2-136).

REGISTRATION/PERMITTING PROGRAMS

In order to track hunters and hunting activity, several states have implemented programs that require special permits or licensing for deer and bear hound-hunters or hound-hunting clubs. In some instances, special conditions (e.g., acreage minimums) are requirements of the permit.

Deer Dog Registration/Permitting Programs

Alabama.—In 5 Alabama counties, hunt clubs must obtain a permit from the Alabama Wildlife & Freshwater Fisheries Division (AWFFD) in order to hunt deer with dogs on leased lands. Private landowners can use dogs to hunt deer on their own property without a permit (C. Cook, AWFFD, unpublished information). In May 2008, the Alabama Conservation Advisory Board (ACAB) formed a committee to consider a statewide permit system. The committee recommended that a permit system, implemented on a county-by-county basis, should be considered to address deer dog-hunting conflicts. The ACAB took no action on this recommendation for the 2008-2009 hunting season (ADCNR 2008*a*).

Permit requirements in the 5 Alabama Counties include a list of all members, a map of the hunted area, lease information, and a minimum of 200 or 400 acres (or 20 acres per club member). All club members must carry member cards and each dog collar must have the approved permit number attached. Clubs applying to hunt small isolated tracts may be denied a permit if it is deemed that the use of dogs will contribute to safety issues or conflicts with landowners. Violations that include having a loaded weapon in a road or right-of-way, trailing of game onto lands not covered by the permit, and law violations may result in suspension, probation, or revocation of the permit (C. Cook, AWFFD, unpublished information).

Arkansas (proposed).—In 2006, the Arkansas Fish and Game Commission (AFGC) considered a deer dog hunting permit system, tying hound-hunters and dogs to specific properties, to address conflicts with landowners and still hunters. The idea was tabled due to protests from dog-hunting organizations (C. Gray, AFGC, personal communication).

Florida.—In response to dog-hunting conflicts (primarily dog trespass), the Florida Fish and Wildlife Conservation Commission (FWCC) held public meetings in 2004 to discuss solutions (R. Vanderhoof, FWCC, personal communication). A pilot registration program was initiated in the northwestern portion of the state. During the first year, 57 clubs registered 70 properties totaling 340,000 acres in 14 counties. Complaints relating to dog-hunting for deer decreased in the pilot region but increased in other areas of the state. In 2005-2006, the program was expanded statewide at the recommendation of staff. Landowner complaints have largely disappeared and the FWCC receives few complaints from hunters regarding the system (R. Vanderhoof, FWCC, personal communication).

The no-cost registration system is required any season when dogs are used to hunt deer on private lands. The application requires a map and description of the property. The dog must have the registration number on the collar and a copy of the registration must be in the owner's possession. Dogs must be kept on registered property and citations could result if the dogs are on unregistered property (R. Vanderhoof, FWCC, personal communication).

Georgia.—Deer dog/hunter trespass and road interference have been the primary issues motivating dog-hunting restrictions in Georgia (Bowers et al. 2007). Prior to the 2003 season, closure of counties to dog-hunting and reducing the length of the season when dogs could be used were the approaches used to address these issues. Landowner surveys identified 10 counties with 59-80% opposition to hound deer hunting. In 2003, the Georgia Department of Natural Resources (GDNR) Board was considering additional closures in these areas when the Georgia Dog Hunters Association sought a law change to mutually protect landowners' and dog-deer hunting interests (Bowers et al. 2007). The law directed GDNR to develop a permit program for hunting deer with dogs, where the permit is tied to a specific property. The GDNR assembled a group of hunters, landowners, and staff to develop the regulatory details of the program.

Although permit/license requirements have changed slightly since 2003, basic tenets are as follows: permitted properties must be of a minimum contiguous size (250 acres for private

landowners and 1000 acres for leased properties), maps of permitted properties with boundaries are required, and dogs and vehicles must be marked with permit numbers. Conditions leading to revocation of the permit include dogs leaving permitted properties, interference with public use of roads, and persons trespassing on adjacent nonpermitted properties (Bowers et al. 2007).

During the first year under the permit program, GDNR issued 358 permits to clubs (1.7 million acres), of which 75% had no significant problems and 3% had significant law violations (Bowers et al. 2007). Only 2 club permits were revoked, and these were for habitual violation of hunting regulations and permit conditions, including hunting out of season and without a license, dogs running on adjacent properties, failure to mark dogs and vehicles, and threats against properties and landowners. In 2006, the property permit fee was removed, an individual $5 dog hunting license was established, and individual licenses could be revoked for failure to comply with dog-hunting conditions named in the preceding paragraph (Bowers et al. 2007). The license is required for anyone 16 years of age or older hunting deer with dogs. The number of deer dog-hunting licenses issued increased from 9,733 to 11,712 during 2006 to 2008 (J. Bowers, GDNR, personal communication).

Since the permit/license program has been in place, public complaints have decreased and no new county-level restrictions have been enacted (J. Bowers, personal communication). Regarding the permit program, GDNR's stated position has been "to support this traditional activity where it can be maintained at some reasonable level of compatibility with other land uses" (Bowers et al. 2007).

Bear Dog Permits/Licenses

The states of Massachusetts, New Hampshire, New York, Vermont, and Wisconsin require permits or licenses to hunt or chase bears with dogs (Gore 2003). In Massachusetts, a free permit was required for bear hound-training before the 1996 ballot initiative banned bear hunting with dogs (J. Cardoza, Massachusetts Division of Fisheries and Wildlife, personal communication). In New York, bear-dog handlers are required to be licensed by the New York State Department of Environmental Conservation (NYSDEC) and to file training logs at the end of each season. These training logs capture data regarding the use of radio collars, expenditures, group/pack sizes, success in striking scent, extent of chases, and interactions with landowners and other citizens (J. Hurst, NYSDEC, personal communication).

DOG-MANAGEMENT LAWS

In order to address citizen perceptions and other issues with deer and bear hounds, some laws have been implemented to specifically manage dog pack size, types of dogs, and dog-related electronic equipment.

Small Dogs for Deer Hunting

Requirements to use only small dogs (e.g., beagles) for hunting deer have been established in Arkansas and Florida (Hunter 1987, FGFWFC 1991). Data from an Arkansas study indicated that using small dogs resulted in smaller chase areas (Sealander et al. 1975, in FGFWFC 1991).

In Arkansas, the requirement primarily addressed the greater efficiency of larger dogs in mountainous areas (Hunter 1987). Beagle-only requirements were in effect for a relatively short period before all types of dogs were allowed due to complaints of discrimination from hunters who had larger breeds of dogs. As time progressed, dogs were eliminated altogether for deer hunting in some of these problem areas (M. Cartwright and C. Gray, AR Game and Fish Commission, personal communication).

In Florida, the use of beagle and beagle-hound crosses was supported by some hound-hunters to reduce trespass concerns (FGFWFC 1991). The Florida Game and Fresh Water Fish Commission (FGFWFC) adopted a small dog requirement for hunting deer on selected state lands (FGFWFC 1991). The effectiveness of this requirement in reducing the size of the chase area has not been evaluated (R. Vanderhoof, FWCC, personal communication).

Pack Size Limits for Bear Hunting

The states of California, Maine, Massachusetts, New Hampshire, Vermont, and Wisconsin limit the number of dogs that can be used to hunt or chase bears. California has a limit of 1 dog per hunter during the open deer season. After the deer season closes, there is no limit on the number of dogs that may be used to hunt bear (CDFG 2007). In Maine, bear hunters may not use more than 4 dogs (Gore 2003). Prior to the 1996 ballot initiative that banned bear hunting with dogs in Massachusetts, pack size was restricted to a maximum of 6 dogs for hunting (4 dogs for training) and replacing or relaying packs (substituting new dogs during the chase) was disallowed; these limits were related primarily to trespass issues and secondarily to perceptions of fair chase and hunter image (J. Cardoza, MA Division of Fisheries and Wildlife, personal communication). Pack size is limited to 6 dogs for bear hunting in New Hampshire, Vermont, and Wisconsin (Gore 2003; K. Gufstason, NH Fish and Game Department., personal communication).

Dog Telemetry Restrictions

California and Massachusetts have restricted the use of tracking collars for hunting dogs. In California, electronic collars containing treeing switches (devices that change signal when the dog raises its head) were prohibited for dogs used to hunt mammals in 1995. Electronic collars with global positioning systems are prohibited on dogs used to hunt mammals (D. Updike, California Department of Fish and Game, personal communication). In Massachusetts, dog tracking collars were prohibited in 1990 for bear hunting, but still allowed for training, until the ballot initiative banned all bear hunting with dogs in 1996. The prohibition on tracking collars was made primarily to prevent guides from leading multiple clients to overharvest bears, although fair chase and landowner issues were considered, as well (J. Cardoza, personal communication).

CLOSURES BY TIME PERIOD

For a variety of reasons, seasonal closures or reductions for using hounds have been implemented in many states with hound-hunting. During reduced or split-seasons, only portions of the entire hunting season allow the use of dogs. Closures are most frequently used for deer and bear hunting with dogs, but other types of hound-hunting can be impacted (e.g., raccoon chase season west of Rt. 29 in Virginia is closed during June and July on private lands [VDGIF 2007*c*]).

Deer Dog Season Reductions

Georgia.—Prior to the establishment of the deer dog hunting permit program in 2003, dog-hunting conflicts were addressed by closing counties or portions of counties where problems were most intense, reducing the length of deer season when dogs could be used, and a combination of both. In 2002, a proposal to reduce the length of the deer dog hunting season in problem counties was not adopted but precipitated the law resulting in a permit system (Bowers et al. 2007).

Mississippi.—For several decades in Mississippi, dogs have been prohibited during portions of the deer season to allow still hunters an opportunity to hunt without disruptions by dogs (Steffen et al. 1983). For example, during the 2008-2009 gun deer season, dogs will be permitted during the periods November 22-December 1 and December 24-January 21, but prohibited during December 16-23 (MDWFP 2008).

Texas.—In 1986, the length of the deer season in Texas when dogs could be used was reduced to alleviate tensions between landowners and hunters (Campo and Spencer 1991). However, support for the regulations diminished as conflicts increased between dog and nondog deer hunters. Because of this continuing conflict and results of a 1989 study assessing biological and sociological aspects of deer hunting with dogs, Texas Parks and Wildlife Department prohibited all dog-hunting for deer in 1990 (Campo and Spencer 1991).

Bear Dog Season Closures

California.—The spring and summer bear dog training seasons were eliminated in 1985, but the use of dogs during the bear harvest season was continued (D. Updike, CA Department of Fish and Game, personal communication). The dog training season was eliminated in bear range because modeling indicated a large amount of unaccounted bear mortality. Bear hunting seasons were lengthened so dog training could occur while legally pursuing bears for potential harvest. The previously unaccounted mortality during the training seasons showed up as an increase in hunter take during the following years (D. Updike, CA Department of Fish and Game, personal communication).

Massachusetts.—Historically in Massachusetts, houndsmen could train their dogs on any game species (except deer) at any time except during the shotgun deer season, with virtually no

restriction (J. Cardoza, MA Division of Fisheries and Wildlife, personal communication). As bear populations began to grow, houndsmen became more interested in bears and nonresident hunters were attracted to Massachusetts because hound-training was unregulated. Due to confrontations between landowners and bear hound-hunters, trespassing, and noise complaints, the Board of the Massachusetts Department of Fish and Game shortened hound-training periods in 1990 (J. Cardoza, personal communication).

New York.—The bear-dog training season runs from July 1 until 9 days prior to the bear hunting season, but there is no season for hunting bears with dogs (J. Hurst, NYSDEC, personal communication). In 1990, the American Society for the Prevention of Cruelty to Animals filed a motion in the New York State Supreme Court seeking an injunction against the use of dogs for bear hunting. The Court granted the injunction, citing an early New York Environmental Conservation Law, written when bear populations were nearly extirpated, that prohibited the use of dogs to hunt bears. Despite multiple attempts, this law has not been changed (J. Hurst, NYSDEC, personal communication).

Virginia.—Bear hunting with dogs is prohibited during any special muzzleloader season statewide (4VAC15-50-71) and during the open deer season west of the Blue Ridge Mountains and portions of Amherst, Bedford, and Nelson County (4VAC15-50-110). Dogs are also prohibited for hunting bear during the first 12 hunting days of the open deer season in Greene and Madison Counties (4VAC15-50-110). These seasonal closures are intended to prevent conflicts between still hunters and houndsmen.

CLOSURES BY SPECIFIC AREA

As the result of landownership patterns, geography, and attitudes about the use of hounds for hunting, several states do not allow hound-hunting in specific areas. Some of these local or regional dog-hunting closures are the result of traditional and long-standing hunting styles, while other area closures are more recent and reflect conflicts and changing public attitudes about the use of hounds. Closures are most frequently used for deer and bear hunting with dogs, but other types of hound-hunting can be impacted (e.g., in Virginia, raccoon hunting with dogs is prohibited on some eastern WMAs and raccoon chase season is closed on most public lands west of Rt. 29 [VDGIF 2007*c*]).

Deer Dog Area Closures

Alabama County Closures.—Primarily because of complaints and violations associated with hound-hunting, 37 counties in Alabama have some type of restriction or ban on the use of dogs to hunt deer to address. The hunting of deer with dogs has been banned entirely on private lands in 15 of Alabama's 67 counties. In May 2008, the Alabama Conservation Advisory Board closed portions of 4 counties to deer hunting with dogs, bringing the total of partially-closed counties to 14. U. S. Forest Service lands are closed to dog-hunting for deer in all or part of 13 counties. As noted above, 5 counties allow dog deer hunting by special permit only (C. Hill, C. Cook, and M. Bloxom, AL Wildlife & Freshwater Fisheries Division, personal communication; ADCNR 2008b).

Arkansas No-Dog Zones.—No-dog zones were initially established because dogs were considered too effective for hunting deer in mountainous habitats (Hunter 1987). Some of the no-dog zones were beagle-only zones for a short time (C. Gray, AR Game and Fish Commission). In 2000 and 2002, the Arkansas Dog Hunters Association sought an injunction against the Arkansas Game and Fish Commission (AGFC) for closures on hunting deer with dogs in the northern and eastern parts of the state, on grounds that AGFC was arbitrary and capricious and acted without rational basis. The court dismissed the complaint and ruled that AGFC had made an informed decision based on biological and sociological data demonstrating concerns with dog-hunting for deer (e.g., trespassing, road hunting, disturbance). The facts and ruling in this case are similar to those of earlier cases in Alabama, Arkansas, Mississippi, and Texas regarding deer hunting with dogs (*Hudspeth et al. V ACFC* No. CIV-02-2742, Pulaski County Circuit Court, AR, 2004).

Florida Pubic Land Policy.—In 1990, the Florida Game and Fresh Water Fish Commission developed guidelines for where and when to allow deer hunting with dogs on public lands (FGFWFC 1991): (1) separation of hound-hunting spatially and temporally from other types of hunting and outdoor recreation, (2) consideration of regional demand for deer hunting with dogs and opportunity on other lands nearby, (3) requirement of a 33,000-acre minimum for all types of deer dogs and a 15,000-acres minimum for small dogs only, and (4) a good road system to facilitate interception and retrieval of dogs.

Georgia County Closures.—Prior to the establishment of the deer dog hunting permit program in 2003, dog-hunting conflicts were addressed by closing counties or portions of counties where problems were most intense, reducing the length of deer season when dogs could be used, and a combination of both. Between 1950 and 1980, the number of Georgia counties open to deer hunting with dogs was reduced from 63 to 46 counties, primarily due to biological impacts and the lack of interest or tradition in these areas. From 1980 to 2003, 5 additional counties were closed primarily due to conflicts between dog deer hunters, landowners, and still hunters, as well as changes in land use and ownership. The Board of Natural Resources (GDNR) adopted regulations to close these counties based on increasing complaints and public dissatisfaction and data obtained from landowner surveys. In 2002, proposed closures in 4 additional counties due to conflicts noted above prompted development of the deer dog-hunting permit program (Bowers et al. 2007; J. Bowers, GDNR, personal communication).

North Carolina Area Closures.—During the 2008-09 regulatory cycle, the North Carolina Wildlife Resources Commission (NCWRC) passed a regulation that prohibited hunting deer or bear on two public gamelands because the size, location, and configuration of these parcels were not conducive to hunting with dogs. Adjacent private landowners and hunt clubs had complained of disruptions from dog-hunters who began their chase on public land (C. Olfenbuttel, NCWRC, personal communication).

Texas Area Closures.—In 1925, deer hunting with dogs was prohibited in most of Texas. By 1983, only 10 counties in eastern Texas were open to deer hunting with dogs under special laws, which were repealed in 1984 when all wildlife resources regulation responsibility was placed

under the Texas Parks and Wildlife Department (TPWD, Campo et al. 1987). TPWD initially maintained dog hunting in these 10 counties, but increasing conflicts among all parties led to a total prohibition of dog-hunting for deer in Texas in 1990 (Campo and Spencer 1991).

Virginia Area Closures.—Hunting deer with hounds has been prohibited by state law west of the Blue Ridge Mountains since 1948 (Code of Virginia § 29.1-516; Peery and Coggin 1978). Eight southwestern Piedmont counties (or portions thereof) east of the Blue Ridge Mountains were incorporated into the "western" framework during the 1950s and 1960s, resulting in the deer "dog line" (Figure 4 in Chapter 1, Peery and Coggin 1978). The "dog line" was established as western counties that had been closed and stocked with deer were reopened to hunting. Dogs were prohibited primarily due to overharvest concerns in mountainous areas with low deer populations that were recently established. Moreover, the tradition of using dogs to hunt deer was not as strong in western Virginia as in eastern Virginia (Peery and Coggin 1978). Three counties east of the "dog line" (i.e., Fairfax, Loudoun, and Northampton) are also closed to deer hunting with dogs under 4VAC15-90-260. As with areas west of the dog line, these counties were reopened for deer hunting relatively late, so the dog-hunting tradition had declined and managers wanted to reopen the season conservatively (M. Knox, VDGIF, personal communication; Peery and Coggin 1978).

Several hound-hunting closures on state and federal lands in Virginia, mostly related to deer hunting, have been based on land purchase restrictions, incompatibility with managed hunts, conflicts between hunters on areas with high use, or concerns about hunter and/or hound encroachment onto adjacent properties (VDGIF Regional Wildlife Managers, personal communication).

Bear Dog Area Closures

Georgia Area Closures—Bear hunting with hounds is only allowed in southern Georgia, except on the one state wildlife management area in that region where bear hunting with hounds is prohibited due size and configuration constraints (G. Nelms, GA Department of Natural Resources, personal communication). The hound-hunting tradition for bears in the mountains of northern Georgia probably declined due to a concern for hunting big game with dogs. Dogs were blamed for the near-elimination of deer in the area. In southeastern Georgia, support for a bear season, including hunting bears with hounds, was related to beekeepers' desires to control bear damage. The honey industry has declined, but the hound-hunting tradition continues (G. Nelms, GA Department of Natural Resources, personal communication).

*Virginia Area Closures***.—**The use of hounds to hunt bears is prohibited over the majority of Virginia. Hounds can be used to hunt bears generally along and west of the Blue Ridge Mountains (with a few exceptions, e.g. Floyd County) and in 3 cities around the Great Dismal Swamp (Suffolk, Chesapeake, and Virginia Beach; 4VAC15-50-110). Bear chase season is available where bear hunting with hounds is permitted, plus the counties of Brunswick, Greensville, Lunenburg, and Mecklenburg (4VAC15-50-120).

Designated Zones—In Wisconsin and Tennessee, bear hunting with dogs is only allowed in designated hunting zones (Gore 2003). In Wisconsin, Bear Management Zones allow the Department of Natural Resources to better control the distribution of hunters and shift hunting pressure to areas of high nuisance and/or damage complaints (WDNR 2008). In at least one zone with little public land available, bears may not be pursued with hounds due to potential conflicts with private landowners (L. Olver, WDNR, personal communication).

COMPLETE PROHIBITION OF HOUND-HUNTING

Some states have traditionally not allowed the use of dogs, at least for hunting big game species. In other states, ballot initiatives and regulatory actions during the past 16 years have banned dogs for recreational hunting of some species. Ballot initiatives have outlawed dogs for hunting selected game species in Colorado (1992), Oregon (1994), Massachusetts (1996), and Washington (1996). Texas Parks and Wildlife Department prohibited deer hunting with dogs in 1990. See Chapter 4 for additional details.

SUMMARY AND CONCLUSIONS

Approaches used to address hound-hunting issues in Virginia and across the United States have ranged from nonrestrictive, voluntary measures (e.g., education, codes of ethics, multi-stakeholder guidelines) to partial closures or complete prohibitions on hound-hunting. The diversity of approaches that have been used to address hound-hunting conflicts demonstrates the importance of considering the unique aspects of each situation. Although many approaches have reduced opportunities for hound-hunters, these restrictions have often been designed to prevent complete elimination of hound-hunting in some areas.

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Appendix 2. Email survey of all 50 state wildlife agencies.

The VDGIF Technical Committee administered a brief email survey to all 50 state wildlife agency directors during March 2008. Responses were obtained from 42 (84%) states, complemented by an internet review of game laws for the other 8 states. Survey text follows.

(1) Which of the following species can be hunted or chased with hounds in your state? NOTE: This does not include dogs used to hunt upland game birds or waterfowl. Please "X" all that apply.

_____ *No species can be hunted or chased with hounds (if "no species", please skip to #5, "contact info," at bottom and return the survey)*

_____ *Deer*
_____ *Bears*
_____ *Raccoons*
_____ *Opossums*
_____ *Foxes*
_____ *Rabbits*
_____ *Squirrels*
_____ *Coyotes*
_____ *Bobcats*
_____ *Feral or wild hogs*
_____ *Mountain lions*
_____ *Other:*

(2) Is a hunter in your state allowed to retrieve hounds from a property without landowner permission? Please "X" yes, no, or it depends.

_____ *Yes* _____ *No* _____ *It depends (please explain):*
**If yes, please provide a copy of the law/regulation/policy*

(3) Please indicate with an "X" whether you consider each issue below to be of no concern, somewhat a concern, or a serious concern in your state.

Conflicts between hound-hunters and landowners:
_____ *No concern* _____ *Somewhat a concern* _____ *Serious concern*
Conflicts between hunters who do not use hounds and landowners:
_____ *No concern* _____ *Somewhat a concern* _____ *Serious concern*
Conflicts between hound-hunters and other sportsmen:
_____ *No concern* _____ *Somewhat a concern* _____ *Serious concern*
Conflicts between hound-hunters and nonhunting-recreationists:
_____ *No concern* _____ *Somewhat a concern* _____ *Serious concern*
Conflicts between hunters who do not use hounds and nonhunting-recreationists:
_____ *No concern* _____ *Somewhat a concern* _____ *Serious concern*
Hound-hunters impeding traffic or hunting from roads:
_____ *No concern* _____ *Somewhat a concern* _____ *Serious concern*
Hunters who do not use hounds impeding traffic or hunting from roads:
_____ *No concern* _____ *Somewhat a concern* _____ *Serious concern*
Hound-hunting/chasing out of season under guise of pursuing different game; e.g., deer hunting during a fox chase season:
_____ *No concern* _____ *Somewhat a concern* _____ *Serious concern*
Other:
_____ *No concern* _____ *Somewhat a concern* _____ *Serious concern*

(4) Are there any other comments you wish to share?
(5) Your contact information: