The Impact of Today's Choices on Tomorrow's Deer Hunters

February 21–23, 2005

National Conservation Training Center
Shepherdstown, West Virginia
Hosted by the
West Virginia Division of Natural Resources

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THE SOUTHEAST DEER STUDY GROUP

The Southeast Deer Study Group was formed as a subcommittee of the Forest Game Committee of the Southeastern Section of The Wildlife Society. The Southeast Deer Study Group Meeting is hosted with the support of the directors of the Southeastern Association of Fish and Wildlife Agencies. The first meeting was held as a joint Northeast-Southeast Meeting at Fort Pickett, Virginia, on September 6-8, 1977. Appreciating the economic, aesthetic, and biological values of the white-tailed deer *(Odocoileus virginianus)* in the southeastern United States, the desirability of conducting an annual Southeast Deer Study Group meeting was recognized and urged by the participants. Since February 1979, these meetings have been held annually for the purpose of bringing together managers, researchers, administrators, and users of this vitally important renewable natural resource. These meetings provide an important forum for the sharing of research results, management strategies, and discussions that can facilitate the timely identification of, and solutions to, problems relative to the management of white-tailed deer in our region. The Deer Subcommittee was given full committee status in November, 1985, at the Southeastern Section of The Wildlife Society's annual business meeting.

SOUTHEAST DEER STUDY GROUP MEETINGS

Year	*Location*	*Meeting Theme*
1977	Fort Pickett, VA	-
1979	Mississippi State, MS	-
1980	Nacogdoches, TX	-
1981	Panama City, FL	Antlerless Deer Harvest Strategies
1982	Charleston, SC	-
1983	Athens, GA	Deer Damage Control
1984	Little Rock, AR	Dog-Deer Relationships in the Southeast
1985	Wilmington, NC	Socio-economic Considerations in Managing White-tailed Deer
1986	Gatlinburg, TN	Harvest Strategies in Managing White-tailed Deer
1987	Gulf Shores, AL	Management: Past, Present, and Future
1988	Paducah, KY	Now That We Got 'Um, What Are We Going To Do With 'Um?
1989	Oklahoma City, OK	Management of Deer on Private Lands

1990	Pipestem, WV	Addressing the Impact of Increasing Deer Populations
1991	Baton Rouge, LA	Antlerless Deer Harvest Strategies: How Well Are They Working?
1992	Annapolis, MD	Deer Versus People
1993	Jackson, MS	Deer Management: How We Affect Public Perception and Reception
1994	Charlottesville, VA	Deer Management in the Year 2004
1995	San Antonio, TX	The Art and Science of Deer Management: Putting the Pieces Together
1996	Orlando, FL	Deer Management Philosophies: Bridging the Gap Between the Public and Biologists
1997	Charleston, SC	Obstacles to Sound Deer Management
1998	Jekyll Island, GA	Factors Affecting the Future of the Deer Hunting
1999	Fayetteville, AR	QDM - What, How, Why and Where?
2000	Wilmington, NC	Managing Deer in Tomorrow's Forests: Reality vs. Illusion
2001	St. Louis, MO	From Lewis & Clark to the New Millennium - The Changing Face of Deer Management
2002	Mobile, AL	Modern Deer Management – Balancing Biology, Politics, and Tradition
2003	Chattanooga, TN	Into the Future of Deer Management: Where Are We Heading
2004	Lexington, KY	Today's Deer Hunting Culture: Asset or Liability?
2005	Shepherdstown, WV	The Impact of Today's Choices on Tomorrow's Deer Hunters

MEMBERS OF THE DEER COMMITTEE OF THE SOUTHEASTERN SECTION OF THE WILDLIFE SOCIETY

Name	*State*	*Employer*
Chris Cook	Alabama	Alabama Department of Conservation and Natural Resources
Cory Gray	Arkansas	Arkansas Game and Fish Commission
John Morgan	Florida	Florida Fish and Wildlife Conservation Commission
Stephen M. Shea	Florida	St. Joe Timberland Company
Kent E. Kammermeyer	Georgia	Georgia Department of Natural Resources
Karl Miller	Georgia	University of Georgia
Jon Gassett	Kentucky	Kentucky Department of Fish and Wildlife
Jonathan W. Day	Kentucky	Kentucky Department of Fish and Wildlife
David W. Moreland	Louisiana	Louisiana Department of Wildlife and Fisheries
L. Douglas Hotton	Maryland	Maryland Department of Natural Resources
Stephen Demarais (Chair)	Mississippi	Mississippi State University
Larry Castle	Mississippi	Mississippi Department of Wildlife, Fisheries and Parks
Jeff Beringer	Missouri	Missouri Department of Conservation
Lonnie Hansen	Missouri	Missouri Department of Conservation
Evin Stanford	North Carolina	North Carolina Wildlife Resources Commission
J Scott Osborne	North Carolina	North Carolina Wildlife Resources Commission
Kenneth L. Gee	Oklahoma	Samuel Roberts Noble Foundation
Michael G. Shaw	Oklahoma	Oklahoma Department of Wildlife Conservation
David C. Guynn, Jr.	South Carolina	Clemson University
Charles Ruth	South Carolina	South Carolina Department of Natural Resources
Ben Layton	Tennessee	Tennessee Wildlife Resources Agency
Mitch Lockwood	Texas	Texas Parks and Wildlife Department
Bob Zaiglin	Texas	Harrison Interest LTD
W. Matt Knox	Virginia	Virginia Department of Game and Inland Fisheries
Jim Crum	West Virginia	West Virginia Division of Natural Resources

SOUTHEAST DEER STUDY GROUP AWARDS

Southeast Deer Study Group
Career Achievement Award

1996 – Dr. Richard F. Harlow

1997 – Dr. Larry Marchinton

1998 – Dr. Harry Jacobson

1999 – Dr. David C. Guynn, Jr.

2000 – Joe Hamilton

2002 – Robert L. Downing

2004 – Dr. Charles DeYoung

Southeast Deer Study Group
Outstanding Student Presentation Award

1996 – Billy C. Lambert, Jr. (Texas Tech University)

1997 – Jennifer A. Schwartz (University of Georgia)

1998 – Karen Dasher (University of Georgia)

1999 – Roel R. Lopez (Texas A & M University)

2000 – Karen Dasher (University of Georgia)

2001 – Roel R. Lopez (Texas A&M University)

2002 – Randy DeYoung (Mississippi State University)

2003 - Bronson Strickland (Mississippi State University)

2004 - Randy DeYoung (Mississippi State University)

PROGRAM AGENDA

Monday, February 21, 2005

1:00 – 6:00 p.m. Registration – Entry Lobby

3:00 – 5:00 p.m. Meeting of the Deer Committee of the SE Section of the Wildlife Society– Roosevelt Lounge

5:30 – 7:30 p.m. Dinner –Commons Dining Room

6:30 p.m. Welcome Social – Roosevelt Lounge

Tuesday, February 22, 2005

7 a.m. – 5 p.m. Registration – Entry Lobby

Opening Plenary Session: "The Impact of Today's Choices on Tomorrow's Deer Hunters"

Robert C. Byrd Auditorium

Moderator: Jim Crum, Wildlife Biologist, West Virginia Division of Natural Resources

8:00 a.m. **Welcome**
Curtis Taylor, Chief, Wildlife Resources Section, WVDNR
John R. Lemon, Director, National Conservation Training Center; U.S. Fish and Wildlife Service
Opening Remarks
Steven A. Williams, Director, U.S. Fish and Wildlife Service

8:30 a.m. North American Model of Wildlife Conservation: Lest We Forget. John Organ – Wildlife Program Chief, Division of Federal Assistance, Northeast Region, U.S. Fish and Wildlife Service

9:00 a.m. Highly Artificial "Deer Management Activities": Consequences of Altering Disease Risk Factors. W.R. Davidson, J.R. Fischer, D.E. Stallknecht, Southeastern Cooperative Wildlife Disease Study, and E.W. Howerth, Department of Pathology - College of Veterinary Medicine, The University of Georgia

9:30 a.m. BREAK

Technical Session I: Thoughts on Today's Deer Management Choices

Robert C. Byrd Auditorium

Moderator: J. Scott Osborne, Surveys and Research Coordinator, North Carolina Wildlife Resources Commission

10:00 a.m. ***Evaluating Choices to Insure the Future of Deer Hunting.*** David T. Cobb – North Carolina Wildlife Resources Commission

10:20 a.m. ***Deer Hunting with Dogs: Conflicts, Negative Public Perception and a Georgia Solution?*** John W. Bowers and Todd Holbrook – Georgia Wildlife Resources Division

10:40 a.m. ***Integrating Wildlife and Human Dimensions Research Methods to Study Deer Hunters.*** Richard Stedman, Human Dimensions Unit, Pennsylvania State University, Duane R. Diefenbach, USGS, Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University, Craig B. Swope, USDA/APHIS Wildlife Services, James C. Finley, A. E. Luloff, Harry C. Zinn, and Gary J. San Julian, Human Dimensions Unit, Pennsylvania State University

11:00 a.m. ***Assessing Hunter Support for Alternative Deer Management Regulations in Minnesota.*** Lou Cornicelli, Marrett Grund, Brian Haroldson – Minnesota Department of Natural Resources, and David Fulton – USGS, Cooperative Wildlife Research Unit, University of Minnesota.

11:20 a.m. ***Pet Deer in the Spotlight: Agency, Public and Media Take Notice.*** David M. Kocka, Nelson W. Lafon, W. Matt Knox, and Julia F. Dixon – Virginia Department of Game and Inland Fisheries

11:40 a.m. LUNCH – Commons Dining Room

Technical Session II: Antler Restrictions

Robert C. Byrd Auditorium

Moderator: Larry Castle, Chief of Wildlife, Mississippi Department of Wildlife, Fisheries & Parks

1:00 p.m. ***Effects of Antler Restrictions on Buck Harvest, Recruitment, Quality and Hunter Success.*** James F. Gallagher, David R. Synatzske, and Chris Mostyn – Texas Parks and Wildlife Department

1:20 p.m. ***A Three-Year Experimental Antler Restriction Regulation in Six Texas Counties.*** Bob K. Carroll – Texas Parks and Wildlife Department

1:40 p.m. ***An Evaluation of Two Georgia Quality Deer Managed Wildlife Management Areas.*** Kent E. Kammermeyer – Georgia Wildlife Resources Division, and Tamara M. Terry – Virginia Department of Game and Inland Fisheries

2:00 p.m. ***Producing Quality Bucks with a Non-Traditional QDM Practice, Shooting Yearling Bucks.*** David W. Moreland – Louisiana Department Wildlife and Fisheries

2:20 p.m. ****Modeling White-tailed Deer Population Responses to Harvest Regulation Changes in Arkansas at Multiple Spatial Scales.*** Bret A. Collier and David G. Krementz – USGS, Arkansas Cooperative Fish and Wildlife Research Unit, University of Arkansas

2:40 p.m. BREAK

Technical Session III: Overabundant Deer

Robert C. Byrd Auditorium

Moderator: Jonathan W. Day, Forest Systems Program Coordinator, Kentucky Department of Fish and Wildlife

3:00 p.m. ***The Specially Managed Hunt - An Effective Tool to Manage Suburban Deer Herds and Educate People.*** Philip C. Norman – Howard County Maryland Department of Recreation and Parks

3:20 p.m. ***Controlling Overabundant White-tailed Deer at Johnson Space Center: Deer in Space?*** Roel R. Lopez, Matt Cook, Saul Hernandez – Texas A & M University, Louis Harveson – Sul Ross State University, and Nova Silvy – Texas A & M University

3:40 p.m. ****Potential Challenges to Deer Management in Exurban Areas.*** Daniel J. Storm, Clayton K. Nielsen, Eric M. Schauber, and Alan Woolf – Cooperative Wildlife Research Laboratory, Southern Illinois University, Carbondale

4:00 p.m. ****Fertility Control, Predation, and Fawn Mortality in a Coastal South Carolina Suburban Deer Population.*** Shane B. Roberts - University of Georgia, James D. Jordan – Town of Kiawah Island, South Carolina, and Robert J. Warren – University of Georgia

4:20 p.m. ****Efficacy of Localized Management for Reducing Deer Herbivory of Forest Regeneration Areas.*** Brad F. Miller - University of Georgia, Tyler A. Campbell – USDA/APHIS Wildlife Services, Benjamin R. Laseter, David A. Osborn – University of Georgia, W. Mark Ford – USDA Forest Service, and Karl V. Miller – University of Georgia

5:30 p.m. DINNER –Commons Dining Room

7:00 p.m. Shoot From the Hip – Commons Dining Room
"What's Important to Today's Deer Hunters"
Mark Damian Duda – Responsive Management
Moderator: Keith Krantz, Wildlife Biologist, West Virginia Division of Natural Resources

Wednesday, February 23, 2005

7:00 a.m. – noon Registration – Entry Lobby

8:30 a.m. Announcements

Technical Session IV: Harvest Management

Robert C. Byrd Auditorium

Moderator: Patrick Keyser, Wildlife Biologist, MeadWestvaco Corporation

8:40 a.m. ***Potential Negative Effects of Baiting on Regional White-tailed Deer Harvest Rates in South Carolina: A State With Conflicting Baiting Laws.*** Charles R. Ruth Jr. and Derrell A. Shipes – South Carolina Department of Natural Resources

9:00 a.m. ***Deer Hunter Distribution and Implications for Deer Harvest Management.*** Duane R. Diefenbach – USGS, Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University, James C. Finley, A. E Luloff, Harry C. Zinn, Gary J. San Julian – Human Dimensions Unit, Pennsylvania State University, and Craig B. Swope – USDA/APHIS Wildlife Services

9:20 a.m. ****Modeling Impacts of Harvest Management and Population Demographics Using Probabilistic Networks.*** Bret A. Collier and David G. Krementz – USGS, Arkansas Cooperative Fish and Wildlife Research Unit, University of Arkansas

9:40 a.m. ****Do Harvest Sex Ratios Really Help Managers in Making Decisions?*** Bret A. Collier, David G. Krementz – USGS, Arkansas Cooperative Fish and Wildlife Research Unit, University of Arkansas, and Michael C. Gray – Arkansas Game and Fish Commission

10:00 a.m. BREAK

Technical Session V: Land Use and Habitat Influences

Robert C. Byrd Auditorium

Moderator: Steve Shea, Manager of Wildlife Section, St. Joe Timberland Company

10:20 a.m. ***Implications of Posting on Deer Management in Pennsylvania.*** Coren P. Jagnow, Gary J. San Julian, James C. Finley, A. E. Luloff, Richard C. Stedman, Jennifer Steele, Harry C. Zinn - Human Dimensions Unit, Pennsylvania State University, and Duane R. Diefenbach - USGS, Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University

10:40 a.m. ****Intensively-managed Pine Plantations in Mississippi - Barren Wastelands or Deer Habitat?*** Scott L. Edwards, Steve Demarais, and Andrew Ezell – Mississippi State University

11:00 a.m. ***Browse Production, Nutrition, and Preference Following Alternative Silvicultural Techniques in Mixed Hardwood Stands.*** Ryan G. Basinger, Sam Jackson, Craig Harper, and Chris Richards – University of Tennessee

11:20 a.m. ***Determining the Effects of White-tailed Deer Herbivory on Cornfields in NPS Owned Agricultural Leases.*** Chad M. Stewart and Bill McShea – Conservation and Research Center, Smithsonian Institution

11:40 a.m. LUNCH – Commons Dining Room

Technical Session VI: Behavior and Gender Influences

Robert C. Byrd Auditorium

Moderator: Steve Demarais –Professor of Wildlife Ecology, Mississippi State University

1:00 p.m. ***Patterns of Long-term Breeding Success in Male and Female White-tailed Deer.*** Randy W. DeYoung – Caesar Kleberg Wildlife Research Institute, Texas A & M University, Kingsville, Kenneth L. Gee – Samuel Roberts Noble Foundation, Steve Demarais – Mississippi State University, Rodney L. Honeycutt – Texas A & M University, and Robert A. Gonzales – Samuel Roberts Noble Foundation

1:20 p.m. ****Home Range Fidelity and Management of Mature, Male White-tailed Deer in South Texas.*** Stephen L. Webb, David G. Hewitt - Caesar Kleberg Wildlife Research Institute, Texas A & M University, Kingsville, and Mickey W. Hellickson – King Ranch, Incorporated

1:40 p.m. ****Population Structure and Landscape Influences on Dispersal of Juvenile Male White-tailed Deer in Pennsylvania.*** Eric S. Long, Duane R. Diefenbach – USGS, Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University, Bret D. Wallingford and Christopher S. Rosenberry – Pennsylvania Game Commission

2:00 p.m. ****Seasonal Variation in Sex Allocation of White-tailed Deer: A Variation on Trivers-Willard.*** Sarah T. Saalfeld, Stephen S. Ditchkoff– Auburn University, John J. Ozoga – Munising, Michigan, and Michael S. Mitchell – USGS, Alabama Cooperative Fish and Wildlife Research Unit, Auburn University

2:20 p.m. ****Differences in Harvest Management Elicit Plasticity in Social Behavior of Female White-tailed Deer.*** Christopher E. Comer, Bejamin R. Laseter, Gino J. D'Angelo – University of Georgia, Tyler A Campbell - USDA/APHIS Wildlife Services, Brad F. Miller – University of Georgia, John C. Kilgo, W. Mark Ford –USDA Forest Service, and Karl V. Miller – University of Georgia

2:40 p.m. BREAK

Technical Session VII: Deer Management Techniques

Robert C. Byrd Auditorium

Moderator: John Edwards – Associate Professor of Wildlife, West Virginia University

3:00 p.m. ***Evaluation of Outreach Techniques Used to Educate Hunters During an Experimental Antler Restriction Regulation.*** Len G. Polasek, Xiangwen Liu and Bob Carroll- Texas Parks and Wildlife Department

3:20 p.m. ****Evaluation of Population Reconstruction Techniques: The Effect of Variable Harvest Rates on Population Estimates.*** Mary K. Tilton, Jim Berkson and Mike Vaughan – Virginia Polytechnic Institute and State University

3:40 p.m.	***Capture of White-tailed Deer Fawns Using Thermal Imaging Technology.*** Jordan M. Smith – Auburn University, Bret A. Collier – Texas A & M University, Joshua B. Raglin – Norfolk Southern Railway, Brosnan Forest, and Stephen S. Ditchkoff – Auburn University
4:00 p.m.	***Evaluating New Technologies for Aging White-tailed Deer by Tooth Characteristics.*** Jeremy M. Meares – University of Georgia, Brian P. Murphy – Quality Deer Management Association, Laurence R. Schimleck, Sara H. Schweitzer - University of Georgia, Charles R Ruth – South Carolina Department of Natural Resources, Robert J. Warren, and Karl V. Miller - University of Georgia
4:30 p.m.	***DEER COMMITTEE BUSINESS MEETING –*** Robert C. Byrd Auditorium
5:30 p.m.	Social Hour - Roosevelt Lounge
6:30 p.m.	Banquet – Commons Dining Room

****Indicates student paper***

ABSTRACTS

Tuesday, February 22, 2005

Opening Plenary Session: "The Impact of Today's Choices on Tomorrow's Deer Hunters"
Robert C. Byrd Auditorium

Moderator: Jim Crum, Wildlife Biologist, West Virginia Division of Natural Resources

8:00 a.m. **Welcome**
Curtis Taylor, Chief, Wildlife Resources Section, WVDNR
John R. Lemon, Director, National Conservation Training Center; U.S. Fish and Wildlife Service
Opening Remarks
Steven A. Williams, Director, U.S. Fish and Wildlife Service

8:30 a.m. North American Model of Wildlife Conservation: Lest We Forget. John Organ – Wildlife Program Chief, Division of Federal Assistance, Northeast Region, U.S. Fish and Wildlife Service

9:00 a.m. Highly Artificial "Deer Management Activities": Consequences of Altering Disease Risk Factors. W.R. Davidson, J.R. Fischer, D.E. Stallknecht, Southeastern Cooperative Wildlife Disease Study, and E.W. Howerth, Department of Pathology - College of Veterinary Medicine, The University of Georgia

Technical Session I: Thoughts on Today's Deer Management Choices

Moderator: J. Scott Osborne, Surveys and Research Coordinator, North Carolina Wildlife Resources Commission

10:00 a.m.
Evaluating Choices to Insure the Future of Deer Hunting. David T. Cobb – North Carolina Wildlife Resources Commission

While twenty years ago, small game hunting and hunters dominated many state wildlife agency constituencies, active deer restoration, management by state wildlife agencies and private individuals and groups, and landscape-scale changes in habitats have lead to increased deer populations and an increased interest in deer management and hunting. In North Carolina, over 260,000 hunters pursue white-tailed deer, a resource that has a positive impact to North Carolina's economy of >$1 million/day. Changes in sociological, political, economic, and biological factors have resulted in some important changes in deer hunting and management, especially on private lands. I developed a theoretical construct of the "virtuous hunter," modified this general model to be pertinent specifically to deer hunting, and used this model to evaluate trends in deer hunting and deer management to predict future impacts of these trends on "tomorrow's deer hunters." One of the most significant trends in the southeast is the shift from hunting deer with dogs to stand hunting, and changes in all the factors associated with both of these types of hunting. Other trends include increases in hunting technologies and hunting deer over bait; increased interest in QDM, trophy management, financial gains from deer management and hunting, and canned hunts; decreases in the sociological aspects of deer hunting, and an overall increased interest in deer hunting (versus other types of hunting). Based on this evaluation, many of the changes in deer hunting and deer management will

have long-term negative impacts on hunter recruitment and retention and on the continued acceptance of deer hunting by the majority of society who do not hunt. Today's hunters and managers must make certain choices (outlined herein) to insure that certain aspects of deer hunting continue to be available to tomorrow's hunters.

10:20 a.m.
Deer Hunting with Dogs: Conflicts, Negative Public Perception, and A Georgia Solution? John W. Bowers and Todd Holbrook – Georgia Wildlife Resources Division

Dog-hunting for deer is a four hundred year-old tradition in the southeastern United States. Today, this method of hunting involves using dogs, many trucks, electronic communications equipment and public roads to trail deer. Frequently, deer and dogs run over large acreages requiring large consolidated tracts to keep dogs off neighboring lands. Conflicts between landowners, still hunters and dog deer hunters, in ascending order of intensity, are blocking of public roads, trespass to recover dogs, and trespass by deerhounds.

Recently in Georgia, these conflicts escalated in four counties resulting in regulation proposals to eliminate dog-deer hunting. Six other counties had similar problems and were likely to follow. Combined, these counties represented 25% of those available for hunting deer with dogs. Faced with this reality, the Georgia Dog Hunters Association sought a law change to mutually protect landowners' and dog-deer hunting interests. The Association pushed the bill politically and supported subsequent Board regulations needed to implement the new law.

Dog-deer hunting now requires a permit that is specific to a tract (≥1,000 contiguous acres). Permits may be revoked based on violations of laws or permit conditions. The most critical condition is that deerhounds are required to remain on permitted properties. During the first year under these new laws and regulations, the Department issued permits to 358 clubs, covering more than 1.7 million acres. Of these, 75% had no significant problems or violations, 19% had minor problems and 3% had significant violations of laws, regulations or conditions of permits. Only 2 clubs had permits revoked.

Considerable political support and opposition still exist; additional law changes are likely. However, the new combination of laws and regulations holds potential to eliminate aggressive, non-compliant clubs thereby protecting hunting opportunity for law abiding, ethical dog clubs in the presence of majority public opinion in opposition to this activity.

10:40 a.m.
Integrating Wildlife and Human Dimensions Research Methods To Study Deer Hunters. Richard Stedman, Human Dimensions Unit, Pennsylvania State University, Duane R. Diefenbach, USGS, Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University, Craig B. Swope, USDA/APHIS Wildlife Services, James C. Finley, A. E. Luloff, Harry C. Zinn, and Gary J. San Julian, Human Dimensions Unit, Pennsylvania State University

Little is known about the field behavior of hunters or the factors that influence hunting behavior, except for controlled hunts. We describe 3 integrated protocols to estimate hunter density, distribution, movements, habitat use, characteristics, and attitudes, which can be used on large areas with unrestricted access. We used aerial surveys to estimate hunter density and map hunter distribution. We used GPS units issued to hunters to record hunter movement paths. Hunters also completed a simple questionnaire. We describe how these data can be linked to obtain detailed information on hunter habitat use, movements, and activity patterns. We applied these techniques during deer season on a large tract (113,048 acres) of public land in Pennsylvania with unrestricted hunter access. In 2001, we estimated density of 7

hunters/2,471 acres (95% CI = 4.2 - 10.3) in the morning and 6.3 hunters/2,471 acres (95% CI = 3.5 - 10.0) in the afternoon. We found that hunter density was negatively related to distance from roads and slope. Most hunters preferred stand hunting, especially in the early morning hours (0600 - 0800 hr; 72% stationary); more walked or stalked in the afternoon (1400-1600 hr; 58% stationary).The average maximum distance hunters reached from a road was 0.52 miles (SE = 0.02), and they walked an average of 3.4 miles (SE = 0.12 miles) during their daily hunting activities. These approaches to studying hunters link hunter attitudes and behavior, and hence may allow managers to better predict hunter response to changes in hunting regulations.

11:00 a.m.

Assessing Hunter Support for Alternative Deer Management Regulations in Minnesota. Lou Cornicelli, Marrett Grund, Brian Haroldson – Minnesota Department of Natural Resources, and David Fulton – USGS, Cooperative Wildlife Research Unit, University of Minnesota.

A senate bill proposed during the 2004 legislative session would have mandated antler-point restriction regulations in 5 northwestern counties of Minnesota. Although the proposed bill failed to pass, the Minnesota Department of Natural Resources recognized the need to study social and biological impacts of alternative hunting regulations for white-tailed deer in Minnesota due to an increasing interest by a variety of organizations and individuals. We surveyed hunters in northwestern Minnesota during September 2004 to quantify support for alternative regulation changes. While most respondents (60%) supported the concept of implementing a regulation that would increase the proportion of antlered deer in the population, none of the proposed regulations (n=5) were supported by a majority of hunters. Antler-point restriction regulations received the most support (48%), followed by buck license quotas (44%), earn-a-buck regulations (33%), reduced hunting days (18%) and changes in season dates (8%). Two-thirds of the respondents indicated they would participate in a special antlerless-only season preceding or following the traditional firearms season. We will discuss these survey results, projected impacts of alternative regulations on hunter harvests and deer populations, feedback from hunters during public input meetings, and our approach for evaluating biological, social, political, and fiscal impacts of alternative deer management regulations at the statewide level.

11:20 a.m.

Pet Deer in the Spotlight: Agency, Public and Media Take Notice. David M. Kocka, Nelson W. Lafon, W. Matt Knox, and Julia F. Dixon – Virginia Department of Game and Inland Fisheries

Disposal of pet deer or other unlicensed captive deer presents public and media relations challenges for wildlife management agencies. Confinement of white-tailed deer (*Odocoileus virginianus*) and other wild animals is prohibited by law in most states to protect human safety and to retain public ownership. Concerns about disease transmission, especially chronic wasting disease, has prompted managers to implement strict policies against possessing or moving deer. In light of these concerns, Virginia Department of Game and Inland Fisheries (VDGIF) recently developed a standard protocol for field staff to follow when disposing of illegally held deer which often results in euthanasia. While euthanasia is routine and acceptable among wildlife professionals, it is not as acceptable to uninformed but well-intentioned publics with strong humanistic values for animals. Public outcry against VDGIF's handling of "Spot," a mature white-tailed deer, demonstrates that public anger can be stimulated

by media coverage that concentrates on the plight of an individual animal while ignoring the risks associated with confining wildlife. To prevent adversarial relations managers should be proactive in involving and informing the media and the public of problems associated with illegally-held deer. We will compile and present information on recent wild and captive deer attacks to humans, lessons that can be learned from the "Spot" event, and ideas about how resource professionals can better prepare for similar situations in the future.

Technical Session II: Antler Restrictions

Moderator: Larry Castle, Chief of Wildlife, Mississippi Department of Wildlife, Fisheries & Parks

1:00 p.m.

Effects of Antler Restrictions on Buck Harvest, Recruitment, Quality and Hunter Success. James F. Gallagher, David R. Synatzske, and Chris Mostyn – Texas Parks and Wildlife Department

The Chaparral Wildlife Management Area (Chaparral WMA) has offered public deer hunting since 1969. From 1969 through 1994, efforts were made to balance the population with the available habitat, and to maintain the sex balance, no effort was made to control what age or type of bucks were harvested. Managers were concerned that harvesting under these conditions was leading to "high-grading" of the buck population.

Beginning in 1995, Area managers were given the authority to increase the bag limit to two bucks. At the same time, several Area managers started to implement buck harvest restrictions. Progressively restrictive requirements were put into place from 1995 (two buck limit, the second buck harvested have less than eight antler points) through 2003 (one buck with eight or more points and at least a 16 inch inside spread, and a second buck with six or less points and at least a 12 inch inside spread).

Total bucks observed in the annual helicopter count on the Chaparral WMA, number of mature bucks observed, total buck harvest, and mature buck harvest declined 1984-1994, but increased 1995-2003. Hunter success, however, increased 1984-1994, while declining from 1995-2003. The gross Boone and Crockett scores of "trophy bucks", those with eight or more points and at least a 16 inch inside spread, declined from 1991-1994, while increasing from 1995-2003.

Preliminary results from the Chaparral WMA indicate that harvest restrictions on bucks, based on antler criteria, can be effective at increasing the number and quality of bucks available in the population and in the harvest.

1:20 p.m.

A Three-Year Experimental Antler Restriction Regulation in Six Texas Counties. Bob K. Carroll – Texas Parks and Wildlife Department

The Texas Parks and Wildlife Department (TPWD) implemented a 3-year experimental antler restriction regulation on white-tailed deer in 2002 for six south central Texas counties. The goal of this regulation was to improve the age structure of bucks in the deer herd. Legal bucks were defined as having a hardened antler protruding through the skin and: at least one-unbranched antler; or a minimum inside spread measurement between the main beams of 13 inches or greater; or six points or more on one antler. A one-buck bag limit was established in the six counties in 1971 to relieve hunting pressure on bucks. Prior to the experimental regulation, age and antler data indicated 80% of the buck harvest was comprised of 1.5 and 2.5 year old bucks.

Seventeen incentive based check stations were established in the six county study area to collect buck age and antler data. Hunter harvest surveys were used to document buck harvest. The hunter harvest survey showed an average of 5,000 bucks per year harvested in the six county study area prior to the new regulation. Buck harvest declined to 3,121 buck the first year of the regulation and increased to 5,349 buck the second year. Buck harvest declined in the 1.5 and 2.5 year old age classes and increased in the 3.5 year old and older age classes. Age and antler data collected the second year of the study showed a harvest comprised of 45% 1.5 and 2.5 year old buck and 55% 3.5 year old or older buck.

Data indicates hunters are harvesting more bucks with a 13 inch spread or greater and less bucks with one unbranched antler. To prevent the antler restriction regulation from protecting spike bucks,TPWD is proposing a two buck bag limit which can include no more than one buck with a 13 inch or greater inside spread.

1:40 p.m.

An Evaluation of Two Georgia Quality Deer Managed Wildlife Management Areas.
Kent E. Kammermeyer – Georgia Wildlife Resources Division, and Tamara M. Terry – Virginia Department of Game and Inland Fisheries

In an effort to identify factors contributing to the success of Quality Deer Management (QDM) on state-operated Wildlife Management Areas (WMAs), we selected two QDM WMAs with at least 25 years of consecutive pre- and post-QDM data. On Dawson Forest WMA (31.3 sq. mi.) and Chickasawhatchee WMA (30.8 sq. mi.), we compared 30 variables reflecting hunters, harvest, deer condition, and population parameters pre- and post-QDM regulations (4 points on one side) using regression statistics and Student's t-tests for 12 years pre- and post-QDM. QDM regulations were successful on Dawson Forest but not on Chickasawhatchee. Dawson Forest pre-QDM harvest (0.5 quality bucks/sq. mi.) compared with 1.2 quality bucks/sq. mi. post-QDM ($P \leq 0.01$). Hunter density and total deer kill were greater post-QDM ($P \leq 0.01$), as was button buck and doe kill ($P \leq 0.01$). There were no differences in age specific condition indicators or recruitment rates pre- and post-QDM. Buck and doe age structures were older post-QDM ($P \leq 0.01$) and got older in the post-QDM period ($P \leq 0.05$). Factors contributing to QDM success include increased hunting pressure, no deer population decline, and increasingly older buck age structures. Chickasawhatchee quality buck harvest/sq. mi. (1.6) was the same pre- and post-QDM despite hunter density being higher ($P \leq 0.01$) and progressively decreased, indicating a declining deer population. Doe weights (fawn and 1½) were greater ($P \leq 0.01$) post-QDM as was 2½ year-old buck beam length ($P \leq 0.01$). Buck age structure was older post-QDM ($P \leq 0.01$) but doe age structure was not. Lack of QDM success in this WMA is attributed to over-harvest of does, forage competition with an increasing wild hog population, and habitat decline due to pine canopy closure. Results suggest that QDM success on public lands depend on recruiting and stockpiling older bucks and harvesting a proportion of these with high hunting pressure.

2:00 p.m.

Producing Quality Bucks with a Non-traditional QDM Practice, Shooting Yearling Bucks. David W. Moreland – Louisiana Department Wildlife and Fisheries

Quality Deer Management (QDM) generally emphasizes no shooting of yearling bucks, even spikes. This message has been well received by Louisiana deer hunters as evidenced from the Experimental Antler Program initiated in 2002 in three parishes. Even though it is legal to harvest bucks with spikes less than three inches most hunters are passing them up. On Beechgrove Plantation in East Feliciana Parish however, the harvest of yearling spikes has been

strongly encouraged since the 1994/95 deer season. These bucks generally weigh less than 100 pounds live weight. The statewide average live weight for yearling bucks is 118 pounds and forked-antler yearlings average 128 pounds. The quality of the adult bucks (3 ½ years of age and older) harvested over the past nine years has improved, even though the forest structure has become more pine dominant. Removal of these small-bodied yearling bucks appears to be having a positive impact on the quality of bucks harvested three to four years later. While body weights are slightly less than the state average, the adult bucks on Beechgrove exhibit better antler growth than the bucks harvested statewide.

2:20 p.m.

Modeling White-Tailed Deer Population Responses to Harvest Regulation Changes in Arkansas at Multiple Spatial Scales. Bret A. Collier and David G. Krementz – USGS, Arkansas Cooperative Fish and Wildlife Research Unit, University of Arkansas

White-tailed deer (*Odocoileus virginianus)* management is intended to manipulate population characteristics such as abundance, age structure, and sex ratio. Currently, deer managers are implementing regulations that they assume have similar impacts at all spatial scales. These assumptions are untested. We developed a stochastic age- and sex-structured population model, which we recast as a probabilistic graphical model allowing for explicit representation of uncertainty, to evaluate impacts of selective harvest criteria (3-point rule) on white-tailed deer population age structure at multiple spatial scales in Arkansas. We found that regulations in Arkansas increased residual populations for all age classes at small scales. At the county level and above, under historical regulations, yearling males exceeded 10% of total population size in ≤1% of predictions, but under current regulations, yearlings exceeded 10% of total population size in ≥30% of predicted responses. Our results indicated that at the county scale and above, response profiles for sub-adult and adult populations were lower under the current regulations than the historical regulations. We found that the benefit of protecting yearlings were cancelled out by increased selectivity of sub-adults under current regulations allowing no more males to reach mature (≥3.5 year old) age classes than under historical regulations at the county scale and above. We suggest that managers experimentally evaluate harvest regulations at multiple scales before considering selective harvest criteria.

Technical Session III: Overabundant Deer

Moderator: Jonathan W. Day, Forest Systems Program Coordinator, Kentucky Department of Fish and Wildlife

3:00 p.m.

The Specially Managed Hunt - An Effective Tool to Manage Suburban Deer Herds and Educate People. Philip C. Norman –Howard County Maryland Department of Recreation and Parks

Since January 1998, the Howard County Department of Recreation and Parks has conducted specially managed deer hunts in several parks in this densely-settled Baltimore-Washington suburban jurisdiction. Stringent qualifications for participants, and sincere concerns for safety from surrounding residents, have resulted in educational opportunities in matters of deer management. Harvest goals have encouraged hunters to understand herd dynamics and better identify the gender and age of deer prior to harvesting. Working with a carefully screened roster of hunters, pre-qualified to participate in subsequent hunts, has resulted in their deeper understanding and appreciation for wildlife biology, quality deer management objectives, and the fine lines drawn when dealing with publicly controversial management

practices. These intangible educational accomplishments are a great benefit to the facilitation of deer management in County parks and throughout the region. A survey conducted in the communities surrounding three parks demonstrated wide-spread support for the managed hunt program, as reported in 2003.

The prime benefit has been the successful reduction of deer densities in the hunted parks. This reduction has been documented through forward-looking infra-red (FLIR) videographic censuses, Haynes regression analysis of hunting harvest data, and changes in deer harvest per unit effort over time. Through the 2003/2004 hunting season, 894 deer have been removed from approximately 2.5 square miles of parkland. Unpublished data from an exclosure study at one park indicate that the vegetative and invertebrate communities there have rebounded significantly since 1998.

3:20 p.m.

Controlling Overabundant White-tailed Deer at Johnson Space Center: Deer in Space?

Roel R. Lopez, Matt Cook, Saul Hernandez – Texas A & M University, Louis Harveson – Sul Ross State University, and Nova Silvy – Texas A & M University

White-tailed deer (*Odocoileus virginianus*) numbers on the National Aeronautics and Space Administration's (NASA) Johnson Space Center (JSC) have increased in recent years, causing economic and ecological problems associated with overabundant deer (e.g., deer-vehicle collisions, vegetation damage). NASA-JSC safety personnel are interested in minimizing human-deer interactions by a reducing/controlling population numbers. We developed a computer simulation model to evaluate the effectiveness of SpayVac™ (immunocontraceptive) in controlling population numbers. We evaluated single treatments (50% and 75% of total population) and annual treatments (10%, 25%, and 50% of total population, applied annually for 3 years) of SpayVac on the female population. Model results indicated single treatments >50% or annual treatments >25% were effective in reducing population growth over a 10-year period. Currently, annual treatments of approximately 25-50% of the female population were applied based on model results. To date, 4 of 48 females (8%) treated with SpayVac have become pregnant. These 4 deer, however, were inoculated during or after the breeding season. Observed population declines (-22%) due to a decrease in average fawn:doe ratios (-82%) supports model simulation results.

3:40 p.m.

****Potential Challenges to Deer Management in Exurban Areas.*** Daniel J. Storm, Clayton K. Nielsen, Eric M. Schauber, and Alan Woolf – Cooperative Wildlife Research Laboratory, Southern Illinois University, Carbondale

Exurban development is non-metropolitan, residential development characterized by a human population density and average property size intermediate between the suburbs and rural areas. Although exurban development poses a significant challenge to deer managers, very little is known about deer ecology and human attitudes towards deer in exurban areas. During 2002-04, we studied deer in an exurban area near Carbondale, Illinois, and surveyed study area residents regarding their experiences with and attitudes towards deer. Adult doe survival (n = 35, >90%) is high in our study area, consequently, study area residents perceive the deer population to be large and increasing. Although the vast majority of respondents enjoy having deer in the area, most would also prefer the population to decrease or remain at current levels, indicating that the deer population is at or above cultural carrying capacity. Fifty percent of respondents indicated that either they or an immediate family member had been in a deer-vehicle collision (DVC); hence, DVCs are a concern for most (84%) respondents. Only 20%

of respondents allow hunting on their property, which results in substantial amounts of deer habitat acting as a defacto refuge. These results indicate major obstacles for deer managers when attempting to manage deer in exurban areas. Due to the closure of land to hunting, traditional deer management alone is not likely to control deer populations in exurban areas without significant outreach and education programs aimed at both increasing hunter recruitment and retention and encouraging more landowners to allow hunting.

4:00 p.m.

Fertility Control, Predation, and Fawn Mortality in a Coastal South Carolina Suburban Deer Population. Shane B. Roberts - University of Georgia, James D. Jordan – Town of Kiawah Island, South Carolina, and Robert J. Warren – University of Georgia

Kiawah Island, SC is an 8,000-acre barrier island with moderate levels of residential/resort development. In 1997-1998, spotlight surveys revealed the island had a high-density (~100 deer/mile^2) white-tailed deer (*Odocoileus virginianus*) herd. We divided the island into 2 areas (treated and control) with similar levels of housing development and deer numbers, and during 1999-2002 remotely delivered prostaglandin to all does seen in the treated area. Pregnancy rates were about 50% lower for does in the treated vs. control area during all 4 years. Spotlight surveys showed lower fawn:doe ratios in the treated vs. control area in 1999 and 2000, but not during 2001. During 2002-2004, we captured and radio-collared newborn fawns to evaluate postnatal fawn mortality in both areas. During the final year of fertility control treatments (2002), there was no significant difference in fawn mortality between areas. However, for 2 years after fertility control treatments ceased, fawn mortality in the treated area decreased (2002 – 92%; 2003 – 65%; 2004 – 77%), while fawn mortality in the control area remained high (2002 – 87%; 2003 – 84%; 2004 – 95%). Bobcat (Lynx rufus) predation accounted for 69% of all mortalities. Coincidentally, 2 adult male bobcats that inhabited the treated area were killed by vehicles prior to the 2003 fawning season. The impact these individual bobcats had on fawn mortality in 2002 is relatively unknown, but during 2004 a single radio-collared adult male bobcat killed 38% of 21 radio-collared fawns in the control area. It is possible that the loss of these bobcats may have contributed to the decrease in fawn mortality in the treated area during 2003 and 2004. Spotlight surveys conducted in 2004 indicate a lower deer density (~40 deer/mile^2) on the island.

4:20 p.m.

Efficacy of Localized Management for Reducing Deer Herbivory of Forest Regeneration Areas. Brad F. Miller - University of Georgia, Tyler A. Campbell – USDA/APHIS Wildlife Services, Benjamin R. Laseter, David A. Osborn – University of Georgia, W. Mark Ford – USDA Forest Service, and Karl V. Miller – University of Georgia

White-tailed deer herbivory within forest regeneration areas can have profound impacts on current and future stand structure, species composition, and biodiversity. Because traditional management strategies are unable to completely solve damage problems in some areas, localized management has been proposed as a possible solution. This technique involves the "surgical" removal of a social group(s) in an area deemed sensitive to browsing pressure. However, it's only test has occurred in a highly philopatric, low-density, and un-hunted deer herd in New York. There, deer did not recolonize a 0.54 square mile^2 for $\geq$ 2 years after a social unit removal. Herein, we describe our experimental investigation of localized management on forest regeneration areas in a high-density and philopatric white-tailed deer herd. Our study was conducted on the MeadWestvaco Wildlife and Ecosystem Research Forest (MWWERF) in the Allegheny Mountains of east-central West Virginia. Beginning in February

1999, we investigated the movement ecology and social structure of white-tailed deer on the MWWERF by outfitting over 175 female white-tailed deer with radio-collars. Additionally we collected vegetation and browsing data on four forest regeneration areas in summer 2001. An experimental removal of a social group was implemented in January and February of 2002. We removed 51 deer within a 0.54 square mile^2 area, encompassing 2 of the forest regeneration areas of northern hardwood forest type (both < 3 years old and each approximately 35 acres in size). Our post-removal vegetation data from 2002, 2003, and 2004 showed a decline in herbivory in both the removal and control areas. However, no substantial differences of herbivory rates between removal and control areas appeared directly related to the localized removal. Additionally, we observed no difference in camera surveys and snow track counts between removal and control areas. As of November 2004 none of the 72 remaining radio-collared females have shifted their homerange to include the removal area, although simple monitoring of adjacent deer may not indicate the low density persistence thereof. Genetic data collected from a second removal planned for January and February of 2005 will be examined to help determine the origin of animals currently occupying the removal area. Our results indicate that localized management is ineffective for reducing damage to forest regeneration over the long-term (≤5 years) in high-density herds in the central Appalachians.

Wednesday, February 23, 2005

Technical Session IV: Harvest Management

Moderator: Patrick Keyser, Wildlife Biologist, MeadWestvaco Corporation

8:40 a.m.

Potential Negative Effects of Baiting on Regional White-tailed Deer Harvest Rates in South Carolina: A State with Conflicting Baiting Laws. Charles R. Ruth Jr. and Derrell A. Shipes – South Carolina Department of Natural Resources

As in most states, baiting white-tailed deer (*Odocoileus virginianus*) is a controversial issue in South Carolina. Unlike other states, however, South Carolina is geographically divided on this issue. In the 18 county Piedmont, baiting is prohibited by South Carolina Department of Natural Resources (SCDNR) regulation. In the 28 county Coastal Plain, SCDNR lacks regulatory authority over baiting, the issue has not been addressed legislatively, and baiting is widespread. Past work concerning the effects of baiting on deer harvest rates have produced mixed results and focused primarily on success of individual hunters, however, advocates of baiting promote the practice as a way to increase deer harvests in order to control burgeoning populations. Due to ongoing pressures to legalize baiting in the Piedmont, hunter effort and harvest estimates from the 2 regions were compared to investigate the baiting harvest interaction. Results indicate that where baiting is prohibited total deer harvest rates were 33% greater, female harvest rates were 41% greater, doe to buck harvest ratios were 12% higher, hunter effort per deer was 6% less, and per capita deer-vehicle collisions was 7% less than where baiting occurs. If there is a cause-effect relationship, data suggests a negative rather than a positive relationship between baiting and deer harvest rates at the regional level in South Carolina. Among the myriad of concerns that SCDNR staff has with baiting, information suggests that hunter dependence on bait and deer population and behavioral effects associated with baiting may be negatively affecting deer harvest rates in the Coastal Plain of South Carolina.

9:00 a.m.

Deer Hunter Distribution and Implications for Deer Harvest Management Duane R. Diefenbach – USGS, Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University, James C. Finley, A. E Luloff, Harry C. Zinn, Gary J. San Julian – Human Dimensions Unit, Pennsylvania State University, and Craig B. Swope – USDA/APHIS Wildlife Services

Deer population and harvest management programs generally do not explicitly consider the temporal and spatial distribution of hunters, especially relative to the distribution of deer. Although hunting does not occur on all private lands, public lands are generally unregulated in Pennsylvania and most hunters believe hunting activity and harvest is greater on public lands, which results in lower deer densities. We used aerial surveys to estimate hunter density and distribution during the 2002 white-tailed deer rifle seasons on a large public land area (180 sq. miles) in north-central Pennsylvania. This area was dominated by deciduous forest, had slopes that ranged from 0 to 61 degrees, and a road network that provided access to within 1.6 miles of any location in the study area. Hunter density ranged from 0.1 – 0.5 hunters/square mile, and we estimated 87% of deer hunters hunted within 0.3 miles of a road. The distribution of hunters is explained by topography and road access and this creates de facto refugia on the landscape for deer where little harvest occurs. A simple population model, which incorporated a spatial component to deer harvest as a function of hunter distribution, indicated that recreational hunting may not be an effective tool for controlling deer populations on large tracts of public land with similar topography and road networks.

9:20 a.m.

****Modeling Impacts of Harvest Management and Population Demographics Using Probabilistic Networks.*** Bret A. Collier and David G. Krementz – USGS, Arkansas Cooperative Fish and Wildlife Research Unit, University of Arkansas

Assessing effects of multiple harvest regulations on white-tailed deer population dynamics is a complex task. Lack of requisite information on population demographic parameters, spatial distribution, and harvest under different management regulations makes evaluation of changes in population structure difficult. Using decision analysis theory and Bayesian statistics, biologists can incorporate available empirical data with professional judgment in a probabilistic framework to assist with making informed management decisions. Here we present an example of a probabilistic network (Bayesian Belief Networks (BBN)) that evaluates the influence of regulations on harvest and population structure of white-tailed deer in Arkansas. We simulated a white-tailed deer population using demographic parameters garnered from available Arkansas data, published literature, and expert opinion. We then incorporated white-tailed deer harvest information collected by the Arkansas Game and Fish Commission (AGFC) and harvest management regulations (both statewide and local) to assess the influence of various harvest management scenarios. Parameter uncertainty was incorporated by assigning probability distributions to ranges of demographic parameters. Population model output was used to parameterize conditional probability distributions (belief vectors) in our graphical model. Techniques for model updating that represent current knowledge (additional empirical data), or to examine plausible effect of changes in management programs on herd demographics will be discussed. When empirical data regarding population dynamics are lacking, use of probabilistic networks allows biologists to incorporate available information in a simple graphical framework to quantify and evaluate the influence of harvest regulations on white-tailed deer herd demographics.

9:40 a.m.

Do Harvest Sex Ratios Really Help Managers in Making Decisions? Bret A. Collier, David G. Krementz – USGS, Arkansas Cooperative Fish and Wildlife Research Unit, University of Arkansas, and Michael C. Gray – Arkansas Game and Fish Commission

Using harvest sex ratio, managers often attempt to predict recruitment, population growth, herd health, and breeding synchrony. However, some evidence suggests that harvest sex ratio may not be closely related to population parameters. In order to evaluate this hypothesis, and determine which factors would better assist deer managers in predicting residual (post-harvest) population sex ratio, we modeled the potential benefits of ancillary sex ratio information collected by archery hunters to predict residual population sex ratio. We conducted our modeling at multiple scales in a probabilistic framework, and determined that sex ratio information collected from harvested deer (e.g. harvest sex ratio) was of limited importance for predicting residual population sex ratio. At the local scale, information on harvest sex ratio explained <11% of the variability in residual population sex ratio, while pre-harvest sex ratio data gathered by archery hunters explained 77% of this variability. At the county scale and above, knowledge of pre-harvest sex ratio reduced variability in predictions of residual population sex ratio 15%, while harvest sex ratio information reduced this variation by <4%. We caution that sex ratio information garnered from harvested individuals has small predictive relevance for population sex ratio estimation by managers. We suggest that future research should be focused upon the estimation of pre-harvest sex ratio, as estimates of this parameter would provide better information for the evaluation, planning, and management of white-tailed deer populations.

Technical Session V: Land Use and Habitat Influences

Moderator: Steve Shea, Manager of Wildlife Section, St. Joe Timberland Company

10:20 a.m.

Implications of Posting on Deer Management in Pennsylvania. Coren P. Jagnow, Gary J. San Julian, James C. Finley, A. E. Luloff, Richard C. Stedman, Jennifer Steele, Harry C. Zinn - Human Dimensions Unit Pennsylvania State University, and Duane R. Diefenbach - USGS, Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University

Access to private land for deer hunting is critical for effectively managing Pennsylvania's deer herd. Understanding motivations for posting is important because posting reflects landowner motivations and influences the public's perception of land available for recreational use. The study used a mixed-method approach where key informants provided important information and context for designing a semi-structured interview protocol for discussing land access issues with landowners. The three counties in the study represented agricultural dominance, mixed rural/urban and rapidly developing. The mail survey was sent to 1900 landowners with a 56% return rate. The study included 77,400 acres of posted land and 28,600 acres of nonposted land. Results indicated that 70% of all responding landowners posted their property. More than 80% of nonposting landowners indicted hunting occurred on their land. About 25% of posting landowners allow individuals other than family, friends or neighbors to hunt if asked, while 70% of nonposting landowners allow strangers to hunt if asked. More than 75% of both groups disagreed with the statement that "if land was not posted it was open to recreational use." Landowners born in suburbs are nine times more likely to post than those born in rural areas. Offers of financial rewards, technical services, additional law enforcement or liability relief were not incentives to the landowners to open land. Landowners want control of who is on their property and their socio-demographic background has an impact on how they allow their land to be used.

10:40 a.m.

****Intensively-managed Pine Plantations in Mississippi – Barren Wastelands or Deer Habitat?*** Scott L. Edwards, Steve Demarais, and Andrew Ezell – Mississippi State University

Pine management strategies typically include the use of mechanical and chemical site preparation, and herbicide tank mixes combined with post-planting herbaceous control applications are common to reduce the interval from planting to canopy closure. To address concerns that increased site preparation intensity may negatively impact vegetation communities important as white-tailed deer forage, we evaluated effects of 5 pine plantation management regimes varying from low to high intensity on vegetative community characteristics and deer habitat potential. We sampled during 2002 and 2003, years 1 and 2 post-treatment, on 4 timber industry stands in southern Mississippi. There was a clear, negative association between treatment intensity and vegetative characteristics of most forage types during 2002. These differences were reduced during 2003 as vegetation re-colonized. Total forage value estimates indicated that the least intensive treatment provided the most deer forage due to greater species richness and understory canopy cover. However, nutritional carrying capacity estimates indicated that a moderate-intensity treatment provided the most deer-days/acre of foraging potential due to increased biomass of higher-quality forages. Quantifying relationships between pine plantation management intensity and the vegetative characteristics affecting wildlife habitat potential will allow resource managers to make better informed land management decisions to satisfy economic return and wildlife habitat provision objectives.

11:00 a.m.

Browse Production, Nutrition, and Preference Following Alternative Silvicultural Techniques in Mixed Hardwood Stands. Ryan G. Basinger, Sam Jackson, Craig Harper, and Chris Richards – University of Tennessee

Many mixed hardwood stands in the mid-South support little understory vegetation as a result of over-browsing by white-tailed deer. Following population reduction, there is little increase in browse availability until additional light enters the forest canopy. Landowners want to improve forested habitat for whitetails, but are unclear about which silvicultural method to use. Few want to clearcut and selection harvests are often ecologically unsound. We replicated 4 silvicultural treatments (wildlife retention cut, wildlife retention cut with prescribed fire, shelterwood harvest, and prescribed fire only) with controls in 4 mature mixed hardwood stands in east Tennessee to determine browse production, nutrition, and preference. By the third growing season post treatment, browse availability (pounds dry matter per acre ± SE) was greater in the wildlife retention cut with prescribed fire (343 ± 48), shelterwood (233 ± 34), and wildlife retention cut (193 ± 25) than prescribed fire only (107 ± 20) and control (89 ± 14). Available nutrition was similar among treatments (10 – 11% CP; 26 – 29% ADF), but varied among browse species (8 – 15% CP; 17 – 38% ADF). Based on species use versus availability models, deer showed a preference for dogwood, blackgum, wild grape, greenbrier, and blackberry. Landowners not wanting to harvest timber can improve browse availability considerably by reducing canopy coverage to 50 – 60%, while retaining important mast-producing species. Periodic use of prescribed fire following the cut may further enhance browse availability and help maintain browse within reach of deer.

11:20 a.m.

Determining the Effects of White-tailed Deer Herbivory on Cornfields in NPS Owned Agricultural Leases. Chad M. Stewart and Bill McShea – Conservation and Research Center, Smithsonian Institution

Herbivory by white-tailed deer in agricultural regions can lead to lower crop yields. In Maryland and Virginia, several National Historical Parks are mandated to include agricultural fields to maintain historical accuracy, but have difficulty offering agricultural leases due to high deer densities lowering crop yields. We quantified the impact of white-tailed deer foraging on agricultural lands within three National Historical Parks: C&O Historical Park (5 fields), Antietam Battlefield (4 fields), and Monocacy Battlefield (3 fields). In each field, six 5 x 5 m exclosures were constructed with adjacent control plots, with three exclosures along the field's edge and three in the field's interior. In this two-year study, each field was monitored twice during the growing season, once after emergence (July), and once prior to harvest (September/October). We compared quality of corn, percentage of stalks with corn, and weight of 15 stalks between the fenced and control plots. Using a paired t-test, fenced plots had a significantly higher weight than control plots ($p<0.001$) and interior plots weighed significantly more than edge plots ($p<0.05$). On average, 24.6% of edge corn was lost due to deer herbivory, while 12.2% was lost in the interior.The C&O Canal fields sustained 32.5% total loss, significantly more ($p<0.01$) than Antietam (9.7% loss) and Monocacy (7.3% loss). These differences may be due to landscape factors such as the amount of surrounding forest cover. Finding participants in aglease programs may continue to be difficult in the future unless a management plan is instituted.

Technical Session VI: Behavior and Gender Influences

Moderator: Steve Demarais – Professor of Wildlife Ecology, Mississippi State University

1:00 p.m.

Patterns of Long-term Breeding Success in Male and Female White-tailed Deer. Randy W. DeYoung – Caesar Kleberg Wildlife Research Institute, Texas A & M University, Kingsville, Kenneth L. Gee – Samuel Roberts Noble Foundation, Steve Demarais – Mississippi State University, Rodney L. Honeycutt – Texas A & M University, and Robert A. Gonzales – Samuel Roberts Noble Foundation

Several recent studies have found that the breeding success of individual male white-tailed deer is limited because breeding is distributed among a large number of bucks of all age classes. Because adult does commonly give birth to twin fawns, it is possible that the long-term breeding success (LBS) of does may exceed that of the most successful bucks, an unexpected situation for large mammals. We investigated patterns of LBS in male and female white-tailed deer using genetic parentage for 11 annual fawn cohorts on a 3,000-ac management area. Minimum estimates of LBS during the study period (we were unlikely to sample >70% of fawns in any cohort) indicate that for successful breeders, male LBS was higher and more variable than that of females (male mean = 2.5, var = 6.2, maximum = 12; female mean = 1.7, var = 1.1, maximum = 7). The ability of does to successfully recruit fawns was strongly age-biased, as 86% of fawns surviving >6 months of age were assigned to does aged 3 years. Further, it appears that few does were able to raise twin fawns within years or to raise single fawns in successive years. Breeding lifespan was an important determinant of female LBS, but variance components of lifespan and annual fecundity covaried negatively, indicating that the advantages of living longer could be offset through variable fecundity among years. These observations may reflect the importance of adequate nutritional reserves or maternal

experience in fawn recruitment. Variance components for male annual fecundity and breeding lifespan were similar, suggesting that males could achieve high LBS either by living longer or by siring more fawns per year

1:20 p.m.

***Home Range Fidelity and Management of Mature, Male White-tailed Deer in South Texa**s*. Stephen L. Webb, David G. Hewitt - Caesar Kleberg Wildlife Research Institute, Texas A & M University, Kingsville and Mickey W. Hellickson – King Ranch, Incorporated

Many landowners have implemented management programs targeted primarily for white-tailed deer *(Odocoileus virginianus*). The scale at which populations use the landscape influences ecological processes and management decisions. We used dispersal and home range size data of 3 age groups to determine the scale at which management will be effective for male deer. Home range size at 5.5 years of age (450 ± 62 acres) was 56% smaller (P = 0.0006) than home range size of the same 13 bucks as yearlings (1,028 ± 147 acres). Percent overlap of yearling and 5.5 year old home ranges was 62.7 ± 10.3% (n = 13 deer). Distance between home range centers of yearling and mature home ranges was 4,150 ± 1,337 ft., including 3 deer that dispersed after 2.5 years of age. Average 95% fixed kernel home range size was 512 ± 50 acres and 558 ± 74 acres for all mature bucks in years 1 and 2, respectively. We found that properties > 24,710 acres were needed to manage ≥50% of the original yearling deer found on the property. Properties of 11,120 acres would maintain 50% of the original middle-aged and mature bucks. Movements after dispersal are minimal, with deer shifting their center of activity <7,968 and <1,148 feet each year for middle-aged and mature bucks, respectively, which means middle-aged and mature bucks can be managed at a much finer scale.

1:40 p.m.

Population Structure and Landscape Influences on Dispersal of Juvenile Male White-tailed Deer in Pennsylvania. Eric S. Long, Duane R. Diefenbach – Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University, Bret D. Wallingford and Christopher S. Rosenberry – Pennsylvania Game Commission

In 2002, Pennsylvania adopted new management regulations for white-tailed deer, including antler point restrictions to increase survival of yearling bucks, and increased antlerless deer hunting opportunities to reduce abundance of does and overall deer density. To examine influences of demographic changes and landscape on dispersal. patterns of deer, we initiated a radio-telemetry study of juvenile males in 2 physiographically distinct counties, with Armstrong County less forested and more fragmented than Centre County. From 2002-04, we radio-marked 442 juvenile (6–10 month) bucks. Dispersal was synchronized between counties with males dispersing primarily during spring and fall. Median dispersal distance in Armstrong County (4 mi) was greater than in Centre County (3 mi), and dispersal rate was greater in Armstrong County (0.71) than Centre County (0.44). Within county, overall dispersal rate was similar between years, however each county demonstrated reduced spring dispersal and increased fall dispersal following management changes. These patterns are consistent with the hypothesis that increased doe harvest may increase orphaning rate, thereby decreasing spring dispersal, and decreased buck harvest may increase intrasexual competition, thereby increasing pre-rut dispersal. Meta-analysis of deer dispersal investigations suggests dispersal rate and timing are not related to landscape features; however, average dispersal distance is inversely related to percent forest cover (r^2=0.94, P<0.01). This relationship between forest cover and dispersal distance can be used to predict population-specific dispersal distance distributions, an important component for modeling spatial spread of epizootics such as chronic wasting disease.

2:00 p.m.

Seasonal Variation in Sex Allocation of White-tailed Deer (Odocoileus virginianus): a variation on Trivers-Willard. Sarah T. Saalfeld, Stephen S. Ditchkoff– Auburn University, John J. Ozoga – Munising, Michigan, and Michael S. Mitchell – USGS, Alabama Cooperative Fish and Willdife Research Unit, Auburn University

Since Trivers and Willard first proposed their hypothesis on the ability of a mother to determine the sex of her offspring, it has been at the forefront of scientific research concerning sex ratios. However, few of these studies have deviated from focusing on maternal condition as the key contributor to variations in sex ratios. We hypothesize that a very simple mechanism may also explain variations in offspring sex ratios. We investigated how birth date influences offspring sex ratio in white-tailed deer (*Odocoileus virginianus*). We found that maternal condition did not affect offspring sex ratio in this population, however birth date did. We found that more males were born during earlier birthing periods and that this trend was also apparent among maternal age classes. We hypothesize that females bias the sex ratio of their offspring in order to produce the sex that will most likely increase her lifetime reproductive fitness. Therefore, we believe that females will differentially invest in male offspring earlier in the season as compared to females. This is due to fact that offspring born earlier will have more time available for development and therefore have a greater potential for increased body size and dominance later in life, a trait necessary for male reproductive success. This hypothesis was also supported by our data where we found that males born earlier in the season had greater mass the following spring than those born later, a trend not as dramatic in females. Therefore, we hypothesize that in species which have life history traits such as competition for mates or territories, a female will invest more heavily early in the birthing season in the sex which will gain the greatest advantage in reproductive success by being born at this time.

2:20 p.m.

Differences in Harvest Management Elicit Plasticity in Social Behavior of Female White-Tailed Deer. Christopher E. Comer, Bejamin R. Laseter, Gino J. D'Angelo – University of Georgia, Tyler A Campbell - USDA/APHIS Wildlife Services, Brad F. Miller – University of Georgia, John C. Kilgo, W. Mark Ford –USDA Forest Service, and Karl V. Miller – University of Georgia

White-tailed deer exhibit considerable plasticity in social behavior in response to a variety of demographic parameters; however, the implications for deer management are poorly understood. We investigated the effects of harvest management on social behavior and fine-scale population structure using a combination of genetic and spatial data. We examined social group formation and female dispersal rates in 2 populations: a low density (<15/mi^2) South Carolina population with high doe harvest (25-35% annually) that has produced a young female age structure and a high density (>30 deer/mi^2) West Virginia population with limited doe harvest and older age structure. We compared these results to published data from a low density (<15/mi^2), unhunted population in New York (Mathews and Porter, 1993, J. Mamm. 74:33–43). Our results suggest that harvest history affected social structure and behavior. Where limited harvest of female deer produced a high proportion of older (>5 years) does in WV and NY, evidence supported the formation of persistent social groups and suggested very low rates of female dispersal (<5%). In the low density NY population social groups occupied geographically distinct ranges; however, social groups showed extensive range overlap at higher densities present in the WV population. We found little evidence for persistent social group formation and greater dispersal of females ($\geq$25%) in the SC population. These results demonstrate the plasticity of deer social behavior in response to demographic factors. Furthermore, management strategies involving high rates of doe harvest may increase gene flow and reduce the potential for local inbreeding in white-tailed deer populations.

3:00 p.m.

Evaluation of Outreach Techniques Used to Educate Hunters During an Experimental Antler Restriction Regulation. Len G. Polasek, Xiangwen Liu and Bob Carroll - Texas Parks and Wildlife Department.

Texas Parks and Wildlife Department adopted a three-year experimental antler regulation in 2002 for 6 Texas counties in an effort to improve the age structure of white-tailed bucks. This regulation required development of innovative methods to educate hunters on judging legal bucks. Outreach techniques included press releases to local media and distribution of approximately 400 posters and 30,000 pocket guides with legal-buck sketches and the regulation definition. A slide presentation and video were developed to train hunters in judging legal bucks, with special emphasis placed on estimating antler spread. The slideshow was presented to 1,237 trainees at 34 different events prior to the 2002-03 general deer season. Trainees were asked four questions to determine if they understood the regulation and how confident they were in judging legal bucks. They were also shown photographs of 6 bucks that they had to categorize as legal or illegal. The training resulted in a 13.7% overall improvement in trainees' answers ($P<0.001$). The level of improvement was different among the 10 questions ($P<0.001$). Greatest improvements occurred in judging the legal status of a buck with slightly less than a 13-inch spread, and trainee confidence in judging whether a buck has an inside spread of 13 inches or greater, with mean improvements of 25.9% and 25.6%, respectively. Greater improvement was also made by juveniles (21.1%) than by adults (12.6%) when answering the questions ($P<0.001$). Results indicate that the outreach techniques and training sessions were effective in improving trainee ability and confidence in judging legal bucks.

3:20 p.m.

****Evaluation of Population Reconstruction Techniques: the Effect of Variable Harvest Rates on Population Estimates.*** Mary K. Tilton, Jim Berkson and Mike Vaughan – Virginia Polytechnic Institute and State University

Population reconstruction is a population estimation technique commonly used for white tailed deer *(Odocoileus virginianus)*. Population reconstruction techniques use a time series of harvest numbers by age to calculate a minimum population size. Harvest data are a practical and economical source of population information readily available to wildlife managers. We compared three population reconstruction techniques under different harvest scenarios. Virtual reconstruction is the simplest method, using only addition of animals in the harvest to estimate population size. Downing reconstruction (Downing 1980) calculates an average mortality rate for the last two age classes and uses this mortality rate to begin the backwards calculations. Cohort analysis is similar to Downing reconstruction, but also incorporates a natural mortality term. We used Visual Basic 6.0 software to develop simulations to test the effectiveness of population reconstruction equations. We simulated three harvest scenarios under low measurement error conditions: varying harvest rate by age, by year, and violating the (Downing reconstruction) assumption that the last two age classes have equal mortality. Simulations showed that the choice of an appropriate technique depended on the specific harvest scenario, data available, and the assumptions violated. We have shown that it is important to have an accurate estimate of harvest rates by age and year when using population

reconstruction techniques to estimate population size. Different reconstruction techniques may be more accurate for given harvest scenarios. These results can be extended to provide recommendations of best population reconstruction method given specific conditions.

3:40 p.m.

***Capture of White-tailed Deer Fawns Using Thermal Imaging Technology.** Jordan M. Smith – Auburn University, Bret A. Collier – Texas A & M University, Joshua B. Raglin – Norfolk Southern Railway, Brosnan Forest, and Stephen S. Ditchkoff – Auburn University

Capture of neonatal white-tailed deer (*Odocoileus virginianus*) is often hampered by inherent difficulties in locating study animals. A variety of techniques have been described for location and capture of fawns, including foot searches, female behavioral cues, spotlighting, and vaginal transmitter implants. However, each of these techniques has certain limitations imposed by such factors as habitat structure or logistical difficulties. We describe a new technique for locating deer fawns where thermal imaging technology was employed. The thermal imaging camera used for locating fawns was a Raytheon PalmIR 250 Digital (Raytheon Commercial Infrared, Dallas, TX) with a 75 mm lens, and was mounted on a fully adjustable (e.g., height, aspect, and direction) tripod in the back of a pickup truck. We routed the digital image from the camera to a 13-inch television in the back of the truck to allow multiple observers to monitor the thermal display in relative comfort, as opposed to only one observer being able to look into the optical viewer of the camera. Data were collected at the Brosnan Forest in Dorchester County, South Carolina during April and May 2004. We averaged 1.33 hours and 3.75 hours per fawn encountered and fawn captured, respectively. When adjusting these estimates for the number of observers/drivers (n = 1 - 4) in the truck, mean time per fawn encountered was 3.33 person-hours and mean time per fawn captured was 9.38 person-hours. We suggest that this technique is as, or more, efficient than other reported capture techniques for neonatal white-tailed deer.

4:00 p.m.

***Evaluating New Technologies for Aging White-tailed Deer by Tooth Characteristics.** Jeremy M. Meares – University of Georgia, Brian P. Murphy – Quality Deer Management Association, Laurence R. Schimleck, Sara H. Schweitzer - University of Georgia, Charles R Ruth – South Carolina Department of Natural Resources, Robert J. Warren, and Karl V. Miller - University of Georgia

Despite considerable previous research, there remains a need for an objective, reliable method for estimating age of harvested white-tailed deer. The two most commonly used techniques include cementum annuli and tooth wear and replacement. In general, the cementum annuli technique is considered more accurate especially in older animals, whereas the tooth wear and replacement technique generally provides acceptable accuracy in younger animals. Both methods possess inherent sources of error and variability based on observer bias, geographic location, and wear patterns. We evaluated two new technologies for aging deer jaws—an ArcView-based evaluation of tooth wear, and near-infrared spectroscopy (NIRS) of tooth density. Using digital photographs and ArcView 3.2a, we objectively measured dentine and enamel widths on molars of wild, known-aged deer from South Carolina (n = 91) to quantify tooth wear thereby minimizing observer bias. Our ArcView results were not only highly variable when compared to human estimates using the original technique, but also showed significant overlap among age classes 1.5-4.5. Based on our analyses, it appears that observer subjectivity may actually increase the predictability of the wear and replacement technique.

We also examined tooth density/hardness using NIRS on a subsample of jawbones from South Carolina. We used NIRS readings on the molars of all jaws to generate a regression relationship with age. Preliminary analyses suggest a relationship between spectral readings and known age, and actual predictability of NIRS as an aging technique is currently being assessed.

APPENDIX I

STATE NARRATIVES

ALABAMA

Few areas of comparable size rival Alabama when one considers the diversity of plant and animal species found within the state. From the Gulf Coast to the Cumberland Plateau, numerous physiographic regions divide the state. The Fall Line extends as an arc from the northwestern corner, southeastward across Alabama. This line separates the Coastal Plain to the south from the older upland provinces of the north and northeast. Elevation ranges from sea level to 2,407 feet above sea level. Several major rivers and their tributaries dissect the state, further adding to the diversity of habitats within Alabama.

Historically, deer were abundant in Alabama until unrestricted hunting and changes in land use reduced their numbers to only a few thousand animals in a couple of isolated locations by the early 1900's. The Game and Fish Department began cooperative restocking of suitable habitat as early as 1925 and with growing public support, the Department accelerated restocking efforts through the 1960's. By 1970, the State's deer population had increased to approximately 750,000 animals. Today's preseason population is estimated at 1.75 million deer.

All 67 counties have huntable numbers of deer and an open deer season. South and south central Alabama support the highest concentrations of deer and currently command the highest deer hunting lease fees. All counties have a 71-day gun deer season, allowing the harvest of one antlered buck per day. Prior to the 1998-99 hunting season, most areas were limited to 10 or less days of either-sex hunting during the general gun deer season. Bucks made up 65-70% of the annual harvest during this time. Age structure of harvested bucks is typically young, with the average age being approximately 2 years old. For the 1998-99 deer season, either-sex opportunities were increased in most counties. Most of the southern half of the state had 15-30 days of either-sex hunting during the general gun season. During these either-sex seasons, hunters can take one antlerless deer, in addition to one antlered buck, per day. The number of either-sex days was further increased in many counties during the 1999-2000 season, with some counties having as many as 45 days of either-sex hunting during the general gun season. With the additional opportunities for doe harvest, the total deer harvest for the 1999-2000 season was more closely balanced between bucks (55%) and does (45%).

Alabama's Deer Management Assistance Program (DMP) has been a very popular program since it's inception in 1984. By allowing the use of antlerless tags to meet harvest quotas, the DMP has given many landowners and hunting clubs the opportunity to manage their properties for better quality deer that the normal hunting seasons and bag limits could not offer. The DMP has been very successful in Alabama, but the need still exists for other options for managing deer herds on properties not enrolled in the program. In response to the continued need and desire for more opportunities to harvest antlerless deer, the lengths of either-sex season in many counties were increased for the 2000-2001 hunting season. For the first time, all 67 counties had an either-sex season during the general gun season. The length of these seasons ranged from 3 days to 75 days (the entire gun deer season). The bag limit also was raised to two deer a day, only one of which could be antlered, with no season limit applying to antlered or antlerless deer. As a result of the liberalized either-sex seasons, hunters harvested more does (243,180) than bucks (235,520) during the 2000-01 hunting season. These changes gave hunters in most of Alabama ample opportunity to harvest antlerless deer. This increase provides the framework many landowners, hunting clubs, etc. need to manage their properties as they wish, without having to enroll in the DMP. It is hoped this increase in either-sex hunting opportunities will help stabilize expanding deer herds and correct out of balance adult sex ratios found in many parts of the state. The liberal either-sex opportunities remain in place.

ARKANSAS

Arkansas is a very diverse state in terms of physical and biotic characteristics. In terms of topography, geographical substrate and dominant vegetation, the state is divided into two primary regions – the Interior-Highlands (Ozark and Ouachita Mountain Natural Divisions) and the Lowlands (West Gulf Coastal Plain, Mississippi Alluvial Plain and Crowley's Ridge Natural Divisions). General vegetation in the Ozarks, Ouachitas, West Gulf Coastal Plain, and Mississippi Alluvial Plain divisions is upland hardwood and bottomland hardwood, respectively. Crowley's Ridge is forested with upland and bottomland hardwood types. The state is still classed as rural with a total human population of less than 2.5 million. Eighty-nine percent of the total land base is privately owned.

Arkansas' deer herd declined drastically around the turn of the century, reaching a low of approximately 500 deer statewide in 1930. The Arkansas Game and Fish Commission began an aggressive deer restoration program in the 1920s, 1930s and 1940s, which included refuge establishment, trapping and restocking, strict enforcement of laws and regulations, and conservative bucks-only hunting seasons. These efforts resulted in a rapidly expanding deer herd. In 1950, the estimated deer herd was about 40,000. By 1972, the herd had grown to an estimated population of approximately 300,000 and today approaches 1,000,000. Legal harvest increased from 540 deer taken in 1939 to a record harvest of 194,687 in 1999.

Today, the herd is somewhat stable in some areas with slow growth continuing in other areas. Highest densities occur in the coastal plain region while the lowest occur in portions of the mountainous interior highlands. The highest percentage of trophy deer occurs in portions of the Delta region.

A five-year Strategic Deer Management Plan was approved in 1999. Deer management units and zones are used for statewide herd management. Broadly, management efforts are directed toward increasing the female harvest and reducing the harvest of young males to improve buck-doe ratios and to also improve the buck age structure. Female harvest is accomplished with a liberal doe bag limit and special bonus doe permits. To reduce the harvest of young bucks Arkansas implemented a statewide antler restriction in 1998. Legal bucks must have at least three points on at least one antler. During the 1997-98 deer season in the West Gulf Coastal Plain Region, 1.5, 2.5, and 3.5 year old bucks made up 44%, 30%, and 9% of the buck harvest. By the 2001-02 season, those percentages had changed to 13%, 44%, and 25%. Statewide, during the 1997-98 deer season, bucks, button bucks, and does made up 55%, 8%, and 37% of the total harvest. By the 2001-02 season, those percentages had changed to 40%, 10%, and 50% respectively. During the 2003-2004 season 65,204 (61%) bucks, 9,756 button bucks (9%), and 32,175 (30%) does were harvested. The statewide bag limit is 3 deer, no more than two of which may be bucks. Button bucks count toward the buck bag limit. Checking of deer in Arkansas is mandatory. Starting in 2001, a biological data collection initiative was implemented. Recently biological data collection is at or near 10% of total harvest.

FLORIDA

Florida's topography, with the exception of coastal dunes and bluffs, is flat for a considerable distance inland from both the Atlantic and Gulf coasts. Hilly, rolling topography extends from the northwestern part of the state ranging southerly through the center of the peninsula and gradually diminishes in Highlands County near Avon Park.

Florida has 15 general vegetation types of which 13 are important to deer because of the amount and variety of deer food plants present. These types are grouped into major categories of vegetation considered important to deer: flatwoods (39.6%), pine-oak uplands (29.3%), swamps (8.6%), hammocks (6.7%), freshwater marshes (5.6%), prairies (5.2%), sand pine-scrub oak ridges (1.5%), and various mixtures of other types including tidal marshes (3.5%).

In the 1800s and early 1900s, hunting was a way of life to the pioneers as well as the Indians. The sale of hides made up much of their income. Fire hunting (with torches) was a common practice of taking animals in the early days. From the 1920s to 1930s, ranchers were losing large amounts of money due to the loss of cattle as a result of "Texas Cattle Fever." Pressure was placed on the legislature for a cattle fever tick eradication program, which included the slaughtering of deer because they were believed to be reservoirs for the disease. Between 1939 and 1941, an estimated 10,000 deer were killed. Possibly the most serious problem facing the white-tailed deer during this time in Florida history was the screw-worm. An acute increase in deer numbers was evident immediately following the eradication of the screw-worm fly by the U.S. Department of Agriculture.

Since the 1930s, Florida's white-tailed deer herd has increased dramatically as a direct result of enforcement of harvest restrictions and the screw-worm eradication. White-tailed deer harvest in Florida currently exceeds 100,000 animals annually, which is higher than estimates of the entire population during the early 1960s. Today, the Florida Fish and Wildlife Conservation Commission (FWC) allows either-sex archery hunting, has a lottery drawing for antlerless deer permits on many wildlife management areas (WMAs), issues antlerless deer permits on private lands, and has a seven days antlerless deer season during the general gun season. The FWC manages several WMAs for higher-quality hunting, imposing antler restrictions and hunter quotas. Antler restrictions are also common on private hunting lands throughout the state. Although Florida is not known for large-antlered deer, such restrictions have led to an increase in higher-quality antlered deer harvest in recent years.

GEORGIA

Data on legally harvested white-tailed deer (*Odocoileus virginianus*) were compiled from July 1, 1978 through June 30, 2003. Population models were used in conjunction with hunter harvest estimates to calculate population size. Specific objectives were to determine population levels, monitor condition indices, and disease frequency in the state as well as for individual physiographic provinces, and deer management units (DMU). Included in this report are data from 1978-2002 for the statewide population.

Minimum population estimates increased every year from 1979 to 1991. This trend changed in 1992 when the statewide population estimate showed a decline for the first time. The rapid increases depicted during the period from 1981 to 1986 are reflective of reduced either-sex hunting opportunities. During this period the adult buck population increased by 79.4% while adult does increased by 94.1%. These higher adult populations contributed significantly to the observed population increase of 66.8% from 1985 to 1991. This population increase stimulated gradual increases in either-sex hunting opportunities (more either-sex hunting days). The additional days were added to existing seasons, primarily in the Piedmont and in the Upper and Lower Coastal Plains. Additionally, in 1991 the statewide bag limit was increased from 3 deer total, no more than 2 antlered bucks to 5 deer total, no more than 2 antlered bucks. The bag limit was increased again in 2001 to 12, 10 antlerless and 2 antlered deer. Another change added in 2002 requires that 1 of the 2 antlered deer must have a minimum of 4 points, 1 inch or longer, on one side of the antlers. There are no antler restrictions for the other antlered buck except in 9 counties with special antler restrictions.

The increases in either-sex hunting days and bag limit during the 1990's seemingly provided the necessary opportunity for hunters to harvest enough deer to stop or at least slow the rate of growth in the statewide deer population. However, in terms of the extent of the effect on the population, the increases in harvest and percent does seen during the last 10-12 years may be misleading. Comparing estimates of total harvest relative to concurrent estimates of pre-hunt statewide populations shows that the removal rate by legal hunting increased less than 30%. In other words, hunters removed an average of 26% of the "standing crop" during the decade of the 1980's versus 33% during the 1990's. Given that pre-hunt populations are reported as minimum estimates (i.e., assumed to be conservative) and that, at least in some years, evidence indicates that statewide harvests were overestimated, it appears that these removal rates have not been great enough to achieve a sustainable reduction in the statewide deer population.

According to model estimates, the statewide population averaged slightly more than 1.2 million deer over the 10- year period 1993-2002 with peaks occurring in 1991 (1.31 million), 1997 (1.39 million) and 2000 (1.31 million). Previous estimates had indicated that the statewide population was declining after the peak in 1991, however, since 1995 the population has shown an increase in 4 of the 8 years through 2002. Statewide the percent does in the harvest ranged from 48.3% to 63.3% over the last 10 years, and from 22.0% to 63.3% for 1978-2002. Percent does in the harvest for 2002-2003 (63.3%) was higher than the 10-year average (53.1%). Despite this high figure for percent does, total doe harvest for the 2002 season was similar to recent years. However, the adult buck harvest for 2002 was 30% lower than in 2001 and was 36% lower than the 15 year average (96,757 vs. 150,723). This represents the largest one-year decrease in adult buck harvest on record. This likely is the result of the addition of a "4 points on one side" antler restriction. The adult buck harvest of 96,757 was 36% and 32% lower than the 15 and 20 year averages respectively. Further, the 2002 antlered deer harvest represents

only 24% of the total harvest. This is the smallest proportion of the harvest recorded for antlered bucks in the 25 years of this study. The effects of this decrease in antlered harvest are unknown. The assumption is that many of the bucks that were not harvested as a result of the 4- point restriction will be available for harvest in future seasons. It is unlikely that the harvest of these bucks in subsequent seasons will offset the total decrease seen in the current harvest. However, if these passed over bucks are eventually harvested, they should be of somewhat better quality in terms of antler development.

KENTUCKY

Nestled among the Southeast, Midwest and Northeast, Kentucky is rapidly becoming known for its high quality deer herd. We have several luxuries in Kentucky including high quality soil, extensive agriculture and enthusiastic hunters. But the real reasons Kentucky's deer herd is in such good shape are timing and a little good luck. Restocking of whitetails in Kentucky was completed in 1999, much later than our southern counterparts. Therefore, Kentucky is dealing with a relatively young deer herd. Numbering about 800,000, Kentucky's deer population is well below carrying capacity and we intend to keep it that way. We have learned much from our neighbors: stay on top of herd growth, or you may never get control. Kentucky has promoted and instituted liberal antlerless harvest for over 10 years. In fact, 30% of the state has an unlimited bag limit on antlereless deer. Additionally, we are lucky to have a one buck limit, what we feel is the best approach to statewide QDM. We have consistently harvested more than 40% females over the past several years, and are often close to a 1:1 harvest sex ratio.

We do have problems, however. Kentucky is a small state with approximately 4.3 million residents and only 270,000 hunters. Annual hunter success rates in Kentucky are less than 40%, and of those successful hunters, the average number of deer harvested is 1.3. Despite liberal antlerless bag limits, our hunters are harvesting as many deer as they want. While annual harvest is currently around 110,000 deer, enough to slow growth combined with 40% doe harvest, we will soon have to do more with fewer hunters.

Kentucky continues to be one of the top states for quality deer hunting. During the 1992-1999 reporting periods, Kentucky was surpassed only by Illinois in the number of Boone & Crockett bucks produced per square mile of land area. We consistently harvest over 20 deer that qualify for Boone & Crockett recognition each year. Kentucky's deer management philosophy is simple. We intend to increase the quality of Kentucky's deer herd while achieving proper deer population levels.

LOUISIANA

Mention Louisiana and most non-residents conjure up thoughts of swamps, bayous and alligators. While Louisiana has its share of these, the Bayou State's environment is a little more diverse than what some people imagine. In his book Louisiana's Wildlife Inventory, Dr. Lyle St. Amant lists seven ecological divisions of the state. These areas include: the Lower Mississippi-Atchafalaya Alluvial Plain; Upper Mississippi ,Tensas, Ouachita, and Red River Alluvial Plains; Northwest Louisiana Uplands; Southeast Louisiana Terrace Lands; Southwest Louisiana Terrace Lands; and Coastal Marshes. Deer can be found in all of these divisions and in all sixty-four parishes. The present population is estimated at around one million animals.

The Louisiana deer story is similar to that of most southeastern states. A once thriving deer population was reduced by a combination of habitat loss and unregulated hunting. Deer could only be found in remote swamp and bottomland areas and on a few protected refuges. This occurred between 1880 and 1925.

The Louisiana Department of Wildlife and Fisheries began a deer trapping and relocation program in the fifties. The program began slowly but, by 1970, deer had become established throughout the state. The restoration program was a success, and during the 1970s, deer herds continued to increase, resulting in a need for deer management programs. In the late seventies, LDWF began to assist hunting clubs and landowners with their deer management problems and needs.

The Wildlife Division of LDWF is divided into seven wildlife regions. The Deer Program Section coordinates the statewide program with the regions. Regional biologists are responsible for management of the herds on public and private lands within their region. Deer hunts are held annually, on the various wildlife management areas around the state (wmas). During the 2002-03 either-sex deer season on the wmas, a total of 2,993 deer were harvested with 31,524 hunter efforts. There were 1,425 cooperators enrolled in the Deer Management Assistance Program and these cooperators harvested 28,334 deer. The yearling buck harvest on these lands was 32% of the total buck harvest and is an all-time low for this age group. DMAP has been the tool that large clubs and landowners have used to increase the age structure of their buck population.

In 2002, an experimental antler program was established in three parishes in the area of the state known as the Atchafalaya Basin. This program came at the request of the local QDMA chapter who petitioned the Wildlife and Fisheries Commission to adopt this experiment. During the 2002 season the yearling buck harvest was reduced in these three parishes. The program was set to run for three years and may provide a means for both large and small landowners to increase the age structure of their buck population.

MARYLAND

Maryland often referred to as "America in Miniature" covers 4 physiographic regions – Coastal Plain, Piedmont, Ridge & Valley and the Appalachian Plateau. Forests cover 46% of the land mass. Woodlands vary from the northern hardwoods of the extreme western mountainous section of the state to the Atlantic Coast loblolly pine forests growing just above sea level. Even with increasing development, agriculture remains Maryland's largest industry. Farming includes poultry, grain crops, truck crops, nurseries and orchards.

By 1900 Maryland's deer population survived only in the remote western mountain sections. Habitat destruction and over hunting eliminated deer from the rest of the state. Restocking of deer began in the early 1900s when deer from Michigan, Pennsylvania and Wisconsin were released. Deer restocking accelerated after World War II with deer relocated from Aberdeen Proving Grounds, a U. S. Army weapons testing center located in Harford County Maryland.

Maryland's first deer season opened in the late 1920s with limited hunting in the remote Western Maryland. Mandatory check stations opened in 1931 with 31 deer taken in western Maryland. The first either sex deer hunting occurred in 1957. By 1960 the entire state opened for deer hunting except in Montgomery County.

Maryland currently has two Deer Management Regions for deer hunting regulations. The far western mountainous counties of Garrett and Allegany, with high hunting pressure and lower deer productivity, have two deer bag limits for each season (Bow, Firearm, Muzzleloader). No more than one antlered deer may be taken for each season. The other Deer Management Region consists of the remaining 21 counties. Ten antlerless and two antlered deer may be taken in each deer hunting season. Two antlerless deer must be taken before a second antlered deer is hunted during each season. Archers have no bag limit for antlerless deer within a Suburban Deer Archery Zone.

While Maryland's western and eastern sections remain predominantly rural, Maryland's central section is dominated by urban and suburban landscapes. Since the effectiveness of regulated deer hunting is limited in many of these central Maryland locales, deer numbers continue to grow within these developed counties. Managing deer in these highly developed sections is one of the major challenges of 21st Century deer management.

Maryland has one deer biologist dedicated to this urban/suburban region. The deer biologist's duties focus on deer management for private communities, government properties and corporate lands. The adjacent landscape, attitudes of the surrounding communities and the comfort level of the property managers limit the implementation of lethal deer management options for these properties. Controlled managed hunts and sharpshooters are the most frequently used lethal deer management techniques.

Maryland's rural deer population appears to have stabilized. The antlered buck harvest has not changed in the past four years. Liberal antlerless bag limits and liberal deer crop damage regulations have helped to stop the rapid deer population growth in most rural Maryland landscapes.

MISSISSIPPI

As in most southeastern states, the historically abundant white-tailed deer population in Mississippi was virtually extirpated by the early 1900's. The absence of a regulatory agency with statewide authority to make and enforce state game laws compounded population declines which resulted from habitat changes associated with widespread deforestation. In 1929 Aldo Leopold reported isolated remnant deer herds existing only in limited portions of the Mississippi Delta and in the Pearl and Pascagoula River basins. This report was the catalyst which prompted the 1932 establishment of the Mississippi Game and Fish Commission by the state legislature. A successful deer restoration project, financed principally by federal funding through the Pittman-Robertson Act, was underway by 1940. Deer were initially imported from North Carolina, Kentucky, Texas, Alabama, and Mexico to refuges in Mississippi. With protection and public support, these populations flourished on Leaf River Refuge in the southeastern part of the state and Upper Sardis Refuge in north-central Mississippi. Hundreds of deer from these two sites were translocated throughout the state for restocking purposes.

The deforestation of the early 20th Century occurred throughout the eight physiographic regions of Mississippi. Rural, subsistence-level agriculture briefly became the dominant land use practice. But, subsequent second-growth forests created ideal conditions for exponential herd expansion. Currently, forested lands cover 18.6 million acres, or 62%, of the state's total land area. Major forest types include upland hardwood, bottomland hardwood, mixed-pine hardwood, and pine. The pine component is dominated by even-aged loblolly stands which are managed at varying degrees of intensity. Landowner objectives dictate management levels, with industrial landowners practicing the most intensive management. These practices range from natural regeneration of harvested stands all the way to mechanically and chemically site-prepared stands which are planted in bedded rows with genetically superior seedlings at excessive stocking rates and followed by additional herbicide treatments, fertilization, and pruning to release the crop trees. Browse abundance and species diversity decline as management level intensity increases. This perceived decline in habitat quality has caused criticism from both wildlife managers and hunters who lease the more intensively managed industrial and corporate landholdings. Private and public forest ownership in the state are 90% and 10%, respectively. In private ownership nearly two-thirds is individually owned, while industrial and corporate interests control the remainder.

The ability to manage an animal as adaptable as the white-tailed deer required information about species ecology and hunter objectives in all physiographic regions of the state. Baseline physiological indicators which allowed evaluation of population and habitat inter-relationships were unknown. Through a cooperative research program with Mississippi State University in 1976, the Mississippi Department of Wildlife, Fisheries and Parks gained information which provided biologists with the ability to evaluate population density relative to carrying capacity, using condition indicators rather than population estimates or browse surveys. This Cooperative Deer Management Assistance Program (DMAP) directly involved hunters in management through the collection of biological data. The interpretation of these data, in consultation with a biologist, is the guiding principle of DMAP. From a two-county pilot project in its first year, DMAP grew steadily until participation peaked in 1994 at almost 1,200 cooperators with over 2.7 million acres under management. Liberalized season structure and bag limits during the mid-1990's allowed land managers the flexibility to meet harvest objectives outside DMAP guidelines, which resulted in a decline in DMAP participation. Current enrollment includes 850 cooperators with 1.9 million acres. The philosophy of the technical staff continues to be that it is imperative to provide sufficient harvest opportunity on private lands to allow accomplishment of individual management objectives.

Regulatory changes of significance in the last decade include the liberalization of antlerless hunting opportunity and the implementation of a "four point law" in the 1995-96 hunting season. Prior to these changes antlerless deer comprised only about 30% of the total harvest, while the percentage of 1½ year old bucks made up over 60% of the antlered buck harvest. As a result of these regulatory changes, statewide sex ratios have stabilized with equal numbers of bucks and does in the harvest. Concurrently, the percentage of 1½ year old bucks in the antlered buck harvest has improved to only about 20%.

Current issues that might impact existing management objectives and redirect future regulatory and management priorities include supplemental feeding and baiting, because of potential associated disease and ethical considerations. In addition, issues related to fencing may create dissension among hunters due to concerns about resource allocation and privatization of a public resource, and among both hunters and non-hunters about fair chase in sport hunting.

The continued success of the deer management program in Mississippi is related to the timely acquisition of adequate statewide harvest data which can be evaluated at the county level. Plans to implement a telephone-based harvest reporting and bag limit compliance system which can provide these data are in progress.

MISSOURI

Missouri has five distinct physiographic provinces. The Glaciated Plains, characterized by rolling hills and deep glacial till and loess soils, lies north of the Missouri River. Extant vegetation includes some native prairie and deciduous forest; however, much of the region has been altered by farming. The Ozark Plateau, located in southern Missouri, has thin soils and rocky terrain. Most of the area is forested with an oak-hickory cover type dominating and shortleaf pine common in the southeastern portions. Between these 2 largest provinces lie the Ozark Border and Osage Plain transition provinces. The Ozark Border is similar to the Ozark Plateau, however, its soils are richer and more productive. The Osage Plains is chiefly prairie in nature; however, most native prairie has been converted to cool season pastures. The Mississippi Lowland province, located in southeastern Missouri, is best described as a broad flat alluvial plain under intensive agriculture, with a small amount of bottomland hardwood forest.

Ninety-three percent of Missouri is in private ownership. Average farm size ranges from 183 acres in the Ozark Border to 484 acres in the Mississippi Lowland. The amount of land in crops varies from a low of 8% in the Ozark Plateau to 83% in the Mississippi Lowland. Leasing for hunting rights is uncommon but increasing throughout Missouri. Generally the better deer habitat occurs north of the Missouri River, although portions of the Ozark Border and Glaciated Plains offer excellent habitat. Deer densities, growth potential and reproductive rates are highest in these 3 regions. Deer abundance in the Ozark Plateau varies with habitat and hunter densities. Deer numbers are typically lower in the southeast Ozarks where productivity is lower and illegal harvest is high.

The history of deer in Missouri is similar to that in most Midwestern states. Prior to settlement, deer were abundant but populations declined rapidly from habitat loss and unrestricted harvest. In 1925 it is estimated there were only 395 deer left in the state. An aggressive program of public education, enforcement, reintroductions, and land acquisitions was successful in restoring the deer and in 1944 the first modern day deer season was held. It was a bucks-only season in a limited number of Ozark counties and 535 deer were taken. In 1951, the first any-deer season was held. Other major changes include the implementation of deer management units in 1970, an any deer quota system in 1975, and a bonus antlerless-only permit system in 1987.

Deer herd management in Missouri is accomplished on a unit basis. Quotas of permits that allow the harvest of antlerless deer are established annually for each of 57 management units. Antlered-only permits are unlimited. Quotas are based on population modeling, harvest statistics from mandatory check-ins, conservation agents' perceptions of populations and crop damage reports. Stabilization of deer populations in most parts of Missouri is desirable and emphasis in recent years has been on increasing doe harvests through liberal quotas.

NORTH CAROLINA

North Carolina has a diversity of habitat types ranging from the sounds and marshes of the Outer Banks coastal region to the highest mountains in the eastern United States. Regional habitat diversity also is evident in the state's 3 physiographic provinces. The lower Atlantic Coastal Plain region is comprised of marsh, flatwoods, and both lowland and upland swamps (pocosins). Many of the wetlands in this area have been drained and converted to pine forests and farms. The upper Coastal Plain is one of the major agricultural areas of the state. Primary forest types of the Coastal Plain are loblolly pine, oak-gum cypress, oak-hickory, oak-pine, pond pine, and longleaf pine. The Piedmont region is characterized by rolling hills and smaller farms and woodlots. Major forest types include oak-hickory, loblolly pine, oak-pine, Virginia pine, and shortleaf pine. The Appalachian Mountain region consists primarily of rugged mountains with shallow rocky soils in the highest areas to some fertile bottomlands and valleys in the lower elevations. Principal forest types of this region include oak-hickory, oak-pine, chestnut oak, white pine-hemlock, maple-beech-birch, and Virginia pine.

The history of deer management in North Carolina is similar to the other southeastern states. In the early 1900's it was estimated that only 10,000 deer were in the state. A buck law was established in 1927. The period from 1930 to 1960 was characterized by the restoration and recovery of deer herds. During this "buck management" phase, deer herds responded dramatically to the restoration efforts and protection they were afforded. By 1960, the statewide population was 250,000 animals and almost 30,000 were harvested. Either-sex seasons were established in 1959. The period of 1960 to 1980 was characterized by the "doe management" phase. Most management strategies involved the concept of trying to get more does in the harvest. Very little concern was given to the buck segment of the herds. The period since 1980 has been characterized by the "herd" management phase. Herd and habitat management schemes were established which attempted to make better utilization of both sexes and at the same time improve the quality of the deer harvested and the condition of the habitats. A Deer Management Assistance Program was initiated in 1981 to offer the concept of quality deer management to landowners and hunting clubs.

The 2003 pre-season population estimate was 1.0 – 1.1 million deer. During the 2003-04 hunting season, either-sex regulations allowed 6 does to be taken throughout the entire season (September-December). In the Coastal Plain, densities and buck harvests have stabilized somewhat and there have been accompanying increases in doe harvests (almost 50% of the total in many counties). Piedmont herds are being affected by urbanization, and conflicts between deer and people are becoming more evident. Work is ongoing to evaluate techniques for increasing antlerless harvests without adding to existing conflicts between hunters and landowners. Herds are continuing to increase in the good habitat of the foothills area of the upper Piedmont and lower Mountain regions. Mountain populations are relatively stable and either-sex hunting is being incorporated gradually into those areas where herds are sensitive to severe environmental conditions and fluctuations in high energy foods like acorns occur.

OKLAHOMA

Oklahoma's deer range provides sportsmen with varying topography, several different habitat types, and two species of deer to hunt. White-tailed deer occur throughout the entire state, while mule deer inhabit the panhandle and northwest counties.

Oklahoma slopes southeastward from an elevation of 5,000 ft at Black Mesa in the panhandle to 327 ft on the Red River in the southeastern corner. Topography is generally flat or rolling, exceptions being the Wichita Mountains in the southwest, the Arbuckle Mountains in the south-central section, and the Ouachita, Boston, and Ozark Mountains along the eastern border. Average annual precipitation ranges from a low of 15" in the panhandle to 45" in the southeast part of the state.

Four major forest types cover approximately 20% of the state. The most extensive forest type is the post oak-blackjack oak type, which occurs throughout the central region. Oak-hickory and oak-pine forests cover much of the eastern portion of the state. The pinon-juniper type is found only in the Black Mesa area of the panhandle, and represents an eastern extension of the Rocky Mountain flora. The remainder of the state is dominated by grasslands with tallgrass, mixed grass and shortgrass prairies occurring east to west. Sand sage and shinnery oak grasslands are common along the western border and in the panhandle.

A highly successful restocking program helped Oklahoma's deer herd rebound from a low of 500 animals in 1916, to an estimated 325,000 animals today. Antlerless deer harvests were implemented in the mid-1970's under a zoned permit system. In 1982, this system was dropped in favor of a system which offers varying numbers of antlerless days depending on the harvest zone. Initially, sportsmen had difficulty accepting the idea of harvesting does, but harvest results clearly show that antlerless hunting has benefited Oklahoma deer hunters. The deer harvest trend during the past decade has seen a remarkable increase of 146%, including a 121% increase in the antlered buck harvest.

Perhaps the greatest challenge in managing Oklahoma's deer herd is that over 95% of the land is privately owned. Coupled with this is the fact that much of this land is used for an agriculture-based economy which is not always compatible with deer production. Deer habitat is especially scarce in the southwest portion of the state and in many areas of eastern Oklahoma, where forest succession has advanced to the point of greatly reduced carrying capacity. A short nine-day gun season can also pose management problems if poor weather discourages participation of gun hunters, who typically account for 75% of the total harvest. Despite these obstacles, deer hunters have enjoyed record harvests four of the past five years.

SOUTH CAROLINA

South Carolina's deer herd reached an extremely low point around the turn of the last century with deer becoming essentially non-existent in the piedmont and mountains (the upstate). Fortunately there were good residual populations associated with the major rivers in the coastal plain. Restoration efforts began in the 1950's and involved the capture and relocation of approximately 314 deer from the coastal plain to the upstate. All restocking efforts utilized native deer. Over the last 20 years, changes in agriculture and more importantly, changes in forestry related activities have created exceptional deer habitat in most parts of the state. Currently, huntable populations exist in all 46 counties and many areas have over 50 deer per square mile and annual harvest rates of around 20 deer per square mile.

Deer hunting in South Carolina is characterized by two distinct season frameworks. The coastal plain encompasses 28 counties where the deer season begins on August 15 or September 1 and continues until January 1. In this region, roughly two-thirds of the state, dog hunting is allowed; however the activity is declining significantly. Baiting is allowed in the coastal plain and although there are short buck only archery seasons in a few coastal plain Game Zones, special weapons seasons are generally lacking. In much of the coastal plain there is no daily or seasonal limit on antlered deer. In the 18 county piedmont and mountains deer season begins on September 15 and October 1, respectively, and ends on January 1. There are early archery and/or primitive weapons seasons in all areas. Neither dog hunting or baiting is allowed in the upstate and the limit on antlered deer is 5.

With the exception of Wildlife Management Areas, season dates statewide are set in statute. In the coastal plain methods of taking deer are set in statute as are bag limits for antlered deer. In the upstate and on Wildlife Management Areas, bag limits and methods of take are set by SCDNR regulation. SCDNR has statewide authority with respect to the harvest of antlerless deer and as deer populations have increased, programs have provided more opportunity for hunters to harvest antlerless deer on all lands. Currently, all parts of the state have designated either sex days and typically every Friday and Saturday from October 1 to Thanksgiving are either sex days with additional days near the end of the season.

SCDNR offers two optional antlerless deer tag programs for the entire state. The Antlerless Deer Quota Program (ADQP) began in 1965 and continues today as a means for private landowners/ lessees to harvest antlerless deer. With the ADQP, qualified applicants are issued an antlerless deer quota based on the density and condition of the local deer population, the size of the tract of land, and the recreational and agricultural objectives of the property owner. Currently, approximately 2,000 properties encompassing over 4.1 million acres participate in the ADQP. In 1994 a second program, the Individual Antlerless Deer Tag Program was implemented. Unlike the ADQP which is property based, this program is hunter based and allows anyone to purchase up to 4 antlerless deer tags which can be used on any property they are permitted to hunt (including many WMA's). Individual tags cannot be used on properties already enrolled in the ADQP. Currently, over 46,000 hunters participate in the Individual Tag Program. With the liberalization of either sex days and the availability of two optional tag programs South Carolina deer hunters now harvest equal numbers of bucks and does.

Department objectives continue to include stabilization (reduction in some areas) of the deer population and increased efforts to moderate the social costs of a high deer population, e.g. agricultural depredation, deer vehicle collisions, urban deer situations, etc.

TENNESSEE

Tennessee is comprised of 8 distinct physiographic regions, ranging from mountains in the east to wide swampy river bottoms in the west. Elevations range from 200 feet above sea level along the Mississippi River in the west to 6,642 feet at Clingman's Dome in the Great Smoky Mountains. The wide range in elevations, topography, and soil classifications has resulted in a complex diversity of forest types, vegetation, and productivity. Consequently, deer habitat quality is very diverse across the state. Tennessee's most abundant deer herds are found in the highly interspersed forested and agricultural areas of the middle and western portions of the state, from which approximately 75% of the harvest is taken. The deer herds of the Cumberland Plateau and eastward, although smaller than those in the western part of the state, have showed continued growth. The relatively low habitat quality in the mountainous far eastern portion of the state will likely inhibit the deer population from reaching the densities realized in middle and western Tennessee.

Tennessee is blessed with abundant public hunting opportunities. Over 2,000,000 acres are open for hunting to the public, including approximately 1.3 million acres which are managed by state and federal agencies to provide a variety of hunting opportunities. Another 300,000 acres are privately owned timberlands that are part of the state's Public Hunting Area program, which provides public hunting access to large acreages for a small fee ($15-$30).

The history of Volunteer State's deer herd is similar to that of other states. By the turn of the century population densities where extremely low when it was estimated that fewer than 2,000 deer remained in Tennessee. Restoration of the state's deer herd was begun in the 1930's and 40's and continued until 1985. During the initial years of restoration, most deer were obtained from North Carolina, Texas, and Wisconsin. In subsequent years, deer were moved within state to stock areas with lower densities. From 1940 to 1985, over 9,000 deer were stocked in 72 of Tennessee's 95 counties. Since the 1940's, herd growth has been substantial and consistent, with the herd now estimated at 999,000. The deer harvest has grown accordingly, from 113 in 1949 to over 157,599 in 2001.

Tennessee is divided into two major deer harvest management units. Unit A comprises the middle and western counties of the state and has the longest seasons and the most liberal bag limits. Unit B comprises the eastern counties and has shorter seasons and more conservative bag limits. Within each unit, county deer herds are managed separately. Population models as well as other biological parameters (age/sex structure, weights, antler dimensions) are used to assess the status of each herd, and establish desired doe harvests. Doe harvests are implemented through the issuance of quota permits allocated by drawing. Since 1975, the antlerless harvest in Tennessee has increased from 23% to over 38% of the total harvest in 2001.

Future deer management in Tennessee will continue to focus on the challenge of maintaining adequate doe harvests in the face of a stabilized or reduced hunter base. Also, the demand for quality/trophy deer opportunities is increasing in the state, and will have to be addressed in the near future.

TEXAS

Texas is comprised of 10 ecological areas. The Edwards Plateau is the limestone and granite "Hill Country" of west central Texas. The South Texas Plains, also known as the "Brush Country" is a level to rolling plain extending south and west from San Antonio to the Gulf of Mexico and the Rio Grande. The Cross Timbers and Prairies range from oak and mesquite savannah to dense brush. The Gulf Prairies and Marshes region, a slowly drained level area, is located along the Texas Coast. The Post Oak Savannah is a gently rolling area with elevations of 300-800 feet dominated by post oak and blackjack oak. The arid and mountainous Trans Pecos region is in the extreme western part of the state.The Blackland Prairies region is gently rolling to moderately rough and has agricultural and urban areas. The Rolling Plains and High Plains regions are located in the Panhandle where livestock grazing and irrigated farming dominate. The Pineywoods contains pines and bottomland hardwoods, much of which is in commercial forestry.

Early settlers found white-tailed deer in all areas of the state except the western and northwestern portions. Excessive harvest of deer for hides and meat to feed the settlers and early city-dwellers caused the species to decline by the late 1800s. Public concern prompted a series of protective measures. A 5-month closed season was enacted in 1881, and the first bag limit was 6 bucks in 1903. Six game wardens were hired in 1919 to patrol the entire state. Deer increased dramatically by the 1930s thanks to protective regulations, law enforcement, invasion of woody plants into the prairies, and restocking efforts.

Deer have expanded their range in Texas and over 83 million acres of the state are occupied by whitetails. There is a major problem with deer-human conflicts in subdivisions near cities. Texas allows private trapping and moving of deer under permit to help alleviate the problem. Bag limits and seasons have become more liberal to deal with the burgeoning deer population and to pique hunter interest.

Research and management experience in Texas continues to demonstrate the wisdom of selective harvest to produce bucks with superior antlers. Targeting deer with the smallest antlers as early as possible helps to ensure better quality bucks at maturity. Currently, some of the wildlife management areas emphasize harvest of bucks with 4 points or less through regulation. Many landowners under the technical guidance programs have programs that allow the harvest of the low-end bucks and "trophy bucks." Beginning in the 2002-2003 Season Texas began experimenting with mandatory antler restrictions in a 6-county area. In this area a legal buck must have a minimum of a 13" inside spread, OR at least one un-branched antler, OR at least 6 points on a side. These regulations will be evaluated over a 3-year period. Preliminary results indicate increasing age structure among bucks. This experimental regulation in those one-buck counties has gained in popularity, where pre-regulation support by hunters and landowners was 70%. Harvest data indicates a potential need for a second buck in the bag, which should be restricted to a buck with at least one unbranched antler. Such a proposal would be an attempt to increase hunting opportunity while reducing risks of high-grading.

Managed Lands Deer Permits (MLDP) are made available to any landowner willing to follow guidelines provided by the local TPWD wildlife biologist or technician. If the landowner accepts the number of buck and doe permits that is biologically correct for the herd, then a special season and bag limit is designated for the property. That season is more than twice

as long as the regular season to allow the landowner ample time to meet the objectives. The number of deer to be taken from the area is set by the number of permits issued; therefore, the long season and increased bag will not result in an increased harvest. In fact, the number of bucks allowed to be killed through MLD Permits should be less than that which the landowner would have allowed under regular county regulations.

Additionally, TPWD biologists may make recommendations on management activities such as livestock management, vegetation management, watering devices, and the like. The biologist will approve a wildlife management plan that considers all aspects of management and considers the effects of the management on other wildlife species as well as deer. The effect of the deer herd on the native habitat is the prime consideration for deer-harvest recommendations. If a landowner fails to make progress toward the herd and/or habitat objectives, that property may be dropped from the program in succeeding years until significant progress has been made.

While there is no minimum acreage required for the Managed Lands Deer Permit program, small land holdings are not expected to be enrolled because of the strict limitations on the number of bucks that may be harvested. Properties under "deer-proof" fence are eligible, but a high fence is not required. Small landowners are encouraged to join together in a cooperative effort to apply for MLD Permits. In that case, permits are issued to the cooperative's officers, who are then responsible for distributing them fairly to the participating landowners. Landowners are encouraged to practice good management, regardless of the size of the place or the amount of money they have to invest in expensive management tools such as fencing or supplemental feeds.

Participating landowners must report the deer harvest to the Texas Parks and Wildlife biologist or technician who approved the plan. Managers are required to collect and submit data on the herd. Prior to the next season's issuance, biologists will review the biological data collected from harvested deer (weights and measurements), survey data, and the habitat improvement progress. If the landowner has made an effort toward achieving the objectives, then permits can be issued.

Two special hunting weekends for youth-only (under 17 years of age) were established and the Texas Youth Hunting Association was formed to encourage young people to enter the hunting fraternity. There were approximately 530,000 deer hunters of all ages in 2003-04 and they took almost 437,000 deer from a herd estimated at 4,007,748.

VIRGINIA

The statewide deer kill during the 2003 hunting season was 237,035 (116,629 antlered males, 22,346 male fawns, 94,897 females (40.8%) and 3,163 deer of unrecorded sex). The archery and muzzleloading kill were 17,134 (7%) and 52,779 (22%) respectively. Deer kill data in Virginia represent an actual known minimum count. Data are obtained through mandatory tagging and subsequent checking at one of about 1,250 check stations located statewide. The mandatory check station system has been in operation continuously since 1947 and is operated by volunteers. For fall 2004, a fall deer telephone checking system will also be available in addition to the traditional check station system.

Deer season in Virginia begins with a 7-week either-sex archery season that begins the first Saturday in October. Concurrent with the last two weeks of the archery season east of the Blue Ridge Mountains and the last week of the archery season west of the Blue Ridge Mountains is an early muzzleloading season. The early muzzleloading season is full season either-sex east and one-day either-sex west. In-line muzzleloaders with scopes are legal.

Two distinct season frameworks characterize general firearms deer hunting, which begins the Saturday prior to the third Monday in November. Sunday hunting is not allowed in Virginia. East of the Blue Ridge Mountains, the firearms season runs through the first Saturday in January (43 days). West of the Blue Ridge and in the southwestern Piedmont, the firearms season is 13 days long. During the firearms season, either-sex deer can only be taken on prescribed either-sex days. West of the Blue Ridge the bag limit for all deer hunters (archers, muzzleloaders, and general firearms hunters) is 1 per day, 5 per season, three of which must be antlerless. Also during the early muzzleloading season west of the Blue Ridge, hunters are limited to one antlered buck. East of the Blue Ridge the bag limit for all deer hunters (archers, muzzleloaders, and general firearms hunters) is 2 per day, 6 per season, three of which must be antlerless. Bonus permits (for antlerless deer only) allow hunters to exceed the season bag limit statewide on private land(s) and designated public areas. No deer hunting is allowed on Sunday in Virginia.

In addition to the standard county seasons and bag limits, Virginia has several site-specific private land deer management programs including the deer management assistance program (DMAP) and the damage control assistance program (DCAP). Both programs were initiated during the 1988 season and continue to achieve wide acceptance. During the 2003 season, there were 756 DMAP cooperators encompassing 1,370,000 acres. These DMAP cooperators were issued a total of 25,459 antlerless tags and reported a total deer kill of 22,391. Biological data is collected from all these animals. Also during the 2003 deer season, there were 1,092 DCAP cooperators comprising 272,662 acres. These DCAP cooperators were issued 10,591 antlerless tags and reported a kill of 3,576 antlerless DCAP deer.

Virginia's deer management program has been noted for both its success and its simplicity. The overall mission of the deer program is to manage the deer resource in the best long-term interests of the citizens of the Commonwealth. Today, with the exception of several counties in far southwestern Virginia and on selected National Forest lands in western Virginia, the emphasis on deer management in Virginia has changed from establishing and expanding deer herds to controlling deer herd growth. This change in management direction has resulted in liberal harvest regulations and high antlerless deer harvest levels.

Over the vast majority of the Commonwealth of Virginia, current deer management objectives call for the deer herd(s) to be stabilized at their current level. Overall deer harvest levels for the past decade have been fairly stable.

WEST VIRGINIA

West Virginia, known as the "Mountain State", lies within the Allegheny Mountain Range. It is comprised of 3 major physiographic regions. The Eastern Ridge and Valley Section found in the far eastern portion of West Virginia is made up of oak-pine forests and has a drier climate. The Allegheny Mountains and Uplands make up the central portion of the state, and are comprised of a northern forest type with twice the rainfall of the eastern region. The remaining area, which is the largest in size, is the Western Hills Section. This section contains the Monongahela-Upper Ohio Province to the north and the Cumberland Mountains to the south. The region is characterized by the central hardwood forest type which is predominantly oak-hickory.

The average elevation of the state is higher than any other state in the east. The highest point in the state is Spruce Knob (4,862 feet), while the lowest is where the Potomac River flows out of West Virginia at Harpers Ferry (247 feet). Most of West Virginia is characterized by a branched (dendritic) drainage pattern.

West Virginia, with 12.1 million acres of forest land, is 79% forested. Most of the state's economy is associated with timber and other forest products. The oak-hickory forests, which are vital to the welfare of deer in West Virginia, cover 77% of the timberland.

Fertile soils are relatively uncommon in the state, so where they occur they are quickly adapted to farming. Bottomland soils are generally restricted to the floodplains of major streams. Terrace soils suited to farming are found along the Ohio River in the western portion of the state. Fertile upland soils containing limestone are found in eastern West Virginia.

West Virginia contains three national forests: the Monongahela, by far the largest, covering 901,678 acres; the George Washington, the second largest in the eastern portion of the state, covering 104,861 acres, and the Jefferson in southeastern West Virginia which covers 18,400 acres. In addition to this public land, the state owns or leases an additional 437,000 acres.

Deer in West Virginia reached their lowest level about 1910, following large scale logging operations and market hunting. Restocking programs were initiated in 1923 on a small scale, but as moneys were made available in 1939, restocking of deer escalated tremendously. Stocking of deer is no longer practiced in West Virginia with the exception of occasional releases of orphan animals from the Wildlife Center.

West Virginia sportsmen have experienced just about every type of season imaginable in the past, from bucks-only, to hunter's-choice, to permit hunting. In 1973, an antlerless deer permit system was established. From 1945 through 2003, 4,454,356 deer have been recorded as harvested in West Virginia. In 1970, the bag limit was 2 deer. Today, resident hunters may take as many as 9 deer. West Virginia offers a wonderful opportunity for deer hunter recreation and, with a progressive program, deer hunting in the mountains should remain excellent in the future.

APPENDIX II

STATE DEER HARVEST SUMMARIES

Table 1. Southeastern deer harvest summaries for the 2003-2004 season.

State	Land Area (sq. mi)	Deer Habitat (sq. mile)	Deer Habitat (% Total)	% Forested	% Land Area Public Hunting	2003-2004 Harvest Male	2003-2004 Harvest Female	2003-2004 Harvest Total
AL	51,628	48,014	93	71	5	247,000	288,000	535,000
AR	52,609	44,718	85	53	12	74,960	32,175	108,456
FL	51,628	29,280	50	45	16	78,400	38,300	116,700
GA	57,800	37,181	64	64	6	188,000	296,000	484,000
KY	40,395	39,654	97	59	9	76,294	73,800	150,094
LA	41,406	26,562	64	52	4	122,428	100,215	222,700
MD	9,837	8,766	89	46	4	46,326	40,897	87,223
MO	69,561	21,396	31	31	4	151,075	138,073	290,631
MS	47,296	31,250	66	66	6	160,636	165,724	326,360
NC	48,794	35,371	72	58	6	128,287	78,962	207,249
OK	69,919	37,425	54	19	2	57,614	42,988	100,602
SC	30,207	21,920	73	63	7.5	135,797	137,707	273,504
TN	42,246	25,770	61	49	9	96,405	65,386	161,791
TX	261,914	129,592	49	40	<2	242,937	194,005	436,942
VA	39,675	37,232	94	66	8	138,975	94,897	237,035
WV	24,064	22,889	95	79	9	106,569	100,949	208,255

Table 1. Continued.

State	Harvest/mi² Deer Habitat	Method of Data Collection[1]	Estimated Pre-season Population	Length of Season (Days) Archery[2]	Black Powder[3]	Firearms	Method of Setting Seasons[4]	% Land Area Open to Dog Hunting
AL	11.1	A, B, C	1,750,000	110 C	5 (A), 17 (B)	71 C	A, B	70
AR	2.4	A,C	750,000	C 138	C 7	C 40	A,B	70
FL	4.0	B	800,000	30	9	72	A,B	20
GA	13.0	A,C,D	1,200,000	111-121	7	77-87	A,B,C	10
KY	3.8	A,C,D	900,000	146 (C)	9 (A,B)	10-16	A,B	0
LA	8.4	A,B,C	1,000,000	123(C)	14(A,B)	65	A,B,C	80
MD	9.95	A, B, C, D	264,000	C-87	A-9, B-13	A-13, B-2, + 1 Jr. day	A, B	0
MO	4.2	A,B,C,D	1,000,000	98	10	25	A,B	0
MS	10.4	A,B,C	1.5-1.75 million	52A, 10B	14A,10B	47	A,B,C	90
NC	5.86	A,B,C,D	1,080,000	24-60	6	18-65	A,B,C	50
OK	2.69	A, C, E	500,000	107	9	16	A, B	0
SC	13.0	A,B,C	900,000	16 A	10 A	70-140	A,B,C	60
TN	6.2	A,D	990,000	52	14	39	A.B.C	0
TX	3.4	B,C	4,007,748	30	9	81-94	A,B	0
VA	6.4	A,B,C,D	~1,000,000	36-66	12-25	13-43	A,B	55
WV	9.1	A	848,000	64 C	6 C	22 C	A,B,C	0

Table 1. Continued.

State	No. of Hunters[5]	5-Year Trend	Hunting License Fees (Full Season)		Tagging System		
					Validation		
			Resident	Non-Resident	Physical Tag? License Tag? None?	Mandatory? Volunteer? None?	Bonus Tags Available?
AL	234,700	Stable	$16	$252	None	None	N/A
AR	250,000	Stable	$10.50 – 25	$100 – 225	License Tag	Mandatory	For Female Deer
FL	150,000	Stable	$12	$151	Some WMAs	Mandatory	No
GA	304,310	Down	$19	$177	License Tag	NONE	WMA'S
KY	271,000*	Stable	$30.00	$130	Hunter Log	Mandatory	Yes
LA	167,800	Stable	$29-50	$300-352	None	None	None
MD	80,000	Down	$36.50	$180	Physical Tag	Mandatory	Yes ,antlered only
MO	425,000	Stable	$17	$145	License Tag	Mandatory	Yes, antlerless-only
MS	158,375	Down	$18.85-33.85	$303.85-382.70	None	Volunteer-Telchek	Yes, antlerless, DMAP & FMAP
NC	195,000	Down	$30	$120	License Tag	Mandatory	No
OK	170,275	Stable	$20.00	$201	Carcass Tag	Mandatory	No
SC	144,291	Stable	$25	$225	None	None	Yes
TN	214,000	Stable	$39	$156	Physical	Mandatory	No
TX	529,854	Up	$23	$300	License Tag	none	yes
VA	264,231	Down	$25-50	$140-190	License Tag	Mandatory	Yes, antlerless only
WV	346,000*	Stable	$25	$110	Physical Tag	Mandatory	Yes

Table 1. Continued.

State	Mandatory Hunter Ed.	Mandatory Orange	Handguns Permitted	Crossbows Permitted	Drugged Arrows Permitted	# Fatal Hunting Accidents		Highway Kill[6]
						All	Deer	
AL	Yes	Yes	Yes	Handicap	No	3	3	10,000 (B)
AR	Yes	Yes	Yes	Yes	No	4	3	120 (A)
FL	Yes	Yes	Yes	Yes, gun	No	0	0	NA
GA	Yes	Yes	Yes	Yes	No	1	1	50,000
KY	Yes	Yes	Yes	Season	No	1	0	4,000 (B)
LA	Yes	Yes	Yes	Handicap & >60	No	3	2	2,500 (B)
MD	Yes	Yes	Yes	Handicap, 4 wks; firearm/muzzle	No	3	3	3849 (B)
MO	Yes	Yes	Yes	Yes, Firearms	No	5	2	9,152
MS	Yes	Yes	Yes	Handicap & ≥65	No	2	2	7,500 A,B
NC	Yes	Yes	Yes	Handicap	No	3	2	13,500
OK	Yes	Yes	Yes	Handicap	No			Unknown
SC	Yes	WMA's only	Yes	Yes, gun season	Yes (28/46 co.)	2	1	1,585
TN	Yes	Yes	Yes	Hdcp/Gun	No	3	1	N/A
TX	Yes	WMAs only	Yes	Yes	No	2	1	N/A
VA	Yes	Yes	Yes	Handicap	No	7	6	N/A
WV	Yes	Yes	Yes	No	No	2	2	17,180 (A)

Table 1. Continued.

State	Limits [7]			Antler Restrictions [8]	% Hunting Success			Avg. Leasing Fees/ Acre
	Season	Antlerless	Antlered		Archery	Muzzleloader	Firearms	
AL	None	2 per day	1 per day	C (5 WMA's)	25	N/A	60	$5-16
AR	3	1	2	A	?	?	?	$5.50
FL	2/day [7]	1or2/day [7]	2/day [7]	C	23	20	57	$2-4
GA	12	10	2	One buck must be 4-points/side	29	21	56	$5-15
KY		varies	1	7 WMAs	25		40	N/A
LA	6	None	None	Yes (C)	30	35	57	$5-30
MD		Regional	Regional	No	32	C-32	44	$5-35
MO	varies	varies	3; 1 with firearms	No	33	-	40	$5–10
MS		3	3	A	53	53	72	$2–10
NC	6	up to 6	2/4 [7]	NA	?	?	?	$2-6
OK	Gun	1	1	No	16	23	41	$2-5
SC	15+	10+	5+	C-6 WMA's	N/A	N/A	75.0	$4–10+
TN		Varies	3 statewide	None	----------	43% Combined	----------	$4.50
TX	5	Up to 5	Up to 3	B – 6 counties	54%	50%	62%	$6-$9
VA	6 (east) & 5 (west)	3	3 (east)& 2 (west)	On 2 WMA's	~30	~40	~50	$4
WV	9	Up to 8	Up to 5	1 WMA	18	17	47	$1-5

Table 1. Continued.

State	Private Lands Programs				Trailing wounded deer with dogs legal?	Supplemental feeding legal?	Baiting legal?
	Type[9]	Min. Acreage Requirements	Fee	No. of Cooperators			
AL	A	None	Yes	250	Yes	Yes	No
AR	A, D	D=200 ac	No	A=300,D=2,800	Yes	Yes	Yes
FL	A	640	None	1,250	Yes	Yes	Yes
GA	None				Yes	Yes	No
KY	B	none	No	420	Yes	Yes	Yes
	A,D	40	Yes	A=1436,D=75	Yes	Yes	Yes
MD	none				Yes	Yes	Yes, Private
MO	B	5	None	45,000	No	Yes	
MS	A,D	Variable	None	694	Yes, dog seasons	Yes	No
NC	A	1,000	$50	99	Yes, in dog hunting areas	Yes	Yes
OK	A	1,000	$200-400	154	No	Yes	Yes
SC	A	None	$50	1,820 3.9 mil ac.	Yes	Yes, 18/46 co. no hunting	Yes 28 co. No 18 co.
TN					With officer approval	Yes	No
TX	A, B, C	none	none	2,900+	Most of Texas	yes	Yes
VA	DCAP DMAP	None	None	1104, 717	Yes(east) No(west)	Yes	No
WV	NONE				No	Yes	Yes

[1] A–Check Station; B–Mail Survey; C–Jawbone Collection; D–Computer Models; E–Telephone Survey.
[2] A–Early Season; B–Late Season; C–Full Season.
[3] A–Early Season; B–Late Season; C–Full Season.
[4] A–Harvest & Biological; B–Departmental/Commission Regulatory; C–Legislative.
[5] Asterisk if estimate includes landowner exempted hunters.
[6] A–Actual number based on reports; B–Estimated road kill.
[7] FL-A total of two deer may be harvested per day, both may be anterless deer during archery season and if taken with antlerless deer permits, only one/day may be antlerless during the 7-day antlerless deer season.; NC - Up to 2 bucks in those areas in the Western Season, Northwestern Season, and those areas of the Central Season where hunting with dogs is not allowed. Up to 4 bucks in those areas in the Eastern Season and those areas of the Central Season where hunting with dogs is allowed.
[8] A–Statewide Antler Restrictions; B–County Antler Restrictions; C–Region or Area Antler Restrictions.
[9] A–DMAP; B–Landowner tags; C–Antlered buck tags; D–Fee MAP.

2005 SOUTHEAST DEER STUDY GROUP MEETING
WEST VIRGINIA ORGANIZATIONAL COMMITTEE

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Jim Crum
Jim Evans
Gary Foster
Dick Hall
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