February 22-24, 2004 • Radisson Plaza Hotel
Lexington, Kentucky

Today's Hunting Culture: Asset or Liability?

Southeast Deer Study Group

27th ANNUAL MEETING - LEXINGTON, KY

Hosted by the Kentucky Department of Fish & Wildlife Resources

www.southeastdeerstudygroup.org

fw.ky.gov

SPECIAL THANKS TO OUR FINANCIAL SPONSORS AND CONTRIBUTORS

THE KENTUCKY DEPARTMENT OF FISH AND WILDLIFE RESOURCES THANKS THE FOLLOWING COMPANIES AND ORGANIZATIONS FOR THEIR GENEROUS DONATIONS AND/OR CONTRIBUTIONS OF MERCHANDISE OR SERVICES TO THE 27TH ANNUAL MEETING.

Sunday evening social provided by a donation from the Quality Deer Management Association, in partnership with A. Wilbert's Sons, LLC, BASF, Mossy Oak/Biologic, Davis-Garvin Agency, Inc., International Paper, Roy O. Martin Lumber Company, Plum Creek Timber Company, Westervelt Wildlife Services, and Pennington Seed

Conference Sponsor

St. Joe Timberland Company
MCI
SCI
National Shooting Sports Foundation
International Bowhunting Organization
International Paper
Anheuser-Busch

Conference Supporter

Quality Deer Management Association
Buckmasters American Deer Foundation
Southeastern Association of Fish and Wildlife Agencies
Pennington Seed Company
Plum Creek Timber Company
BASF
Davis-Garvin Agency
Roy O. Martin Lumber Company
Mossy Oak / Biologic
A. Wilberts Sons, LLC
Westervelt Wildlife Services

Conference Contributor

MeadWestvaco
Brennan Industries

Spirits Bar Provided By:

Anheuser-Busch
Buffalo Trace Distillery
Woodford Reserve Distillery
Maker's Mark Distillery
Wild Turkey Distillery

Conference Donors

• Winchester • Knight Muzzleloaders • Salato Wildlife Education Center
• ScentLok • Mr. Jeff Foxworthy • National Wild Turkey Federation
• QDMA • Forestry Suppliers • Pneu-Dart • Genesis Bows • SCI Ohio Valley Chapter
• Elk Creek Sporting Clays • Cabela's • Farmer's Hardware Farm Machinery (Grayson, Ky)
• Steve Bonney • Rebecca Littleton • John Akers & Paul Eldridge, Jr.
• Kentucky Department of Fish and Wildlife Resources • Auto Zone (Somerset, Ky)
• Evans Firearms & Archery (Lexington, Ky) • Critchfield Meats (Lexington, Ky)
• Antique & Modern Firearms (Lexington, Ky) • Artique (Lexington, Ky)
• Double "D" Archery (Lexington, Ky)

Entertainment Provided By:

The Dean Osborne Band
Dr. Carl Hurley

Vendors

• Landscape Plus • Dow Agrosciences • Forestry Suppliers • MCI • Eastern Kentucky University Student Chapter TWS • QDMA • Pennington Seed

Meeting promotional items created by Jeb Advertising and Smoky Mountain Knife Works

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

YEAR	LOCATION	MEETING THEME
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 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?

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 Resources
Jonathan W. Day	Kentucky	Kentucky Department of Fish and Wildlife Resources
David W. Moreland	Louisiana	Louisiana Department of Wildlife and Fisheries
L. Douglas Hotton	Maryland	Maryland Department of Natural Resources
Stephen Demarais	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

Name	State	Employer
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
Clayton Wolf	Texas	Texas Parks and Wildlife Department
Bob Zaiglin	Texas	Harrison Interests, Ltd.
W. Matt Knox	Virginia	Virginia Department of Game and Inland Fisheries
Jim Crum	West Virginia	West Virginia Department of Commerce, Labor and Environmental 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

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)

Sunday, February 22, 2004

1:00 – 6:00 p.m. Registration – 2nd Floor Atrium

3:00 – 5:00 p.m. Southeast Deer Technical Committee Meeting – Daniel Boone Room

6:00 p.m. Welcome Reception and Bourbon Tasting: "*A Taste of Kentucky*" (Name Badges Required) – Grand Ballroom
Sponsored by the Quality Deer Management Association
Bourbon Tasting provided by Buffalo Trace, Labrot & Graham, Maker's Mark, and Wild Turkey

Monday, February 23, 2004

7 a.m. – 5 p.m. Registration – 2nd Floor Atrium

Plenary Session
"Today's Deer Hunting Culture: Asset or Liability?"

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

8:00 a.m. Welcome
C. Tom Bennett, Commissioner – Kentucky Department of Fish and Wildlife Resources

8:15 a.m. *Today's Deer Hunting Culture: Asset or Liability?* Dr. Jon Gassett, Wildlife Division Director – Kentucky Department of Fish and Wildlife Resources

8:45 a.m. *Today's Hunting Culture – New Challenges, New Demands and New Opportunities.* Brian Murphy, Executive Director – Quality Deer Management Association

9:15 a.m. **BREAK**

Technical Session I: Thoughts on Today's Deer Hunting Culture

Moderator: Bob Zaiglin, Wildlife Biologist - Harrison Interests, Ltd.

9:30 a.m. *Legendary Deerslayers: From Natty Bumppo to Flintlock.* Rob Wegner – White-tailed Deer Historian

9:50 a.m. *Present Trends and Future Directions of Deer Hunting in North America: Implications for Management.* Craig A. Miller – Illinois Natural History Survey, John E. McDonald – U.S. Fish and Wildlife Service

10:10 a.m. *Developing a Plan to Address Declining Hunting Populations in Texas: The Future of Hunting in Texas: Overview.* Clark E. Adams, Robert D. Brown, and Billy J. Higginbotham – Texas A&M University

10:30 a.m. *Developing a Plan to Address Declining Hunting Populations in Texas: The future of Hunting in Texas: Think Tank.* Billy J. Higginbotham, Clark E. Adams, and Robert D. Brown – Texas A&M University

10:50 a.m. *Developing a Plan to Address Declining Hunting Populations in Texas: The Future of Hunting in Texas: Input From the Hunters.* Robert D. Brown, Clark E. Adams, and Billy J. Higginbotham – Texas A&M University

11:10 a.m. *National Archery in the Schools Program.* Roy Grimes – Kentucky Department of Fish and Wildlife Resources

11:30 a.m **LUNCH** (on your own)

Technical Session II: Human Dimensions of Deer Management

Moderator: Charles Ruth, Deer Project Supervisor - South Carolina Department of Natural Resources

1:00 p.m. *Determining What Florida Deer Hunters Want in Their Deer-Hunting Experience.* John T. Morgan – Florida Fish and Wildlife Conservation Commission

1:20 p.m. *Do Hunting Clubs Want Deer Management? Another Look at This Question, Fifteen Years Later.* David W. Moreland and Larry Savage – Louisiana Department of Wildlife and Fisheries

1:40 p.m. *Why Are We Losing Hunters? Demographics and Attitudes of Hunters Leasing From International Paper in Arkansas.* Morgan L. Richardson – International Paper

2:00 p.m. *Does QDM Result in More Successful, More Satisfied Customers on Forest Products Company Lands?* Donald E. Wood, James P. Castleberry – MeadWestvaco Corporation, and Brian P. Murphy – Quality Deer Management Association

2:20 p.m. *Opinions and Preferences of Hunters on White-tailed Deer Management in Arkansas.* Bret A. Collier and David G. Krementz – Arkansas Cooperative Fish and Wildlife Research Unit, University of Arkansas

2:40 p.m. **A Comparison of Alabama Deer Hunters with and Without Physical Disabilities.* Amy L. Grilliot and Jim Armstrong – Auburn University

3:00 p.m. *Human Dimensions Research in the Southeast: What do We Really Know About Deer Management?* Deborah Green – College of William & Mary

3:20 p.m. **BREAK**

Technical Session III: Urban and Nuisance Problem Management

Moderator: Doug Hotton, Deer Project Leader - Maryland Department of Natural Resources

3:40 p.m. **Site-Level Factors Contributing to Deer-Vehicle Collisions on Arkansas Highways.* Donald I. M. Enderle and Philip A. Tappe – University of Arkansas Monticello

4:00 p.m. *Landscape Influences on Deer-Vehicle Accident Areas in an Urban Environment.* Clayton K. Nielsen – Cooperative Wildlife Research Laboratory, Southern Illinois University, R. Gray Anderson – Holterra Wildlife Management, and Marrett D. Grund – Pennsylvania Game Commission

4:20 p.m. *The Nature, Occurrence, and Frequency of Nuisance Elk Complaints in Eastern Kentucky.* Karen Alexy, James R. Davis, David C. Guynn – Clemson University, R. Dan Crank, Charles Logsdon, and Jonathan Day – Kentucky Department of Fish and Wildlife Resources

4:40 p.m. *Urban Deer Management on Hilton Head Island: An Update.* David W. Henderson, Todd D. McNeill– Community Services Associates, Inc., Charles R. Ruth – South Carolina Department of Natural Resources, and Robert J. Warren – University of Georgia

5:00 p.m. **DINNER** (on your own)

7:00 p.m. **Shoot From the Hip** – Grand Ballroom
"What are Hunters Reading? The Role of Agencies, NGO's and the Outdoor Media in Educating Hunters"

Tuesday, February 24, 2004

7:00 a.m. – noon Registration – 2nd Floor Atrium

8:20 a.m. Announcements

Technical Session IV: Population Estimation Techniques

Moderator: John Morgan, Deer Management Section Leader - Florida Fish and Wildlife Conservation Commission

8:30 a.m. *Using Incidental Deer Sightings to Index Sex and Age Ratios.* Tyler A. Campbell, Benjamin R. Laseter – University of Georgia, W. Mark Ford – USDA Forest Service, Brad F. Miller, David A. Osborn, and Karl V. Miller – University of Georgia

8:50 a.m. **Comparing Three Methods to Estimate Density of Florida Key Deer.* Clay W. Roberts, Roel R. Lopez, Anthony W. Braden, Brian L. Pierce, Nova J. Silvy – Texas A&M University, Phillip A. Frank and Shane W. Whisenant – U.S. Fish and Wildlife Service

9:10 a.m. *A Preliminary Assessment of Aerial Thermal Infrared Detection Rates Using White-tailed Deer Surrogates.* Robert E. Kissell, Jr., Philip A. Tappe – University of Arkansas Monticello

9:30 a.m. **A Comparison of Ground-Based Thermal Infrared Imaging to Spotlight Counts of White-tailed Deer.* Erin E. McCammon, Philip A. Tappe, and Robert E. Kissell, Jr. – University of Arkansas Montecello

9:50 a.m. **BREAK**

Technical Session V: Deer Movements and Dispersal

Moderator: David Maehr, Professor of Conservation Biology - University of Kentucky, School of Forestry

10:10 a.m. **Daily Movements of Female White-tailed Deer Relative to Parturition and Breeding.* Gino J. D'Angelo, Christopher E. Comer – University of Georgia, John C. Kilgo – U.S. Forest Service, Cory D. Drennan, David A. Osborn, and Karl V. Miller – University of Georgia

10:30 a.m. **White-tailed Deer Dispersal: A Pre- and Post-Quality Deer Management Comparison.* Jonathan C. Shaw, Richard A. Lancia – North Carolina State University, Mark C. Conner – Chesapeake Farms, and Christopher S. Rosenberry – Pennsylvania Game Commission

10:50 a.m. *Survival and Dispersal of Yearling Male White-tailed Deer in Pennsylvania Under Antler Restriction Regulations.* Duane R. Diefenbach, Eric S. Long – Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University, Bret D. Wallingford, Christopher S. Rosenberry, Gary L. Alt, and Marrett D. Grund – Pennsylvania Game Commission

11:10 a.m. **Effectiveness of Underpasses and Deer Guards in Reducing Key Deer Mortality.* Anthony W. Braden, Roel R. Lopez, Clay W. Roberts, Nova J. Silvy – Texas A&M University, Philip A. Frank, and Shane W. Whisenant – U.S. Fish and Wildlife Service

11:30 a.m. **LUNCH** (on your own)

Technical Session VI: Harvest Management

Moderator: Matt Knox, Deer Project Leader - Virginia Department of Game and Inland Fisheries

1:00 p.m. *Physical Condition and Reproductive Response to Population Reduction in a Virginia Deer Herd.* David M. Kocka, W. Matt Knox, and David E. Steffen – Virginia Department of Game and Inland Fisheries

1:20 p.m. *Can a Selective Buck Harvest Affect Free-Ranging White-tailed Deer Antler Characteristics?* Mickey W. Hellickson – King Ranch, Inc. and Texas A&M University-Kingsville, Charles A. DeYoung – Texas A&M University-Kingsville, Randy DeYoung – Mississippi State University, Donnie Harmel – Texas Parks and Wildlife Department, David G. Hewitt – Texas A&M University-Kingsville, E. L. "Butch" Young and Randy Fugate – Texas Parks and Wildlife Department

1:40 p.m. *What Can We Learn From 60 Years of Harvest Data?* Kent E. Kammermeyer – Georgia Department of Natural Resources and Tamara Terry – West Virginia University

2:00 p.m. *What Your Mama Never Told You About Sex Ratios.* Patrick D. Keyser – MeadWestvaco Corporation, David C. Guynn, Jr. – Clemson University, W. Matt Knox – Virginia Department of Game and Inland Fisheries, and Kent E. Kammermeyer – Georgia Department of Natural Resources

2:20 p.m. **BREAK**

Technical Session VII: Population Dynamics

Moderator: Clayton Wolf, White-tailed Deer Program Coordinator -

Texas Parks and Wildlife Department

2:40 p.m. **Source-Sink Dynamics of Florida Key Deer on Big Pine Key, Florida.* Patricia M. Harveson, Roel R. Lopez, Nova J. Silvy – Texas A&M University, and Philip A. Frank – U.S. Fish and Wildlife Service

3:00 p.m. *Understanding Variation in White-tailed Deer Recruitment in Southern Texas: An Energetics Approach.* Erin L. Monaco and David G. Hewitt – Texas A&M University-Kingsville

3:20 p.m. **Spatial and Genetic Structuring in Female Deer: Does Harvest History Affect Social and Spatial Dynamics?* Christopher E. Comer – University of Georgia, Travis C. Glenn – Savannah River Ecology Laboratory, Gino J. D'Angelo – University of Georgia, John C. Kilgo – U.S. Forest Service, and Karl V. Miller – University of Georgia

3:40 p.m. **White-tailed Deer in the Central Appalachians: How Social are West Virginia Does?* Benjamin R. Laseter, Tyler A. Campbell, David A. Osborn, Brad F. Miller, Karl V. Miller – University of Georgia, and W. Mark Ford – USDA Forest Service

4:00 p.m. **Harvest Management Affects the Distribution of Male Breeding Success and Genetic Structure in Populations of White-tailed Deer.* Randy W. DeYoung, Stephen Demarais – Mississippi State University, Kenneth L. Gee – Samuel Roberts Noble Foundation, Rodney L. Honeycutt – Texas A&M University, Mickey W. Hellickson – King Ranch, Inc., and Robert A. Gonzales – Samuel Roberts Noble Foundation

4:30 p.m. **SOUTHEAST DEER STUDY GROUP BUSINESS MEETING** – Daniel Boone Room

6:00 p.m. **Social Hour**

7:30 p.m. **Banquet** (Name Badge Required) – Grand Ballroom

***Indicates student paper**

ABSTRACTS

Monday, February 23, 2004

Plenary Session
"Today's Deer Hunting Culture: Asset or Liability?"
Moderator – Jonathan W. Day, Forest Systems Program Coordinator
Kentucky Department of Fish and Wildlife Resources

8:15 a.m.

Today's Deer Hunting Culture: Asset or Liability? Dr. Jon Gassett – Wildlife Division Director, Kentucky Department of Fish and Wildlife Resources

8:45 a.m.

Today's Hunting Culture – New Challenges, New Demands and New Opportunities. Brian Murphy – Executive Director, Quality Deer Management Association

Technical Session I: Thoughts on Today's Deer Hunting Culture

Moderator, Bob Zaiglin, Wildlife Biologist -
Harrison Interest, LTD.

9:30 a.m.

Legendary Deerslayers: From Natty Bumppo to Flintlock. Rob Wegner – White-tailed Deer Historian

This presentation narrates our classic, deer-hunting culture from James Fenimore Cooper's fictional character Natty Bumppo to the deer-hunting religiosity of Archibald Rutledge, known to his deer hunting partners as Old Flintlock. Twelve legendary characters set the stage for how America came of age as a deer-hunting culture and provide the basic themes for it: love of buckskin and venison, romance, adventure and natural history. These heroic, deer-hunting icons – Natty Bumppo, Daniel Boone, J. J. Audubon, Friedrich Gerstaecker, Philip Tome, "Frank Forester" Meshach Browning, William Elliott, Theodore Roosevelt, Judge Caton, T. S. Van Dyke, Archibald Rutledge and others—pursue venison, buckskin, romance, adventure and natural history and underscore these basic themes. Their wild deer-hunting adventures are highlighted with the great sporting art of the time: A. F. Tait, Winslow Homer, Currier and Ives, N. C. Wyeth, J. J. Audubon, Carl Rungius and others.

We need to recreate and reenact our cultural heritage, anchor our cultural identity as deer hunters in it and create our cultural values from it. As a cultural historian I see troubled waters ahead as I look at today's deer-hunting culture: we have no standard documentary film of our cultural heritage; no standard cultural histories; no national museum preserving our deer-hunting culture; our deer-hunting culture today seems preoccupied with money, products and large antlered bucks; deer numbers are increasing and hunter numbers decreasing; in many areas we are at the upper limits of managing whitetails with traditional deer hunting; in many areas the paradigm for managing this public resource on private property is broke; our inability to fix it leads to dramatic increases in deer overabundance, deer mismanagement, crop damage, deer-vehicle collisions and disease. Pest control methods and government sharp shooters in some areas now threaten traditional white-tailed deer hunting, as we have known it.

9:50 a.m.

Present Trends and Future Directions of Deer Hunting in North America: Implications for Management. Craig A. Miller – Illinois Natural History Survey, John E. McDonald – U.S. Fish and Wildlife Service

The purpose of this paper is to critically evaluate how the attitudes and activities of deer hunters have shaped deer management, highlight specific developments affecting agency ability to manage deer at the landscape level (e.g., leasing, fencing, food plots), and what these issues mean to the future of deer hunting and deer management. The current deer hunting culture is primarily focused on harvesting antlered males, and does not give wide attention to harvesting antlerless deer, resulting in a demand on the part of hunters for ever-higher deer densities and an apparent unwillingness to accept that deer densities could be too high.

Hunter attitudes and agency responses to those attitudes have contributed to landscape-level overabundance problems in many regions and have also contributed to problems associated with urban deer populations. Current emphasis toward trophy hunting among segments of the hunting population dominates hunting media and creates an atmosphere that is not conducive to regulating deer populations. Whereas most images of deer hunting presented in the popular media convey trophy hunting, such images serve to establish or reinforce hunters' perceptions of deer hunting focused primarily on harvesting large-antlered bucks.

Current trends in hunting videos and television shows that chronicle trophy hunts, increased use of equipment and feeding (either via food plots or supplemental feeding) geared toward hunter success, and leasing of private hunting land place increased pressures on management agencies to produce trophy bucks. Chronic wasting disease (CWD), suburban deer population explosions, and other issues are also working to alter hunters' and public attitudes toward traditional deer hunting. One outcome has been an increasing reliance by state wildlife agencies on non-hunting techniques (e.g., use of private sharpshooters) in deer management or to allow local governments or landowner groups to follow that path. At the other end of the spectrum, hunting clubs and outfitters are leasing large tracts of land and are effectively forcing agencies to condone privatization of deer management. Both ends of this spectrum distort the traditional North American model of wildlife conservation.

Without a change in the way non-hunters perceive deer hunters, and how hunters perceive themselves and their role in deer management, deer hunting will continue to lose ground as the management technique of choice. This shift will take place because non-hunters will demand deer populations be controlled. Combined with decreasing hunter numbers and an increasing percentage of many landscapes that have legal restrictions on hunting, the ability of wildlife managers to use deer hunting as a means to manage deer populations is imperiled. Deer hunters must adopt a new set of attitudes toward hunting and the role of the hunter in wildlife management to prevent deer management from sliding irrevocably to a pest-control model.

10:10 a.m.

Developing a Plan to Address Declining Hunting Populations in Texas: The Future of Hunting in Texas: Overview. Clark E. Adams, Robert D. Brown, and Billy J. Higginbotham – Texas A&M University

This manuscript provides a broad overview of the past, present, and possible future of hunting in Texas. Hunting license sales have remained fairly stable from 1970 to the present, but license sales and per capita participation rates are declining. It is unknown what factors are contributing to hunter decline. Texas hunters are predominantly male (93%), Anglo (94%), urbanites (68%), middle-aged, and represent less than 8% of the Texas population ≥16 years of age. The dominant game species pursued by Texas hunters were white-tailed deer, mourning doves, and quail, and one of the greatest challenges facing Texas hunters is finding a place to hunt. Recruitment of new hunters has always been in the context of a family with a tradition of hunting participation. Over a 10-year period there was a consistent pattern of those factors that would reduce hunting participation in Texas. Hunting is a low priority recreational choice by urbanites, particularly minorities, retired persons, and women. It is unknown why some racial and ethnic groups and women do not participate in hunting. The presentation of hunting to the Texas public is now moving toward the rewards of product (e.g., trophies) and profit.

10:30 a.m.

Developing a Plan to Address Declining Hunting Populations in Texas: The future of Hunting in Texas: Think Tank. Billy J. Higginbotham, Clark E. Adams, and Robert D. Brown – Texas A&M University

Participation in hunting continues to decline in Texas, which is reflective of the national trend based on hunting license sales and the percentage of hunters in the general population. To address the issues impacting the future of hunting, we convened a "Hunting Think Tank" comprised of 30 individuals with vested interests in the future of hunting in Texas. Participants represented state agencies, conservation organizations, shooting sports organizations, foundations, sport hunting groups, industry and the outdoors media. The program was divided into 4 sessions, in which participants were asked to address 4 questions, respectively: "What do the available data tell us about the future of hunting?," "What is the future of hunting in Texas in the next 10 years?," "What are the concerns of the Hunting Think Tank participants regarding the future of hunting?," and "Where do we go from here?" Presenters provided participants with trend information relative to demographics, license sales and public perceptions of hunting.

Participants developed a consensus view of the future of hunting and reacted to concerns expressed about that future. Concerns identified by the group included 1) availability, access and supply of hunting opportunities, 2) youth and recruitment issues relative to hunting and 3) governmental role and regulations regarding hunting. Action steps were then recommended to address each area of concern. Lastly, the group was asked to suggest the future direction for the Hunting Think Tank and a subcommittee was appointed to develop an action plan.

10:50 a.m.

Developing a Plan to Address Declining Hunting Populations in Texas: The Future of Hunting in Texas: Input From the Hunters. Robert D. Brown, Clark E. Adams, and Billy J. Higginbotham – Texas A&M University

We employed a facilitation company, Group Solutions, Inc., in order to obtain public input on the development of a strategic plan for the future of hunting in Texas. Public hearings were held in 7 cities. Three stakeholders meetings and a 2-day strategic planning meeting were also held. Hunters were unanimous in the belief that the cost of hunting, and especially lease prices, will be the main constraint on future participation in hunting. Most hunters wouldn't pay more than $ 1,000 for a lease. Hunters perceived that lease costs, high fences, and trophy hunting were driving up costs and hampering access, yet they felt that supplemental feeding, breeding operations, baiting, released game and high fences could all be components of a good game management plan. Hunters identified the highest values of hunting to be the outdoor experience, passing along a tradition, family togetherness, and spending time with friends. They perceived problems with slob hunting, ethics, and safety as negatively impacting the hunting experience. The majority supported mandatory hunter safety training and stricter law enforcement, although they felt the internet should be utilized as a means of hunter safety training. Sixty-five percent believed that private control over deer should be discouraged. They also believed that recruiting youth hunters, reconnecting with the 24-32 age group, and partnering with landowners were vital to the future of hunting. These data will be used to develop a strategic plan to guide the future of hunting in Texas.

11:10 a.m.

National Archery in the Schools Program. Roy Grimes – Kentucky Department of Fish and Wildlife Resources

The National Archery in the Schools Program (NASP) was initiated in March 2002. The program's intent is to facilitate teaching of "Olympic-style" target archery for two weeks as part of an Elementary, Middle, or High School physical education curriculum. After successfully piloting the program in 22 Kentucky schools, it has now been implemented in more than 200 state schools. During the pilot phase of the program a survey of student participants revealed that 89% enjoyed the class, 73% did not own a bow, and 62% had never shot a bow. After the pilot, 49% of the students reported they'd like to own a bow, 59% would like to take up target archery, and 38% would like to try bowhunting. The program has been adopted by several other states with many more planning to pilot the program during the next 1-2 years. This presentation

will describe how the program works and why educators, wildlife professionals, and the archery industry are working together to make it available to students everywhere.

Technical Session II: Human Dimensions of Deer Management

Moderator: Charles Ruth, Deer Project Supervisor -
South Carolina Department of Natural Resources

1:00 p.m.

Determining What Florida Deer Hunters Want in Their Deer-Hunting Experience. John T. Morgan – Florida Fish and Wildlife Conservation Commission

During the past several years the concept of hunting quality deer in Florida has been increasing in popularity. Georgia's Dooley County program and subsequent implementation in other counties and the increasing prominence of the Quality Deer Management Association have no doubt contributed to increased interest in quality deer hunting in Florida. In January 2002 the Florida Fish and Wildlife Conservation Commission (FWC) set out to determine what Florida hunters want in their deer-hunting experience. Over the next 18 months FWC staff conducted 3 surveys and 11 hunter workshops to gather information on hunter desires and solicit feedback on proposed deer hunting regulation changes designed to meet these desires. In the initial survey hunters indicated a strong interest in regulation changes that would protect smaller-antlered bucks and increase the number of larger-antlered bucks available for harvest, i.e., a "quality deer" rule. Staff proceeded to develop several regulation options, which included bag limits and antler restrictions. When these options were presented to hunters in a subsequent survey and at workshops, hunters split evenly in support of the quality deer regulation options and an option of status quo. Staff created a compromise regulation that would still protect smaller antlered bucks but took into account hunter concerns. A third survey indicated that this regulation too was only supported by about half of Florida's hunters. Apparently many Florida hunters believe they are willing to make sacrifices to have larger-antlered deer but are unwilling to commit to the specific regulation changes to get them there.

1:20 p.m.

Do Hunting Clubs Want Deer Management? Another Look at This Question, Fifteen Years Later. David W. Moreland and Larry Savage – Louisiana Department of Wildlife and Fisheries

I discussed this issue at the Deer Study Group Meeting in 1987. At that time, the antlered buck harvest in LA was dominated with yearling bucks (77% in southeast LA). Today, the current statewide buck harvest by DMAP cooperators consists of 32% yearling bucks. The average 3.5-year-old buck on DMAP lands is a 166-pound (live weight) eight pointer, with a 13" inside spread and 16" beams. At management seminars across the state most hunters indicate that size animal is really not what they are looking for. It appears that management reality in LA is not

satisfactory for our hunters who live in today's big buck culture. While the hunter population in LA is growing older with each new year, the management issues basically remain the same and will be around for the next generation of biologists to contend with.

1:40 p.m.

Why Are We Losing Hunters? Demographics and Attitudes of Hunters Leasing From International Paper in Arkansas. Morgan L. Richardson – International Paper

Declining hunter numbers are economically significant to landowners that lease hunting rights, for funding wildlife management programs and, more importantly, for control of burgeoning deer populations. About 25,000 (10%) Arkansas deer hunters are members of a hunting club that leases from International Paper. Membership in leases from International Paper in Arkansas has decreased about 10% over the last 5 years, but hunter density is still high (1 hunter per 50 acres). We surveyed hunters leasing land from International Paper in Arkansas to provide insight into factors affecting hunter loss. Although International Paper lessees appear to be better educated and have slightly higher household income than other Arkansas hunters, they are similar in terms of gender, race, and socioeconomic status. Hunter satisfaction remained high and support for QDM grew tremendously during the last 10 years. Membership turnover during the last 8 years (1995-2002) ranged from 12% to 15%. Fifty percent of hunters have been club members for less than 5 years. Hunter age is declining. A phone survey of hunters who dropped their memberships revealed that 30% quit hunting altogether, 30% joined another lease, 27% hunted other private property, and 1% hunted on public land. Reasons cited included: club disputes (24%), travel distance (15%), health reasons (14%), membership in several clubs (12%), lost interest in hunting (11%), fees too high (9%), an other (13%).

2:00 p.m.

Does QDM Result in More Successful, More Satisfied Customers on Forest Products Company Lands? Donald E. Wood, James P. Castleberry – MeadWestvaco Corporation, and Brian P. Murphy – Quality Deer Management Association

We surveyed 501 deer hunters who lease land from MeadWestvaco Corporation in Alabama and Georgia to determine if differences in demographics, management practices, hunting success, and customer satisfaction existed among individuals based on type and intensity of deer management practices employed. Survey respondents were categorized into four groups: regulated quality deer management (QDM) county (n =203), regulated QDM cooperatives (n =106), voluntary club QDM (n = 129), and traditional deer management (n =63). Thirty-five questions were examined for differences using an ANOVA test for continuous, normally distributed data and a Kruskal-Wallis test for nonparametric, discrete data. No differences among groups were detected for age, income, education, years hunted, days spent deer hunting, guest hunts hosted, or overall hunter satisfaction. Differences were detected for hunting importance, percent of recreational income spent on hunting, various stewardship practices, buck sightings, buck harvest, doe harvest, potential to harvest a mature buck, quality of bucks harvested, number of mature bucks harvested, and breeding sign observed. Our study suggests

that QDM provides numerous benefits to forest products companies and the hunting customers they serve. An overview of key survey results and management implications will be discussed.

2:20 p.m.

Opinions and Preferences of Hunters on White-tailed Deer Management in Arkansas. Bret A. Collier and David G. Krementz – Arkansas Cooperative Fish and Wildlife Research Unit, University of Arkansas

When planning harvest regulations, wildlife managers need information regarding the opinions and preferences of hunters towards regulatory programs. We surveyed licensed hunters in 2002 to determine opinions and preferences on white-tailed deer management practices in Arkansas. Of the 15,000 hunters surveyed, 37% responded. A majority of hunters (74%) stated that the Arkansas Game and Fish Commission (AGFC) was doing a good job of managing white-tailed deer. Most hunters (66%) stated that knowing the opportunity exists to harvest a buck was an extremely important aspect of an enjoyable deer season. Hunters most often defined a quality deer as a healthy buck with > 10 points (45%), a healthy doe (30%), and a healthy buck with > 8 points (26%). Hunters stated that improving antler development / physical condition of the deer herd (38%) and maintaining present herd density (33%) were the most important results expected from the AGFC deer management plan. Hunters ranked restricted antlerless harvest (no button bucks) (37%) and mandatory doe harvest (29%) as the most beneficial management practice to increase their opportunity to harvest a quality deer. Hunters ranked increasing antlerless hunting opportunities for the modern firearm season (29%) and expanding educational efforts on deer management assistance for private lands (27%) as the most important future management options in Arkansas. Our results suggest that hunter support for white-tailed deer management practices during the survey period was strong, and we suggest continued monitoring of hunter opinions and preferences concerning regulatory and management programs.

2:40 p.m.

***A Comparison of Alabama Deer Hunters with and Without Physical Disabilities. Amy L. Grilliot and Jim Armstrong – Auburn University**

In the US, leisure activities such as hunting are becoming more accessible to persons with disabilities, though little research has been published on this topic. As more persons with disabilities participate in hunting, agencies need a better understanding of this group. Research conducted in South Dakota categorized deer hunters based on their motivation for hunting, and collected information about hunter satisfaction. This information has proven valuable to the management agency in that state, facilitating changes in management that increased satisfaction of the majority of hunters. We used similar methodology to conduct a mail survey in Alabama, which included both hunters with and without disabilities, to determine if motivations and satisfaction differed between groups. The groups were also compared on several criteria including: deer hunting habits, opinions toward the Alabama Wildlife and Freshwater Fisheries Division's (AWFF) management strategies, and the quality of Alabama's efforts to make hunting an accessible pastime for hunters with disabilities. Hunters with disabilities and non-disabled hunters differed demographically, had similar hunting habits, and rated the agency favorably in

their management practices. Efforts at accessibility also rated high, but deer number and quality were rated low. Though hunter groups showed statistical differences in some tests, few practical differences were found. Similarities between hunter groups could be useful to AWFF in formulating management decisions for wildlife management areas in Alabama. These findings should prove valuable for other states wishing to improve services for their constituents.

3:00 p.m.

Human Dimensions Research in the Southeast: What do We Really Know About Deer Management? Deborah Green – College of William & Mary

Despite professed concerns about the human dimensions of deer management, research remains limited, with surveys being the only potential source for representative sampling of public opinion. The purpose of my study was to review survey research on the human dimensions of deer management in the Southeast. I hypothesized that a) state wildlife agencies typically survey only hunters, b) surveys are often restricted to gathering harvest and hunter effort data, and c) that sampling methods and survey question design compromise the utility of the information gathered. Southeast Deer Study Group Committee members from 16 states were contacted (first by email, with phone follow-up if necessary) concerning their use of hunter effort surveys as a source of human dimensions input for deer management. Representatives of all 16 states (100%) replied and provided information about recent hunter effort surveys, survey design and methodology, as well as other types of human dimensions information used in deer management. Results indicate 10 states (63%) conduct surveys concerning deer management at least annually, but only 1 (6.25%) routinely samples the general population. Sampling techniques and survey question design compromise the validity of even the hunter survey data used by many states. Analyses, interpretation, and distribution practices restrict the utility of these data for deer management. Budget cuts (with attendant staffing problems) and political concerns limit the use of hunter effort and other surveys as input for deer management in some states. I discuss suggestions for improving hunter effort surveys and highlight other human dimensions sources for deer management.

Technical Session III: Urban and Nuisance Problem Management

Moderator: Doug Hotton, Deer Project Leader -
Maryland Department of Natural Resources

3:40 p.m.

***Site-Level Factors Contributing to Deer-Vehicle Collisions on Arkansas Highways. Donald I. M. Enderle and Philip A. Tappe – University of Arkansas Monticello**

Deer-vehicle collisions (DVCs) are increasing across the United States. Site-level factors influencing DVCs include land cover patterns, right-of-way vegetation and topography, and road characteristics. This study compared site-level factors of 3,170 DVCs reported during 1998-2001 along state and federal highways in Arkansas with those of an equal number of highway

locations randomly selected by ecoregion. Logistic regression analysis was used to develop and test a statewide model and 6 ecoregion models identifying high-risk areas along these highways. Based on test data, the statewide model correctly classified 63% of known collision locations. Models developed for individual ecoregions correctly classified 56 – 70% of known collision locations. Almost all state model variables were included in at least one ecoregion model and most variables of each ecoregion model were also found in the state model. Five groups of factors influencing DVCs were apparent in all models: (1) presence and amount of water; (2) diverse association of land cover types; (3) amount and patch density of urban area within 1,200m; (4) coniferous forest patch density and deciduous forest patch size and irregularity; and (5) pasture edge density within 1,200m. These results may be used to produce highway maps showing areas of high risk, guide future road construction, and provide a foundation for future DVC research.

4:00 p.m.

Landscape Influences on Deer-Vehicle Accident Areas in an Urban Environment. Clayton K. Nielsen – Cooperative Wildlife Research Laboratory, Southern Illinois University, R. Gray Anderson – Holterra Wildlife Management, and Marrett D. Grund – Pennsylvania Game Commission

Deer-vehicle accidents (DVA) have become an important human safety concern in the United States and few studies have focused specifically on urban areas. We used remotely sensed data, multivariate statistics, and a geographic information system to quantify landscape factors influencing DVA in 2 suburbs of Minneapolis, Minnesota, USA, during 1993–2000. We determined DVA areas (n = 80) containing ≥2 roadkills and control areas (n = 80) containing 0 or 1 roadkill based on numbers of DVA within 0.13-km^2 buffered road segments. The most important variables (based on Akaike weights) that differentiated between DVA areas and control areas were number of buildings and number of public land patches. A logistic regression model containing these variables best fit the data and correctly classified 31 of 40 (77.5%) areas not used for model building. Local wildlife biologists and urban planners can use this information to manage deer habitat to minimize DVA by reducing forest cover and shrubby areas on public land near roads. We suggest community officials consider using the potential for DVA as justification for proactive population and habitat management programs to maintain deer populations at levels that minimize deer-human conflicts.

4:20 p.m.

The Nature, Occurrence, and Frequency of Nuisance Elk Complaints in Eastern Kentucky. Karen Alexy, James R. Davis, David C. Guynn – Clemson University, R. Dan Crank, Charles Logsdon, and Jonathan Day – Kentucky Department of Fish and Wildlife Resources

From 1997 until 2002, 1,550 elk transported from several western states were released into a 14 county restoration zone in southeastern Kentucky. Currently, the population consists of approximately 3,000 elk, with a goal of 7,400 animals by 2010. Limited hunts have removed 12 animals per year since 2001, with the number of harvest tags increasing to 40 in 2004. Elk

sighting tours have grown in popularity and have been positive for the local economy. While many Kentuckians support the elk restoration program, there have been problems associated with this large ungulate. Nuisance calls have increased from one in 1999 to 44 in 2003. Most complaints were related to depredation of gardens, tree farms or orchards, and golf courses. Reported vehicular collisions varied from two in 1998 to 14 in 2001, ranging from minor damages to total loss. Another cause for nuisance complaints was the occurrence of elk exhibiting clinical signs of meningeal worm infection. Infected animals were often reported in yards and around private residences for extended periods. Because of their emaciated condition and abnormal behavior, biologists spend many hours responding to calls from the public concerning these animals. As the Kentucky elk herd continues to grow, so will the challenge to minimize elk and human conflicts. Methods initially used to control elk/human conflicts largely involved tranquilizing and relocating animals. As the herd has grown, protocols have changed to include euthanasia, offering technical guidance to landowners, and harassing the animals. Although southeastern Kentucky was a favorable location to restore elk because of limited agriculture and livestock practices and a sparse human population, public concerns with nuisance elk are an important factor vital to the success of the elk restoration project in Kentucky.

4:40 p.m.

Urban Deer Management on Hilton Head Island: An Update. David W. Henderson, Todd D. McNeill– Community Services Associates, Inc., Charles R. Ruth – South Carolina Department of Natural Resources, and Robert J. Warren – University of Georgia

Sea Pines (SP) is a 5,300-acre residential/resort community on Hilton Head Island, SC. An overabundant white-tailed deer (*Odocoileus virginianus*) herd on SP has caused controversy since 1995. In 1998, the University of Georgia (UGA) and South Carolina Department of Natural Resources (SCDNR) concluded a 3-year deer research project and recommended a follow-up project to evaluate 3 herd control techniques (2 experimental fertility control methods and sharpshooting). After approval by SP officials, local animal activists initiated a campaign to stop the project. When this failed, a coalition of animal rights organizations (plaintiffs) filed a lawsuit against UGA, SCDNR, and SP (defendants). A temporary restraining order was granted in August 1998, thus preventing SCDNR from issuing the necessary permits. A 3-day evidentiary trial conducted in March 1999 resulted in a favorable ruling for the defendants. The case was appealed and presented to the South Carolina Supreme Court in June 2000. In July 2001 the Supreme Court's decision upheld the original ruling, thus allowing the research project to proceed. After spending 3 years and >$200,000 on litigation, and with increasing deer-human conflicts, SP decided to forgo the research project and implemented a deer management program. Sharpshooters removed 300 deer during the 2001-02 permitting season, followed by 200 deer during 2002-03. Estimated deer densities decreased from 7 acres/deer to 40 acres/deer. Deer-vehicle collisions decreased from 60+/year to <10/year. Organized opposition, which was considerable prior to culling, essentially disappeared after the sharpshooting program began. A description of the SCDNR urban deer permitting process and our deer removal/donation procedures will be presented.

Tuesday, February 24, 2004

Technical Session IV: Population Estimation Techniques

Moderator: John Morgan, Deer Management Section Leader -
Florida Fish and Wildlife Conservation Commission

8:30 a.m.

Using Incidental Deer Sightings to Index Sex and Age Ratios. Tyler A. Campbell, Benjamin R. Laseter – University of Georgia, W. Mark Ford – USDA Forest Service, Brad F. Miller, David A. Osborn, and Karl V. Miller – University of Georgia

Many biologists employ systematic or random counts to generate sex (buck:doe) and age (fawn:doe) ratios of deer herds. One commonly used method is to record all incidental deer sightings, noting the sex and age of observed deer, although little is known about the reliability of this method. We evaluated the utility of sex and age ratios generated from incidental deer sightings within a high-density deer herd in West Virginia. From June 1999-May 2002 we recorded the sex (buck, doe, unknown) and age (fawn, adult, unknown) of all deer observed during our activities on the MeadWestvaco Wildlife and Ecosystem Research Forest. We grouped deer into 3 categories, fawns (≤ 1-year-old), adult males, and adult females (we omitted unknowns). We calculated within and among (expressed over 1 year) monthly means and 95% confidence intervals for sex and age ratios. We recorded 11,100 deer observations, of which we identified the sex and/or age of 7,927. As expected, monthly variation in ratios was high. Annual cycles within both ratios were apparent. Buck:doe ratios increased from June-November, then declined sharply in December. Fawn:doe ratios increased from June-March, then declined moderately from April-May. Although ratios from some months were reasonably accurate reflections of population parameters (e.g., the precipitous drop in the buck:doe ratio in December associated with the buck-only hunting season), ratios from most months were underestimated. Observational data may provide useful indices of sex and age ratios, although high variability indicates that timing of observations is critical and must be standardized.

8:50 a.m.

***Comparing Three Methods to Estimate Density of Florida Key Deer. Clay W. Roberts, Roel R. Lopez, Anthony W. Braden, Brian L. Pierce, Nova J. Silvy – Texas A&M University, Phillip A. Frank and Shane W. Whisenant – U.S. Fish and Wildlife Service**

Estimating deer densities is important in the management of the endangered Florida Key deer (*Odocoileus virginianus clavium*). The majority (~75%) of the Key deer population occupies Big Pine (BPK) and No Name keys. Previous density estimates of Key deer have included mark-resight estimates (1968–1972 and 1998–2000), which are time-consuming and difficult to implement. We compared 3 methods of estimating Key deer densities including mark-resight, line transect (width determined from potential "sightablity" of deer), and distance sampling on BPK. Density estimates along a standardized 31-km route (same route used by U.S. Fish and Wildlife Service biologists in collecting population trend data) were collected from July

2003–October 2003. From mark-resight data, we estimated 419 deer on BPK. In comparison to mark-resight estimates, line-transect estimates (642 deer) performed poorly whereas distance estimates (520 deer) were slightly better. We will continue to evaluate methods of estimating deer density in 2004.

9:10 a.m.

A Preliminary Assessment of Aerial Thermal Infrared Detection Rates Using White-tailed Deer Surrogates. Robert E. Kissell, Jr., Philip A. Tappe – University of Arkansas Monticello

As thermal infrared imaging technology improves, it is increasingly considered for wildlife population estimation. However, the greatest bias of population estimation using aerial thermal infrared imaging is the lack of known detection rates to adjust for visibility bias. Similar to visual aerial population counting methods, detection rates for an area should be developed to provide unbiased estimates. An adequate evaluation of detection rates should be based on a population of known size combined with information on individual spatial locations. Obviously, this situation can rarely be attained. However, through previous work, we found that thermal infrared signatures of white-tailed deer (*Odocoileus virginianus*) were 10% stronger when compared with the signature of a person. Thus, we assessed the detection rate of deer using humans as surrogates. We conducted an aerial thermal infrared survey at 3 altitudes (1000, 1500, and 2000 feet above ground level) using a Mitsubishi IR-M700 thermal imaging system mounted on a Cessna 182. Slightly overlapping transects on a 640-acre area in southeastern Arkansas were flown in March 2003. Twenty-three people were randomly placed and their locations recorded using GPS units. At an altitude of 1500 ft, we detected 75.0% of people across the area and 93.8% of people when the effect of water was taken into consideration. Thus, aerial thermal infrared imaging can result in high white-tailed deer detection rates in bottomland hardwood forests under dry conditions.

9:30 a.m.

***A Comparison of Ground-Based Thermal Infrared Imaging to Spotlight Counts of White-tailed Deer. Erin E. McCammon, Philip A. Tappe, and Robert E. Kissell, Jr. – University of Arkansas Montecello**

Counts of white-tailed deer *(Odocoileus virginianus)* using thermal infrared imaging technology most often have utilized systems deployed from fixed-wing or rotor-wing aircraft. This methodology may provide a better estimate than spotlight counts and is well suited for deciduous stands. However, few studies have evaluated ground-based thermal infrared imaging. We compared densities derived from spotlighting and thermal infrared imaging using both fixed area and distance sampling methods. Three survey routes of 10.1, 12.7, and 23.8 km in length were sampled during dormant (December – March) and nondormant (July - August) seasons in 2002-2003 on the White River National Wildlife Refuge in Arkansas. For each survey route, spotlight and thermal infrared counts were conducted a minimum of 6 times each. A hand-held, 700,000 candlepower light was used for spotlight counts. A Mitsubishi IR-M700 thermal infrared imager was mounted on a tripod in the bed of a truck for thermal infrared counts. Mean group size and

sighting angle were similar between methods. However, 109% more groups of deer and 96% more deer were detected using thermal infrared imaging ($P<0.05$). Thermal imaging produced higher densities and lower coefficients of variation (CV) than spotlighting. Distance sampling resulted in lower CVs than fixed area sampling. Thermal imaging combined with distance sampling has several advantages over spotlighting combined with fixed area sampling. The increased sample size from thermal imaging coupled with densities derived from distance sampling produce lower CVs and therefore greater precision in density estimates.

Technical Session V: Deer Movements and Dispersal

Moderator: David Maehr, Professor of Conservation Biology - University of Kentucky, School of Forestry

10:10 a.m.

***Daily Movements of Female White-tailed Deer Relative to Parturition and Breeding. Gino J. D'Angelo, Christopher E. Comer – University of Georgia, John C. Kilgo – U.S. Forest Service, Cory D. Drennan, David A. Osborn, and Karl V. Miller – University of Georgia**

Few studies have investigated the daily movements of white-tailed deer (*Odocoileus virginianus*) as related to specific seasonal events. We investigated the 24-hour diel movements of female deer relative to parturition and breeding in a low-density population with an even sex ratio at the Savannah River Site, Aiken, South Carolina. We conducted a series of intensive, 24-hour radio-tracking periods of 13 adult does by obtaining radio locations at 1-hour intervals during spring and fall 2002. We compared daily home range size, rate of travel, and distance between extreme daily locations, among the periods of pre- and post parturition and pre-, peak-, and post-rut. From pre-parturition to post-parturition, we observed decreases in diel home range size (-38.2%, SE = 18.7, $P < 0.001$), distance between extreme diel locations (-17.0%, SE = 21.5, $P = 0.003$), and diel rate of travel (-18.2%, SE = 11.6, $P < 0.001$). Measures of these 3 factors during the pre-rut and rut exceeded ($P < 0.05$) those observed during post-rut. Using the Dixon outlier detection test, we further identified substantial increases in mobility during 12 24-hour diel periods for 8 females during fall, suggesting breeding excursions related to estrous receptivity. Our data suggest that female white-tailed deer reduce mobility following parturition, irrespective of population density. Furthermore, despite a near equal sex ratio, estrous does may be required to actively seek potential mates due to low population density.

10:30 a.m.

White-tailed Deer Dispersal: A Pre- and Post-Quality Deer Management Comparison. Jonathan C. Shaw, Richard A. Lancia – North Carolina State University, Mark C. Conner – Chesapeake Farms, and Christopher S. Rosenberry – Pennsylvania Game Commission

Adequate protection of yearling males is an integral component of quality deer management (QDM). High emigration rates and low survival of immigrants can result in a net loss of yearling males. Therefore it is important to understand the cause of dispersal, and how changes in population parameters affect dispersal rates. Through QDM, the age structure and sex ratio of the white-tailed deer (*Odocoileus virginianus*) population at Chesapeake Farms, MD has changed since Rosenberry's (1997) study on dispersal. The objectives of our study were: (1) to compare pre- and post-QDM emigration, immigration, and survival rates of yearling males at Chesapeake Farms; and (2) to test the proximate mechanisms of emigration through behavioral observations and DNA analysis of orphans. Seventy-five (pre-QDM) and 37 (post-QDM) yearling males were caught with a drop-net and equipped with solar powered ear transmitters prior to dispersal. Emigration of yearling males pre-QDM was 70%, and post-QDM it was 55% ($p=0.265$). Emigrants were involved in more sparring activities than philopatric males in both pre-QDM ($p=0.003$) and post-QDM ($p=0.037$) populations. Breeding behaviors of yearling males decreased from pre to post-QDM ($p=0.015$). Antler points of philopatric yearlings also decreased from pre- to post-QDM ($p=0.005$). DNA parentage analysis indicated dispersal of orphans (4 of 8) and non-orphans (9 of 15) was similar ($p=0.659$). We concluded that yearling male breeding competition is a cause of dispersal at Chesapeake Farms. Through QDM, an older male age structure may suppress breeding competition in yearling males and decrease dispersal rates.

10:50 a.m.

Survival and Dispersal of Yearling Male White-tailed Deer in Pennsylvania Under Antler Restriction Regulations. Duane R. Diefenbach, Eric S. Long – Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University, Bret D. Wallingford, Christopher S. Rosenberry, Gary L. Alt, and Marrett D. Grund – Pennsylvania Game Commission

In Pennsylvania, during the last 20 years of the 20th century, ~80% of yearling male white-tailed deer were harvested each year by hunters. Beginning during 2002-03 hunting seasons, the Pennsylvania Game Commission adopted statewide antler restriction regulations designed to protect from harvest 50 – 75% of yearling bucks. To study dispersal patterns and survival of bucks under new harvest regulations, in 2003 we initiated a 3-year telemetry study of bucks captured at ~8 months of age. In the first 2 years of the study, we radio-marked a total of 296 fawn bucks and 32 adult bucks in 2 study areas (Armstrong County in western PA and Centre County in central PA). Yearling bucks dispersed primarily during spring and fall, and dispersal rates were greater in Armstrong County (70%) than Centre County (44%). Median dispersal distance of yearling bucks in Armstrong County (10 km) was farther than those observed in Centre County (5.8 km), which was related to greater forest cover in Centre County. During the initial hunting season following implementation of antler restrictions, 44% of radio-marked deer survived, 38% were killed by hunters, 4% died of other causes, and 14% were censored from analyses (lost or malfunctioning transmitters). Upon completion of the 2003-04 hunting season this winter, data from the second year of the study will also be available for presentation. Results to date suggest that compliance of hunters with the new regulations was high and that antler restrictions effectively protected a substantial proportion of bucks from harvest.

11:10 a.m.

***Effectiveness of Underpasses and Deer Guards in Reducing Key Deer Mortality. Anthony W. Braden, Roel R. Lopez, Clay W. Roberts, Nova J. Silvy – Texas A&M University, Philip A. Frank, and Shane W. Whisenant – U.S. Fish and Wildlife Service**

Deer-vehicle collisions account for the majority (>50%) of Florida Key deer (*Odocoileus virginianus clavium*) mortality. The majority (~60%) of the Key deer population occupies Big Pine Key (BPK). Half of all deer-vehicle collisions occur on U.S. Highway 1 (US 1), which bisects BPK. In an attempt to reduce Key deer mortality, the Florida Department of Transportation (FDOT) installed fencing, 2 underpasses, and 4 deer guards along the US 1 corridor. We evaluated Key deer mortality pre- and post-construction from mortality data collected by U.S. Fish and Wildlife Service (USFWS) biologists between 1995-2003. We also evaluated Key deer use of underpasses with the aid of infrared-triggered cameras. Since project completion, only 1 deer has died within the project area from an average of 18 deer mortalities annually pre-construction (94% decrease). The overall deer mortality post-construction (39 deer/year) also was lower than the past 5-year average (43 deer/year). Infrared-triggered cameras captured 503 photos of deer in underpasses and 1,065 photos of deer along transects perpendicular to the project area. The parallel movement:underpass use ratio (2:1) suggests underpasses may not be necessary. Overall, underpasses and deer guards have reduced Key deer mortality along the US 1 corridor.

Technical Session VI: Harvest Management

Moderator: Matt Knox, Deer Project Leader -
Virginia Department of Game and Inland Fisheries

1:00 p.m.

Physical Condition and Reproductive Response to Population Reduction in a Virginia Deer Herd. David M. Kocka, W. Matt Knox, and David E. Steffen – Virginia Department of Game and Inland Fisheries

Although density-dependent reproductive response by deer herds to population reduction and the resulting improvements in condition are generally accepted and understood, they are not often documented. Since 1999, an average of 66 (range 44-125) white-tailed deer (*Odocoileus virginianus*) were removed annually by sharpshooting from a 328-acre area of the Smithsonian Institution's Conservation and Research Center in Warren County, Virginia. Population estimates calculated by catch per unit effort indicate that deer populations within the area have declined from a high of approximately 277 deer per square mile in 1999 to 101 deer per square mile in 2003. As a result of this population reduction, mean dressed carcass weights have improved by 22 and 13 pounds for yearling bucks and does, respectively. Reproductive rates for adult does increased each year from 1.19 fetuses per adult doe in 1999 to 1.6 in 2003. Pooled conception data documents a total breeding season of $\leq$ 47 days, with $\geq$59% of annual breeding

occurring in ≤ 17 days. Mean breeding dates ranged from 13-23 November. Analysis and discussion will include fawn and peak breeding data, relationships among reproduction and condition indices, as well as implications to other density-dependent Southeastern deer herds.

1:20 p.m.

Can a Selective Buck Harvest Affect Free-Ranging White-tailed Deer Antler Characteristics? Mickey W. Hellickson – King Ranch, Inc. and Texas A&M-Kingsville, Charles A. DeYoung – Texas A&M-Kingsville, Randy DeYoung – Mississippi State University, Donnie Harmel – Texas Parks and Wildlife Department, David G. Hewitt – Texas A&M-Kingsville, and E. "Butch" Young – Texas Parks and Wildlife Department

Selective breeding experiments with penned deer have documented rapid improvement in antler quality. This study was designed to determine if rapid improvement was possible in a free-ranging population subjected to selective harvest. The study, conducted on King Ranch in south Texas, included 9,500-acre treatment and control areas. Both received similar, conservative, sport harvest. The treatment area also received intensive culling of 1.5-year-old bucks with <6 antler points and bucks ≥2.5 years old with <9 points. Results were monitored by annual helicopter and spotlight surveys and live capture on both areas. We report 5 years of results through the fall 2003 capture. Culling on the treatment area resulted in 34, 66, 13, and 7 bucks removed during the 1999-2002 hunting seasons. Census data for the treatment area indicated 22.8 deer per 1,000 acres prior to the study versus 17.8 deer per 1,000 acres after study initiation. Census data for the control area indicated 32.8 deer per 1,000 acres prior to the study versus 20.1 deer per 1,000 acres after study initiation. Five years of capture resulted in 165 bucks on the treatment area and 106 on the control area. Percentage of captured 1.5- to 2.5-year-old males qualifying as culls has not differed during any year between treatment and control areas ($P \geq 0.18$). Small sample sizes require study continuation to discern any effects of the culling treatment. Companion studies on male dispersal and reproductive success provided related data.

1:40 p.m.

What Can We Learn From 60 Years of Harvest Data? Kent E. Kammermeyer – Georgia Department of Natural Resources and Tamara Terry – West Virginia University

We analyzed 60 years of deer harvest data from Blue Ridge WMA, a 39,000 acre forested tract established in 1925 in the Blue Ridge Mountain Physiographic Region of Northeast Georgia. The first deer hunt was held in 1940 and harvest records are available for all but 3 years. Continuous age structure records began in 1975 and hard mast surveys in 1977. Correlation analyses revealed the following relationships. Number of hunters was correlated with deer kill ($r=0.77$, $P\leq0.001$) and buck kill ($r=0.63$, $P\leq 0.001$), and oak mast was related to buck kill ($r=0.48$, $P<0.02$), indicating that a large number of hunters and a good acorn crop increase buck kill. Reconstruction starting in 1975 showed a low of 175 adult bucks in 1993 following low mast and a blizzard and a high of 341 in 2001 following several good oak mast years. Average adult buck turnover rate was 50%. Hunter success was related to the estimated number of adult bucks ($r=0.78$, $P\leq0.001$), indicating success could be used to estimate population size. Since 1960, hunter success was related to deer kill ($r=0.68$, $P\leq0.001$). Mast was related to next year's

yearling buck weights (r=0.40, P≤0.05), antler beam length (r=0.55, P≤0.01) and recruitment (r=0.42, P≤ 0.10). Yearling buck weights were related to beam length (r=0.55, P≤ 0.01), yearling doe weights (r=0.50, P≤ 0.01) and 2.5-year-old buck weights (r=0.77, P≤ 0.001) suggesting that either yearling does or 2.5-year-old bucks could be used as herd condition indicators in lieu of yearling buck data. Yearling doe weights were related to next year's recruitment (r=0.42, P≤ 0.01). Before 1950, low numbers of hunters (100-400) hunting 5-6 days were successful at killing bucks (12-25% success) versus recent years when 2,000 to 4,000 hunters averaged 2 days with a success rate of 4 to 9% for either sex deer. There has not been an overall success rate of 10% or higher since 1963 despite high buck numbers. The key to successful harvests included continuous hunting pressure on both sexes, acorn abundance, and monitoring of age structures and condition indices to set the next years hunt regulations.

2:00 p.m.

What Your Mama Never Told You About Sex Ratios. Patrick D. Keyser – MeadWestvaco Corporation, David C. Guynn, Jr. – Clemson University, W. Matt Knox – Virginia Department of Game and Inland Fisheries, and Kent E. Kammermeyer – Georgia Department of Natural Resources

Sex ratio is an important population parameter that biologists must consider in managing deer herds. Biologists should not uncritically accept the conventional wisdom of today's hunting culture or unproven paradigms regarding sex ratios in making management recommendations. In order to clarify actual biological relationships we used a model based on three levels of habitat productivity (high, medium, and low), 4 levels of doe harvest (0, 10, 20, and 30%), and 4 levels of buck harvest (80, 60, 35, and 30%). Our results demonstrate that low habitat quality makes exaggerated sex ratios more likely, while better habitats are more forgiving. Except at extreme densities (> 95% relative density where recruitment is virtually eliminated) and with no doe harvest, adult sex ratios do not exceed 10:1. Even with modest doe harvests (10%), these ratios are always below 7:1. In fact, under most management scenarios commonly encountered in the Southeast, ratios range between 2:1 and 3:1. Position of the herd on the productivity curve has a profound influence on sex ratios with the proportion of does increasing rapidly above the inflection point (i.e., right leg). This is due to the low proportion of new recruits in these higher density herds. Reducing sex ratios through doe harvest alone may lead to undesirable reductions in herd density; protection of bucks is essential. When bucks are protected and balanced harvests occur, ratios below 1:1 are possible. Our results support those of Severinghaus and Maguire (1955).

Technical Session VII: Population Dynamics

Moderator: Clayton Wolf, White-tailed Deer Program Coordinator - Texas Parks and Wildlife Department

2:40 p.m.

***Source-Sink Dynamics of Florida Key Deer on Big Pine Key, Florida. Patricia M. Harveson, Roel R. Lopez, Nova J. Silvy – Texas A&M University, and Philip A. Frank – U.S. Fish and Wildlife Service**

Fragmentation and habitat loss are a concern in endangered species management. Source-sink systems can occur in areas where differing habitat quality results in differing demographics. The endangered Key deer (*Odocoileus virginianus clavium*) are endemic to the Florida Keys with Big Pine Key (BPK) supporting the majority (~60%) of the deer population. Habitat loss and fragmentation have altered the amount of available habitat creating areas of varying suitability. North BPK (NBPK) is believed to contain more optimal habitat than south BPK (SBPK) that is more developed and fragmented. We evaluated the source-sink dynamics of Key deer using a sex- and stage-structured, stochastic matrix model. Model results indicate the NBPK population is increasing ($\lambda = 1.02$) whereas the SBPK population is decreasing ($\lambda = 0.87$). Without dispersal from the north, the SBPK population has a 97% probability of falling below 25 individuals (quasi-extinction threshold) in the next 20 years. The higher risk to SBPK deer observed can be explained by relative habitat quality differences between the 2 areas. House density, amount of roads, number of fences, and amount of development were all greater in SBPK. Collectively, study results indicate that SBPK can be described as an ecological sink with a nonviable population supplemented by deer dispersal from NBPK (source). We recommend management that addresses mortality factors on SBPK (low-quality sink habitat) while still recognizing and preserving the important source population in NBPK.

3:00 p.m.

Understanding Variation in White-tailed Deer Recruitment in Southern Texas: An Energetics Approach. Erin L. Monaco and David G. Hewitt – Texas A&M University-Kingsville

Fawn recruitment is an important factor in white-tailed deer management and in southern Texas, recruitment is positively correlated with spring-summer rainfall. Whether low fawn recruitment during drought is the result of poor fawning cover or poor forage quality is not known. Nutritional limitation of reproduction in this semi-arid environment is possible because fawning occurs during mid-summer when hot, dry conditions may eliminate herbaceous vegetation, forcing deer to consume browse-dominated diets. Understanding the relative effects of predation and nutrition on recruitment is important in designing management programs to increase fawn recruitment during periods of low rainfall. To address this issue, we constructed an energetics model to investigate the impact of forage quality on reproductive success of white-tailed deer in southern Texas. Doe energy demands during gestation and lactation will be compared to expected energy intake and body reserves in years of poor and good quality forage. Preliminary

analyses indicate that a diet consisting primarily of browse throughout the reproductive cycle would not enable a doe to successfully raise fawns based on energy demands. Determining the effect of a doe's nutritional status on recruitment will provide a more thorough understanding of white-tailed deer population dynamics in the stochastic southern Texas environment and support effective management programs.

3:20 p.m.

***Spatial and Genetic Structuring in Female Deer: Does Harvest History Affect Social and Spatial Dynamics? Christopher E. Comer – University of Georgia, Travis C. Glenn – Savannah River Ecology Laboratory, Gino J. D'Angelo – University of Georgia, John C. Kilgo – U.S. Forest Service, and Karl V. Miller – University of Georgia**

Social behavior of white-tailed deer (*Odocoileus virginianus*) can have important implications for management of this species. The formation of matrilineal social groups among female deer has been documented and management strategies proposed based on this well-developed social structure. However, in most cases social structure in managed herds has not been explicitly examined. Using radiocollared (n = 17) and hunter or vehicle-killed (n = 21) does, we examined spatial and genetic structure in white-tailed deer at the Savannah River Site in the upper coastal plain of South Carolina. We used 14 microsatellite DNA loci to calculate pairwise relatedness among individual deer and to assign doe pairs to putative relationship categories. Using correlation tests we found that linear distance and genetic relatedness were only weakly related (r = -0.05, p = 0.058). Relationship categories differed in mean spatial distance, but only 60% of first degree related doe pairs (full sibling or mother-offspring pairs) and 38% of second degree related doe pairs (half sibling, grandmother-granddaughter pairs) were members of the same social group based on spatial association. Heavy hunting pressure and high productivity in this population has created a young age structure among does, where the average age is <2.5 years and <4% of does are >4.5 years old. This, combined with potentially elevated dispersal among young does, could limit the formation of persistent, cohesive social groups. Our results question the universal applicability of recently proposed models of spatio-genetic structuring and suggest that harvest regime may have profound implications for genetic structuring at the landscape level.

3:40 p.m.

***White-tailed Deer in the Central Appalachians: How Social are West Virginia Does? Benjamin R. Laseter, Tyler A. Campbell, David A. Osborn, Brad F. Miller, Karl V. Miller – University of Georgia, and W. Mark Ford – USDA Forest Service**

Across their range, white-tailed deer are reported to form matrilineal groups composed of older females and their female descendants. In migratory herds, the members of these matrilineal groups arrange themselves in a predictable pattern based on age and kinship. However, little is known of the social and spatial structuring of matrilineal groups in nonmigratory herds. We hypothesized that nonmigratory populations would have more transient associations than those in areas where groups are migratory. To test this hypothesis, we examined more than 20,000 radio-

telemetry locations for 120 female deer collected from May 1999 to December 2001. Groups were delineated based on cluster analysis of degree of annual home range overlap (95% contour, Adaptive Kernel Method). For each group, additional cluster analyses, visual inspection of individual core areas (50% contour, Adaptive Kernel Method), and over 1,400 direct visual observations aided in characterization of spatial relationships within groups. Analysis of group and individual activity centers indicated no predictable relationship between age and position within each group when analyzed annually and seasonally (all $P > 0.10$). Additionally, average home range size did not differ among age classes ($P = 0.23$). Our study of home range dispersion patterns confirms that discrete spatial groups do exist in nonmigratory herds, although spatial arrangement within groups may differ from that reported in migratory herds. Our ongoing genetic analyses will provide additional insight into the social and spatial structuring within this nonmigratory population.

4:00 p.m.

***Harvest Management Affects the Distribution of Male Breeding Success and Genetic Structure in Populations of White-tailed Deer. Randy W. DeYoung, Stephen Demarais – Mississippi State University, Kenneth L. Gee – Samuel Roberts Noble Foundation, Rodney L. Honeycutt – Texas A&M University, Mickey W. Hellickson – King Ranch, Inc., and Robert A. Gonzales – Samuel Roberts Noble Foundation**

The alteration of population demographic parameters through harvest management is known to affect physical health and behavior of white-tailed deer (*Odocoileus virginianus*), but the impacts of these practices on genetic parameters of populations have not been established. We sampled 3 areas where different management practices resulted in a continuum of demographic conditions. Where mature males (≥3.5 years) comprised >30% of the male population (sex ratios ≤2.5 females:male), this age class sired ~70% of sampled offspring. A female-biased sex ratio (>7 females:male) and young male age structure (80% of males <3.5 years of age) appeared to provide more equitable breeding opportunities for younger age classes. Our results do not support the prevailing paradigm of male breeding success in this species, which assumes that relatively few dominant males sire the majority of offspring. Parentage assignment and within-cohort relatedness both indicated that breeding was distributed among a large number of males regardless of the demographics of a population. In addition, young males sired ~ 30% of offspring, even in populations containing mature males (30-58% of males ≥3.5 years of age). White-tailed deer appear to have a much higher effective population size than other species of large mammals and thus suffered no inbreeding or reduced population genetic diversity under the management regimes we studied. However, male-biased harvest and female-skewed sex ratios resulted in genetic structuring, probably through restriction of gene flow via disruption of male dispersal.

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 2002-2003 season 67, 734 (54%) bucks and 56, 717 (46%) does were harvested. The statewide bag limit is 4 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. During the 2001-02 season, biological data was collected from approximately 14% of the total harvest. In the 2002-2003 season, a total of 12,971 biological data records were collected, 10% of total the 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 screwworm. An acute increase in deer numbers was evident immediately following the eradication of the screwworm 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 screwworm 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 antlerless 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", has four physiographic regions - the Coastal Plain, Piedmont, Ridge & Valley, and the Appalachian Plateau. The land uses vary from northern hardwood timber in the extreme western portion of the state to the loblolly pine forest in the Chesapeake Bay and coastal region. Central, southern and eastern sections of the state support agricultural uses. Forests cover 43 percent of the state with agricultural lands comprising 38 percent.

Maryland's deer population survived only in the remote mountain sections by 1900. Habitat destruction and uncontrolled hunting had eliminated deer from the rest of the state. Restocking of deer began in the early 1900s when deer from Pennsylvania, Michigan and Wisconsin were released. Deer restocking accelerated after World War II with deer from the Aberdeen Proving Grounds (Maryland) being introduced throughout the state.

Western Maryland experienced its first deer season in the 1920s. With mandatory check stations instituted in 1931 thirty-one deer were reported taken in the Western Maryland counties of Allegany and Garrett. The first antlerless season was held in 1957 and by 1960 deer hunting occurred state-wide (except for Montgomery County).

Maryland's current deer seasons are as follows: Archery - Middle of September through end of January; Modern Firearm - Saturday after Thanksgiving through second Saturday of December; Muzzleloader - three days in late October and two weeks covering late December and early January. One Saturday in mid-November is set aside for youth firearm deer hunting only. Antlerless permits are required only in three western counties. Antlerless permits are issued in these counties due to intense hunting pressure with the potential of an extremely high harvest.

Maryland's human population totals 5.1 million. Fifteen percent of the state is classified as development. This developed section of Maryland has expanded by 38 percent during the past 30 years. This section contains the most rapidly growing deer population. Conflicts between people and deer continue to proliferate within this area.

Maryland recently completed a statewide deer plan. The primary goal is to maintain healthy deer populations as a valuable component of Maryland's ecosystems, stabilize deer population numbers throughout the state, and then gradually adjust populations to bring them into acceptable ranges for the social and environmental conditions of individual communities. The primary strategies are as follows: make deer population management decisions, including target population levels and selection of management options, based upon local management units, in consultation with local communities; directly support research and expanded application of non-lethal deer control methods, including birth control and behavior modification; change Maryland's hunting laws to give the Department greater flexibility in increasing deer bag limits, particularly antlerless deer; establish and use procedures that can safely and efficiently remove deer from specific areas through means other than regulated hunting.

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 percent, 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, lie north of the Missouri River. Extant vegetation includes some native prairie and deciduous forest; however, farming has altered much of the region. 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, reintroduction, and land acquisition was successful in restoring deer, and the first modern day deer season was held in 1944. 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-in, 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 deer harvested and 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 2002 pre-season population estimate was one million deer. During the 2002-03 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 with 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 that 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 nor 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 to the public for hunting, 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 the 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 to 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 settlers and early city-dwellers cause the species to decline by the late 1800's. Public concern prompted a series of protective measures. A five-month closed season was enacted in 1881, and the first bag limit was six bucks in 1903. Six game wardens were hired in 1919 to patrol the entire state. Deer increased dramatically by the 1930's 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 82 million acres of the state are now 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 bucks at maturity. Currently, some of the wildlife management areas emphasize harvest of bucks with 4 points or less through regulation. Many landowners under technical guidance programs have programs that allow the harvest of 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.

In 1998, Texas implemented a new program. Managed lands deer permits were 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, so the long season and increased bag will not mean an increased harvest. In fact, the number of bucks allowed to be killed through managed lands permits should be less than that which the landowner would have allowed under the regular county season.

Additionally, TPWD biologists may make recommendations on such related issues 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 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 will 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 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" to apply for managed lands 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 property or the amount of money they have to invest in expensive management tools such as fencing or supplemental feeds.

Participating landowners must report their 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 the deer (weights and measurements), survey data, and habitat improvement progress. If the landowner has made an effort toward achieving the objectives, then permits can be issued.

A special hunting weekend for youth-only (under 17 years of age) was established, and the Texas Youth Hunting Association was formed to encourage young people to enter the hunting fraternity. There were approximately 545,000 deer hunters of all ages in 2002, and they took almost 437,000 deer from a herd estimated at 3,826,146.

VIRGINIA

The statewide deer kill during the 2002 hunting season was 213,918 (102,761 antlered males, 22,171 male fawns, 86,133 females (40.8%) and 2,853 deer of unrecorded sex). The archery and muzzleloading kill were 18,593 (9%) and 48,648 (23%) 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.

Deer season in Virginia begins with a 7-week either-sex archery season that starts 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 third Monday in November. East of the Blue Ridge Mountains, the firearms season runs through the first Saturday in January (42 days). West of the Blue Ridge and in the southwestern Piedmont, the firearms season is 12 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, 3 per season, one 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, 4 per season, one 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 2002 season, there were 717 DMAP cooperators encompassing 1,320,000 acres in 89 counties. These DMAP cooperators were issued a total of 23,209 antlerless tags and reported a total deer kill of 20,238. Biological data is collected from all these animals. Also during the 2002 deer season, there were 1,104 DCAP cooperators comprising 286,352 acres. These DCAP cooperators were issued 10,560 antlerless tags and reported a kill of 3,078 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 deer herds 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. West Virginia's deer harvest totaled 25,863 animals in 1981 under archery, antlerless permit, and bucks-only regulations. In 2001, West Virginia sportsmen harvested 215,777 deer under a 76-day archery season, 13-day bucks-only, 12-day antlerless, 3-day Youth Hunter deer season, and 6-day muzzleloader seasons. In 1970, the bag limit was 2 deer. Today, resident hunters may take as many as 8 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 2002-2003 season.

State	Land Area (sq. mi)	Deer Habitat		Percent Forested	% Land Area Public Hunting	2002-2003 Harvest		
		(sq. mile)	(% Total)			Male	Female	Total
AL	51,628	48,014	93	66	5	259,000	249,000	508,000
AR	52,609	52,609	85	53	12	67,734	56,717	124,451
FL	51,628	29,280	50	45	16	83,500	34,500	118,000
GA	57,800	37,181	64	64	6	150,000	260,000	410,000
KY	40,395	39,654	97	59	9	75,152	72,596	147,748
LA	41,406	26,562	64	52	4	116,710	95,490	212,200
MD	9,837	8,766	89	46	4	50,215	43,899	94,114
MO	69,561	21,396	31	31	4	150,538	127,562	279,445
MS	47,296	31,250	66	66	6	163,000	161,000	324,000
NC	48,794	36,227	74	60	6	111,914	75,853	187,767
OK	69,919	37,425	54	19	2	55,602	42,979	98,581
SC	30,207	21,920	73	63	7.5	158,634	161,269	319,903
TN	42,246	25,770	61	49	9	95,864	60,278	156,142
TX	261,914	129,592	49	40	<2	247,032	189,917	436,949
VA	39,682	31,479	79	63	7	124,932	86,133	213,918
WV	24,064	22,889	95	79	9	136,215	118,348	255,356

Table 1. Continued.

State	Harvest/mi² Deer Habitat	Method of Data Collection[1]	Estimated Pre-season Population	Length of Season (Days)			Method of Setting Seasons[4]	% Land Area Open to Dog Hunting
				Archery[2]	Black Powder[3]	Firearms		
AL	10.6	A,B,C	1,750,000	110 C	17 C	70 C	A,B	70
AR	2.4	A,C	1,000,000	150	29	49	A,B	70
FL	4.0	B	800,000	30	9	72	A,B	20
GA	11.0	A,C,D	1,200,000	111-121	7	77-87	A,B,C	10
KY	3.7	A,C,D	850,000	146 (C)	9 (A,B)	10-16	A,B	0
LA	8.0	A,B,C	1,000,000	123(C)	14(A,B)	65	A,B,C	80
MD	10.7	A,B,C,D	296,000	C-87	A-6, B-13	C-13 + 1 youthday	A, B	0
MO	13.1	A,B,D	1,000,000	98	9	15	A,B	0
MS	10.4	A,B,C	1,500,000	53A, 9B	14A,9B	46	A,B,C	90
NC	5.2	A,B,C,D	1,000,000	24-60	6	18-70	A,B,C	50
OK	2.6	A, C, E	475,000	98	9	9	A,B	0
SC	14.6	A,B,C	1,000,000	16 A	10 A	70-140	A,B,C	60
TN	6.1	A,D	990,000	51	14	37	A.B.C	0
TX	3.4	B,C	3,826,146	30	9	70-98	A,B	0
VA	6.8	A,B,C,D	970,000	24-54	12-31	13-43	A,B	55
WV	11.2	A	965,000	69 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	227,700	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	None	Some WMAs	No
GA	279,863	Down	$19	$177	License Tag	None	WMA'S
KY	271,000*	Stable	$30.00	$130	License Tag	Telecheck	Yes
LA	169,200	Stable	$29-50	$300-352	None	None	None
MD	84,086	Down	$36.50	$180	Physical Tag	Mandatory	Yes ,antlered only
MO	425,000	Stable	$15	$145	License Tag	Mandatory	Yes, antlerless only
MS	174,000	Down	$18.85-33.85	$303.85-382.70	None	Volunteer-Telchek	Yes, antlerless, DMAP & FeMAP
NC	195,000	Down	$30	$120	License Tag	Mandatory	No
OK	180,708	Stable	$12.50	$201	Carcass Tag	Mandatory	No
SC	148,823	Stable	$25	$140-200	None	None	Yes
TN	227,000	Stable	$39	$156	Physical	Mandatory	No
TX	544,993	Up	$23	$300	License Tag	None	Yes
VA	263,593	Down	$25-50	$140-190	Physical Tag	Mandatory	Yes, antlerless only
WV	290,000*	Down	$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[8]
						All	Deer	
AL	Yes	Yes	Yes	Handicap	No	4	3	10,000 (B)
AR	Yes	Yes	Yes	Yes	No	5	3	A = 944
FL	Yes	Yes	Yes	Yes, gun season	No	0	0	N/A
GA	Yes	Yes	Yes	Yes	No	4	3	52,000
KY	Yes	Yes	Yes	Handicapped & Season	No	2	2	4,000 (B)
LA	Yes	Yes	Yes	Handicap & >60	No	16 , fatal=na	7, fatal=na	2,500(B)
MD	Yes	Yes	Yes	Handicap	No	1	0	3,691(A)
MO	Yes	Yes	Yes	Yes, firearms	No	0	0	8,143
MS	Yes	Yes	Yes	Handicap & ≥65	No	2	2	7,500 A,B
NC	Yes	Yes	Yes	Handicap	No	4	4	12,500
OK	Yes	WMAs	Yes	Handicap	No	2	2	Unknown
SC	Yes	WMAs only	Yes	Yes, gun season	Yes (28/46 co.)	2	2	3,374
TN	Yes	Yes	Yes	Handicap	No	2	2	N/A
TX	Yes	WMAs only	Yes	Yes	No	3	2	N/A
VA	Yes	Yes	Yes	Handicap	No	2	0	N/A
WV	Yes	Yes	Yes	No	No	6	5 (9)	19,483 (A)

Table 1. Continued.

State	Limits			Antler Restrictions[6]	% Hunting Success			Avg. Leasing Fees/Acre
	Season	Antlerless	Antlered		Archery	Muzzleloader	Firearms	
AL	None	2 per day	1 per day	C (5 WMAs)	25	N/A	60	$5-16
AR	2/day*	1or2/day*	2/day*	C	23	20	57	$2-4
FL	2/day*	1or2/day*	2/day*	Some WMAs	N/A	N/A	NA	
GA	12	10	2	One buck must be 4-points/side	24	26	53	$5-15
KY	Varies	Varies	1	7 WMAs	25		40	$5-10
LA	6	None	None	Yes (C)	29	29	54	$5-30
MD		Regional	Regional	No	61	A-33, B-30	55	$5-35
MO	Varies	Varies	3; 1 with firearms	No	30	-	40	$2–10
MS		3	3	A	41	49	67	$2–5
NC	6	Up to 6	*2/4	No	?	?	?	$2-6
OK	Gun	1	1	No	16	22	37	$2-5
SC	15+	10+	5+	C-5 WMAs	N/A	N/A	76.7	$4–10+
TN	Varies	Varies	3	5 WMAs	N/A	N/A	42	$4.50
TX	5	Up to 5	Up to 3	B – 6 counties	55	50	60.0	$5-7
VA	4 (east)& 3 (west)	4 (east)& 3 (west)	3 (east)& 2 (west)	On 2 WMAs	32	42	50	$4
WV	9	Up to 8	Up to 5	1 WMA	22	18	58	$1-5

* North Carolina - 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.

Table 1. Continued.

State	Private Lands Programs				Trailing wounded deer with dogs legal?	Supplemental feeding legal?	Baiting legal?
	Type[7]	Min. Acreage Requirements	Fee	No. of Cooperators			
AL	A	None	Yes	<400	Yes	Yes	No
AR	A, D	D=200 ac	No	A=300,D=2,800	Yes	Yes	Yes
FL	A	640	No	1,250	Yes	Yes	Yes
GA	None				Yes	Yes	No
KY	B	None	No	420	No	Yes	Yes, Private
LA	A	500	Yes	1425	Yes	Yes	Yes
MD	None				Yes	Yes	Yes, Private
MO	B	5	None	40,000	No	Yes	
MS	A,D	Variable	None	700	Yes, during dog seasons	Yes	No
NC	A	2000	$50	95	Yes, in dog hunting areas	Yes	Yes
OK	A	1,000	$200-400	154	No	Yes	Yes
SC	A	None	$50	1,905 4.1 mil Ac.	Yes	Yes, 18/46 co. no hunting	Yes 28 co. No 18 co.
TN	None				With officer approval	Yes	No
TX	A, B, C	None	None	2,300+	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–Statewide Antler Restrictions; B–County Antler Restrictions; C–Region or Area Antler Restrictions.
[7] A–DMAP; B–Landowner tags; C–Antlered buck tags; D–Fee MAP.
[8] A–Actual number based on reports; B–Estimated road kill.

2004 SOUTHEAST DEER STUDY GROUP MEETING COMMITTEES

CO-CHAIRPERSONS
Jonathan Day, Jim Lane, Sharon Watkins, Jon Gassett

PROGRAM AND AGENDA
Jonathan Day (Chair), Adrienne Shoen, David Yancy, Jon Gassett

REGISTRATION
Sharon Watkins (Chair), Deirdre Cohorn, Willie Cook, David Bruce, Chip Quarles, Jonathan Day

PURCHASING
Jonathan Day (Chair), Jim Lane

HOTEL ARRANGEMENTS
Jonathan Day (Chair), David Yancy, Deirdre Cohorn, Jim Lane, Sharon Watkins

FUNDRAISING/DOOR PRIZES
Jonathan Day (Chair), Russ Kennedy, Jim Lane, Amy Glass, Phyllis Dudgeon, Sharon Watkins

PAPER SELECTION
Jonathan Day (Chair), David Maehr, Brian Clark, Dan Crank, David Yancy, Charles Logsdon

SOCIAL EVENTS AND ENTERTAINMENT
Jim Lane (Chair), Amy Glass, Jonathan Day, Russ Kennedy, Sharon Watkins

TRANSPORTATION
Don Walker (Chair), David McChesney

STUDENT PAPER AWARD
Jonathan Day (Chair), David Yancy, Steve Shea

EXHIBITORS/VENDORS/MEDIA
Jonathan Day (Chair), Keith Wethington, Dave Fredrick, David Yancy, Norm Minch

SECURITY
David Casey

ORIGINAL ARTWORK DESIGNED AND CREATED BY ADRIENNE SHOEN

NOTES

NOTES

NOTES