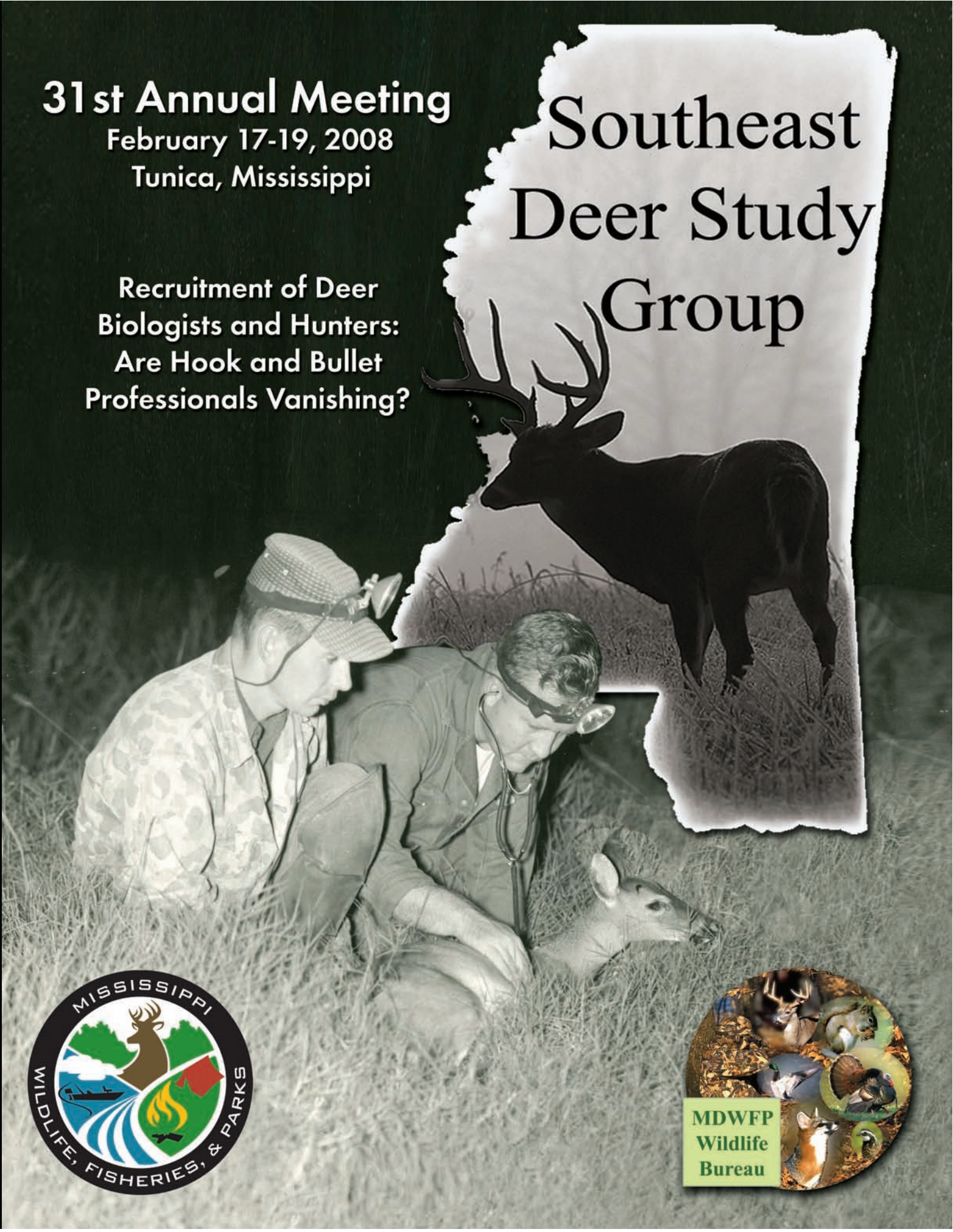
31st Annual Meeting

February 17-19, 2008

Tunica, Mississippi

Southeast Deer Study Group

Recruitment of Deer Biologists and Hunters: Are Hook and Bullet Professionals Vanishing?



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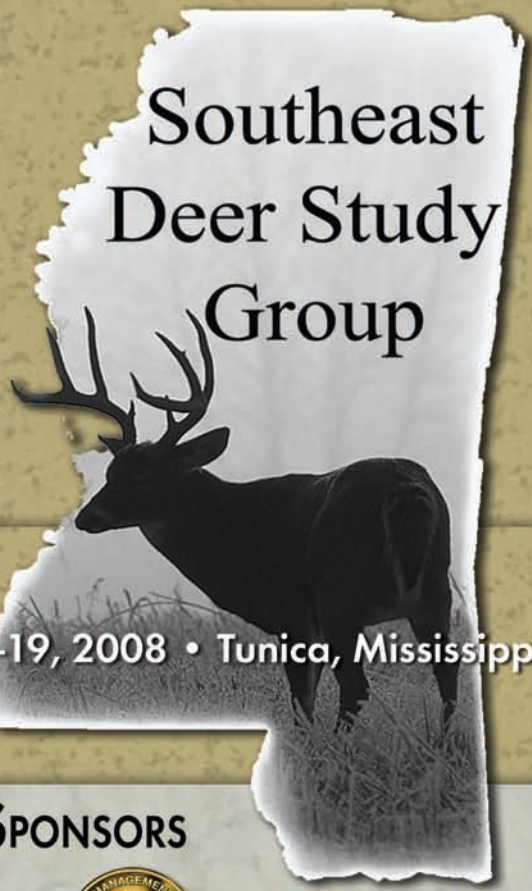
The Mississippi Department of Wildlife, Fisheries, and Parks would like to thank the following companies and organizations for their generous donations and/or contributions of merchandise or service to the 31st Annual Meeting.

Southeast Deer Study Group



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THE SOUTHEAST DEER STUDY GROUP

The Southeast Deer Study Group was formed as a subcommittee of the Forest Game Committee of the Southeastern Section of The Wildlife Society. The Southeast Deer Study Group Meeting is hosted with the support of the directors of the Southeastern Association of Fish and Wildlife Agencies. The first meeting was held as a joint Northeast-Southeast Meeting at Fort Pickett, Virginia, on September 6-8, 1977. Appreciating the economic, aesthetic, and biological values of the white-tailed deer (*Odocoileus virginianus*) in the southeastern United States, the desirability of conducting an annual Southeast Deer Study Group meeting was recognized and urged by the participants. Since February 1979, these meetings have been held annually for the purpose of bringing together managers, researchers, administrators, and users of this vitally important renewable natural resource. These meetings provide an important forum for the sharing of research results, management strategies, and discussions that can facilitate the timely identification of, and solutions to, problems relative to the management of white-tailed deer in our region. The Deer Subcommittee was given full committee status in November, 1985, at the Southeastern Section of The Wildlife Society's annual business meeting. In 2006, Delaware was approved as a member.

Visit the Southeast Deer Study Group website at www.southeastdeerstudygroup.org

TWS PROFESSIONAL DEVELOPMENT

The 31st Annual Southeast Deer Study Group meeting can be counted as contact hours for Professional Development/Certification. Each hour of actual meeting time counts as one credit hour (no social time credit). For more information about professional development, visit The Wildlife Society web site, www.wildlife.org.

SOUTHEAST DEER STUDY GROUP MEETINGS

Year	Location	Meeting Theme
1977	Fort Pickett, VA	none
1979	Mississippi State, MS	none
1980	Nacogdoches, TX	none
1981	Panama City, FL	Antlerless Deer Harvest Strategies
1982	Charleston, SC	none
1983	Athens, GA	Deer Damage Control
1984	Little Rock, AR	Dog-Deer Relationships in the Southeast
1985	Wilmington, NC	Socio-Economic Considerations in Managing White-tailed Deer
1986	Gatlinburg, TN	Harvest Strategies in Managing White-tailed Deer
1987	Gulf Shores, AL	Management: Past, Present, and Future
1988	Paducah, KY	Now That We Got 'Um, What are we Going To Do with 'Um?
1989	Oklahoma City, OK	Management of Deer on Private Lands
1990	Pipestem, WV	Addressing the Impact of Increasing Deer Populations
1991	Baton Rouge, LA	Antlerless Deer Harvest Strategies: How Well Are They Working?
1992	Annapolis, MD	Deer Versus People
1993	Jackson, MS	Deer Management: How We Affect Public Perception and Reception
1994	Charlottesville, VA	Deer Management in the Year 2004
1995	San Antonio, TX	The Art and Science of Deer Management: Putting the Pieces Together

1996	Orlando, FL	Deer Management Philosophies: Bridging The Gap Between the Public and Biologists.
1997	Charleston, SC	Obstacles to Sound Deer Management
1998	Jekyll Island, GA	Factors Affecting the Future of Deer Hunting
1999	Fayetteville, AR	QDM- What, How, Why, and Where?
2000	Wilmington, NC	Managing Deer in Tomorrow's Forests: Reality vs. Illusion
2001	St. Louis, MO	From Lewis & Clark to the New Millennium- The Changing Face of Deer Management
2002	Mobile, AL	Modern Deer Management- Balancing Biology, Politics, and Tradition
2003	Chattanooga, TN	Into the Future of Deer Management: Where Are We Heading
2004	Lexington, KY	Today's Deer Hunting Culture: Asset or Liability?
2005	Shepherdstown, WV	The Impact of Today's Choices on Tomorrow's Deer Hunters
2006	Baton Rouge, LA	Managing Habitats, Herds, Harvest, and Hunters in the 21st Century Landscape. Will 20th Century Tools Work?
2007	Ocean City, MD	Deer and Their Influence on Ecosystems
2008	Tunica, MS	Recruitment of Deer Biologists and Hunters: Are Hook and Bullet Professionals Vanishing?
2009	Roanoke, VA	

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

State	Name	Employer
Alabama	Chris Cook	AL Dept. of Conservation & Natural Resources
Arkansas	Cory Gray	AR Game & Fish Commission
Delaware	Joe Rogerson	Delaware Division of Fish & Wildlife
Florida	Robert Vanderhoof	FL Fish & Wildlife Conservation Commission
Florida	Steve Shea	St. Joe Timberland Company
Georgia	Jim Simmons	GA Department of Natural Resources
Georgia	Karl Miller	University of Georgia
Kentucky	Tina Brunjes	KY Department Fish & Wildlife Resources
Kentucky	Jon Gassett	KY Department Fish & Wildlife Resources
Louisiana	Scott Durham	LA Department Wildlife & Fisheries
Maryland	Brian Eyler	MD Department of Natural Resources
Mississippi	Chad Dacus	MS Department of Wildlife, Fisheries, & Parks
Mississippi	Steve Demarais (Ch)	Mississippi State University
Missouri	Jeff Beringer	MO Department of Conservation
Missouri	Lonnie Hansen	MO Department of Conservation
North Carolina	Evin Stanford	NC Wildlife Resources Commission
North Carolina	J. Scott Osborne	NC Wildlife Resources Commission
Oklahoma	Ken Gee	The Noble Foundation
Oklahoma	Michael Shaw	OK Department of Wildlife Conservation
South Carolina	David Guynn, Jr.	Clemson University
South Carolina	Charles Ruth	SC Department of Natural Resources
Tennessee	Ben Layton	TN Wildlife Resources Agency
Tennessee	Daryl Ratajczak	TN Wildlife Resources Agency
Texas	Mitch Lockwood	TX Parks & Wildlife Department
Texas	Bob Zaiglin	Southwest Texas Junior College
Virginia	W. Matt Knox	VA Department of Game & Inland Fisheries
Virginia	Nelson Lafon	VA Department of Game & Inland Fisheries
West Virginia	Jim Crum	WV Division of Natural Resources

SOUTHEAST DEER STUDY GROUP AWARDS

Career Achievement Award

1996 – Dr. Richard F. Harlow
1997 – Dr. Larry Marchinton
1998 – Dr. Harry Jacobson
1999 – Dr. David C. Guynn, Jr.
2000 – Joe Hamilton
2002 – Robert L. Downing
2004 – Dr. Charles DeYoung
2005 – Kent Kammermeyer
2006 – Bill Armstrong
2007 – Jack Gwynn

Outstanding Student Presentation Award

1996 – Billy C. Lambert, Jr. (Texas Tech University)
1997 – Jennifer A. Schwartz (University of Georgia)
1998 – Karen Dasher (University of Georgia)
1999 – Roel R. Lopez (Texas A&M University)
2000 – Karen Dasher (University of Georgia)
2001 – Roel R. Lopez (Texas A&M University)
2002 – Randy DeYoung (Mississippi State University)
2003 – Bronson Strickland (Mississippi State University)
2004 – Randy DeYoung (Mississippi State University)
2005 – Eric Long (Penn State University)
2006 – Gino D'Angelo (University of Georgia)
2007 – Sharon A. Valitzski (University of Georgia)

Sunday, February 17, 2008

12:00 p.m. – 5 00 p.m.	Exhibitors set-up – Ballroom C
2:00 p.m. – 7:00 p.m.	Registration – Lobby
3:00 p.m. – 5:00 p.m.	SE Section TWS Deer Committee meeting - Meeting Room 4 & 5
6:00 p.m. – 10:00 p.m.	Welcome Reception: *Delta Blues Buffet* – Ballroom A & B

Monday, February 18, 2008

7:30 a.m. – 4:00 p.m.	Registration – Lobby
8:00 a.m. – 5:00 p.m.	Exhibitors and Vendors – Ballroom C

Plenary Session – Ballroom A & B
Recruitment of Deer Biologists and Hunters: Are Hook and Bullet Professionals Vanishing?

8:30 a.m.	*Opening Remarks.* Chad Dacus – Deer Program Coordinator, Mississippi Department of Wildlife, Fisheries, and Parks
8:45 a.m.	*Welcome.* Don Brazil – Director, Law Enforcement, Wildlife, and Fisheries – Mississippi Department of Wildlife, Fisheries, and Parks
9:05 a.m.	*The Value of Hunting to Modern Society: The Next Cohort of Deer Biologists.* Dr. Dave Samuel – Professor Emeritus, West Virginia University and Dr. David Guynn, Jr. – Professor, Clemson University
9:25 a.m.	*Deer Biologists of the Future: Subjective Opinion/Concern.* Larry Castle – Director, Wildlife Bureau, Mississippi Department of Wildlife, Fisheries, and Parks
9:45 a.m.	**Break – Ballroom C**

Technical Session I: Management Techniques
Ballroom A & B

10:05 a.m.	Announcements/Door Prizes
10:10 a.m.	*Effects of Environmental Conditions on Performance of Vaginal Implant Transmitters.* Chad H. Newbolt and Stephen S. Ditchkoff - Auburn University *

10:30 a.m. *A Numerical Model for Predicting Regional Scale Spatiotemporal Changes in White-tailed Deer Populations Using Satellite Imagery*. Sara J. Sauthoff, Krystal Burns, and Joseph Matanoski - Villa Julie College *

10:50 a.m. *Refinement of a Camera Census Technique at Three White-tailed Deer Densities.* Matthew T. Moore, Charles DeYoung, Timothy Fulbright, David Hewitt, Ryan Darr, Luke Garver, Eric Grahmann, Will Moseley, Kent Williamson - Texas A&M Kingsville, and Don Draeger - Comanche Ranch *

11:10 a.m. *Survival of Released Captive and Trapped and Transported Wild Deer in East Texas.* Harry A. Jacobson – Professor Emeritus, Mississippi State University

11:30 a.m. *Gross B&C Scores of Offspring from a Deer Management Permit Program in South Texas.* John S. Lewis - Caesar Kleberg Wildlife Research Institute, Mickey W. Hellickson - King Ranch, and David G. Hewitt - Caesar Kleberg Wildlife Research Institute *

11:50 a.m. **Lunch (On Your Own)**

Technical Session II: Habitat Manipulation

Ballroom A & B

1:30 p.m. Announcements/Door Prizes

1:35 p.m. *Quality Deer Management on Forest Industry Land via a Hunting Club Cooperative.* Darren Miller - Weyerhaeuser Company and Scott Edwards - Mississippi Department of Wildlife, Fisheries, and Parks.

1:55 p.m. *Deer Forage Availability Following Seven Silvicultural Treatments in Mixed Hardwood Forests.* Marcus A. Lashley and Craig A Harper - University of Tennessee*

2:15 p.m. *Mechanical Brush Manipulation Effects on White-tailed Deer Habitat Utilization in South Texas.* Don A. Draeger - Comanche Ranch

2:35 p.m. **Break – Ballroom C**

Technical Session III: Deer Browsing Effects on Plants
Ballroom A & B

2:55 p.m. Announcements/Door Prizes

3:00 p.m. *The Effect of White-tailed Deer on Soybean Yield.* Jacob L. Bowman, Joe Rogerson, and Greg Colligan - University of Delaware

3:20 p.m. *The Effect of Deer Browsing on Bearded and Unbearded Wheat Yield.* Matthew T. Springer and Jacob L. Bowman - University of Delaware *

3:40 p.m. *Seed Loss of a Rare Wetland Plant to White-tailed Deer Herbivory: Implication for Reproduction and Dispersal.* Kelley L. Flaherty and James T. Anderson - West Virginia University*

4:00 p.m. *White-tailed Deer Habitat: Effects of Deer Density and Supplemental Feeding.* Eric D. Grahmann, Timothy E. Fulbright, Charles A. DeYoung, David G. Hewitt - Caesar Kleberg Wildlife Research Institute, and Don A. Draeger - Comanche Ranch*

4:30 p.m. **DINNER (Own Your Own)**

7:00 p.m. **Shoot from the Hip: Is Huntin' Still Huntin'?**
Grand Casino Event Center

Panelists: Jim Miller – Professor Emeritus, Wildlife and Fisheries, Mississippi State University

Bob Zaiglin – Department Chair, Wildlife Management, Southwest Texas Junior College; Owner, Zaiglin Wildlife Resources Management

Joe Hamilton – Director of Education & Outreach, Southern Region, Quality Deer Management Association

Tuesday, February 19, 2008

8:00 a.m. – 5:00 p.m. Exhibitors and Vendors – Ballroom C

Technical Session IV: Movement, Survival, and Recruitment
Ballroom A & B

8:30 a.m. Announcements/Door Prizes

8:40 a.m. *Movements and Survival of Translocated Deer in South Texas.* Aaron M. Foley, Brent Pierce, David G. Hewitt, Randy W. DeYoung - Caesar Kleberg Wildlife Research Institute, Mickey W. Hellickson, Justin Field - King Ranch, Tyler A. Campbell - USDA-APHIS-WS National Wildlife Research Center, Scott Mitchell - Texas Parks and Wildlife Department, and Fred C. Bryant - Caesar Kleberg Wildlife Research Institute*

9:00 a.m. *Home Range Fidelity and Seasonal Shifts in Adult, Male White-tailed Deer.* Robert W. Holtfreter, Stephen S. Ditchkoff - Auburn University, Ronald E. Masters - Tall Timbers Research Station, Michael S. Mitchell - University of Montana, Edgar R. Welch, Jr. - Red Rock Ranch, and William R. Starry - McAlester Army Ammunition Plant*

9:20 a.m. *Examination of Social Stress in a Population of White-tailed Deer.* J. Clint McCoy and Stephen S. Ditchkoff - Auburn University*

9:40 a.m. *Effects of Intensive Predator Removal on White-tailed Deer Recruitment in Northeast Alabama.* Cory L. Van Gilder - University of Georgia, Grant Woods - Woods and Associates, Inc., Karl V. Miller - University of Georgia *

10:00 a.m. **Break – Ballroom C**

Technical Session V: Physiology and Ecology
Ballroom A & B

10:20 a.m. Announcements/Door Prizes

10:30 a.m. *Effects of Soil Region, Litter Size, and Gender on Morphometrics of White-tailed Deer Fawns.* Amy C. Blaylock, Steve Demarais, Bronson Strickland - Mississippi State University, and Chad Dacus - Mississippi Department of Wildlife, Fisheries, and Parks*

10:50 a.m. *Environmental Influences on Conception Date Variation in White-tailed Deer.* Mike Dye, Steve Demarais, Bronson Strickland - Mississippi State University, Chad Dacus - Mississippi Department of Wildlife, Fisheries, and Parks, Harry A. Jacobson - Mississippi State University, and Dale Prochaska, Texas Parks and Wildlife*

11:10 a.m. *Patterns of Mating in Female White-tailed Deer: Does Male Age Matter?* Jason A. Sumners, Randy W. DeYoung - Caesar Kleberg Wildlife Research Institute, and Rodney L. Honeycutt - Pepperdine University*

11:30 a.m. *Ecology of an Insular Population of Fallow Deer in Coastal Georgia.* Brian W. Morse, Karl V. Miller, Nathan Nibbelink, David Osborn, Mandi McElroy, Debra L. Miller, and Charles A. Baldwin - University of Georgia*

11:50 a.m. **Lunch – Ballroom C**

Technical Session VI: Harvest Management – 1
Ballroom A & B

1:30 p.m. Announcements/Door Prizes

1:35 p.m. *Mississippi's Deer Records Program.* Rick Dillard - United States Forest Service

1:55 p.m. *Trends in Deer Hunting and Management in the Coastal Plain of South Carolina.* Charles R. Ruth - South Carolina Department of Natural Resources

2:15 p.m. *Tagging Deer Again in Louisiana.* R. Scott Durham and David Moreland - Louisiana Department of Wildlife and Fisheries

2:35 p.m. **Break – Ballroom C**

Technical Session VII: Harvest Management – 2
Ballroom A & B

2:55 p.m. Announcements/Door Prizes

3:00 p.m. *Is the 3-point Antler Restriction in Arkansas Producing Bucks with Higher Quality Antlers?* Don White, Jr. - University of Arkansas and M. Cory Gray - Arkansas Game and Fish Commission

3:20 p.m.	*Experimental Antler Restriction Regulation in the Post Oak Savannah Ecological Area of Texas.* Norman D. Forrester, Bob K. Carroll, Royce Jurries, Greg Pleasant, Len G. Polasek, Kerry Peterson, and Mary Ann Schubert - Texas Parks and Wildlife Department
3:40 p.m.	*Effects of Alternative Hunting Regulations on Antlerless Deer Harvest in Minnesota.* Marrett Grund - Minnesota Department of Natural Resources
4:00 p.m.	*Management Implications Associated with Hunter Preferences Toward Alternative Hunting Regulations in Minnesota.* Lou Cornicelli - Minnesota Department of Natural Resources, David Fulton - Minnesota Cooperative Fish and Wildlife Research Unit, and Marrett Grund - Minnesota Department of Natural Resources
7:00 p.m.	**Banquet – Ballroom A&B**

***Indicates Student Paper**

ABSTRACTS

Monday, February 18, 2008

7:30 a.m. – 4:00 p.m. Registration – Lobby

8:00 a.m. – 5:00 p.m. Exhibitors and Vendors – Ballroom C

Plenary Session – Ballroom A & B
Recruitment of Deer Biologists and Hunters:
Are Hook and Bullet Professionals Vanishing?

Moderator: Chad Dacus, Deer Program Coordinator,
Mississippi Department of Wildlife, Fisheries, and Parks

Monday, 8:30 a.m. Opening Remarks

Monday, 8:45 a.m.

Welcome. Don Brazil – Director, Law Enforcement, Wildlife, and Fisheries – Mississippi Department of Wildlife, Fisheries, and Parks

Monday, 9:05 a.m.

The Value of Hunting to Modern Society: The Next Cohort of Deer Biologists. Dr. Dave Samuel – Professor Emeritus, West Virginia University and Dr. David Guynn, Jr. – Professor, Clemson University

Monday, 9:25 a.m.

Deer Biologists of the Future: Subjective Opinion/Concern. Larry Castle – Director, Wildlife Bureau, Mississippi Department of Wildlife, Fisheries, and Parks

NOTES:

Monday, 9:45 a.m. **Break – Ballroom C**

Technical Session I: Management Techniques - Ballroom A & B

Moderator: Mitch Lockwood, White-tailed Deer Program Leader, Texas Parks and Wildlife

Monday, 10:05 a.m. Announcements/Door Prizes

Monday, 10:10 a.m.

Effects of Environmental Conditions on Performance of Vaginal Implant Transmitters. **Chad H. Newbolt and Stephen S. Ditchkoff - Auburn University ***

Vaginal Implant Transmitters (VITs) are increasingly being used in studies where location of neonatal ungulates is necessary. However, effects of environmental conditions on performance of VITs largely are unknown. In this study, we exposed VITs to conditions reflective of those present during fawning season in southern regions of North America, and determined relative effects of air temperature and habitat type on their performance. We found that VITs had a relatively high (≥80%) probability of proper functionality when temperatures were ≤72.5°F in all tested habitats; however, probability of proper functionality was reduced (≤80%) in all habitats when temperatures exceeded 86°F. VITs performed very well (~100% properly functioning) in pasture, thicket, and mature hardwood habitats when temperatures were lowest during early morning and late afternoon. However, proper functionality was reduced in all habitats as temperatures increased during midday. Performance of devices exposed to intense sunlight at bare ground sites was low (≤ 55% properly functioning) until both sunlight and temperature were reduced at 8:00 pm. Individuals interested in utilizing VITs should consider local climate and vegetative characteristics prior to initiating projects to evaluate if devices will meet performance requirements.

NOTES:

Monday, 10:30 a.m.

A Numerical Model for Predicting Regional Scale Spatiotemporal Changes in White-tailed Deer Populations Using Satellite Imagery. **Sara J. Sauthoff, Krystal Burns, and Joseph Matanoski – Villa Julie College ***

White-tailed deer populations have increased markedly in the eastern U.S. due to reduced predation and anthropogenic changes in land use that create favorable habitats. Deer pose a public health risk by exposing humans to arthropod-borne diseases and deer-vehicle collisions. In particular, deer are increasing in areas of human habitation and therefore pose a significant management challenge. We created a spatial model to predict deer abundance based on land use. We used the National Land Cover Database 2001 (NLCD), a satellite imagery database, to identify land cover in a 24 mile^2 study area of mixed land use in Baltimore County, Maryland, USA. We tested 77 - 100 x 100 ft sites measuring deer abundance using fecal pellet counts and validating NLCD land use classifications by comparing them with observed land covers. Deer abundance was highest in forested areas, high but spatially variable in developed open spaces (e.g. residential areas), and lowest in agricultural and highly developed areas. There were systemic misclassifications of the developed open space land use in the NLCD. We validated model output against observed deer abundance and found the model robust in predictions for forested and agricultural areas, but not for developed open space because of misclassifications in the NLCD. Therefore, we have developed a model that could be an important management tool by permitting regional-scale predictions of spatiotemporal changes in deer populations in areas dominated by forests and agriculture. However, more accurate land use databases are necessary to apply the model to residential areas.

NOTES:

Monday, 10:50 a.m.

Refinement of a Camera Census Technique at Three White-tailed Deer Densities. **Matthew T. Moore, Charles DeYoung, Timothy Fulbright, David Hewitt, Ryan Darr, Luke Garver, Eric Grahmann, Will Moseley, Kent Williamson - Texas A&M Kingsville, and Don Draeger – Comanche Ranch ***

Wildlife resource managers rely on population estimates to make important management decisions. Recently, deer census techniques involving infrared trail cameras have gained popularity. However, questions still remain concerning accuracy of these techniques. This study's objective is to assess accuracy of a currently accepted camera census technique. The research is being conducted on the Comanche and Faith ranches near Carrizo Springs, Texas. Each ranch has three 200-acre enclosures. There is a water source at the center of each enclosure and no supplemental feed is provided. One enclosure on each ranch contains approximately 10 deer (low density), 25 deer (medium density), and 40 deer (high density). A known number of tagged individuals of both sexes are present in each enclosure. Surveys are being conducted in the fall after antler development and in the winter before antler drop. Each enclosure contains 4 camera stations for a density of 1 camera /50 acres. Each station is baited with 5 lbs. of corn, which is replenished daily for 14 consecutive days. The technique described by Jacobson et. al in The Wildlife Society Bulletin (1997, 25(2):547-556) was used to calculate population size. Preliminary results from a survey in February 2007 indicated an underestimate of tagged does in all enclosures. This resulted in an underestimate of total tagged individuals in each enclosure. These data suggest a bias towards bucks that is not accounted for in Jacobson's original study. Results from this study will help managers determine if camera census techniques are a reliable management tool.

NOTES:

Monday, 11:10 a.m.

Survival of Released Captive and Trapped and Transported Wild Deer in East Texas. **Harry A. Jacobson – Professor Emeritus, Mississippi State University**

Survival was documented for captive, and wild trapped deer, released on two high-fenced East Texas ranches over a seventeen year period. Survival observations were from hunter recordings of individual deer tag numbers or freeze brands, and from identifying deer in annual camera census conducted on both ranches. During this period, totals of 137 captive does, 160 captive bucks, 21 wild caught bucks and 43 wild caught does were released. Survival differed by ranch, sex, and whether captive or wild source deer. Released animals were generally protected from hunter harvest for the duration of their life, although a small number (<10) were known to be mistakenly harvested, poached, or shot because of debilitating injuries. First year survival of captive deer released on a 1,700 acre ranch was greater than 76%. On a much larger 13,000 acre ranch, first year survival was just over 59% for combined releases of captive and wild caught deer. However, wild caught deer (captured on the smaller ranch and transported and released on the larger ranch) had one year survival of 80% compared to just over 55% for captive deer releases. By five years post release, greater than 43% of does and 31% of bucks were known to be still alive on the 1,700 acre ranch, and 27% of does and 19% of bucks were known alive on the 13,000 acre ranch. Survival observations will be further broken out and presented by number of years post release, sex, age at release, and source of animal.

NOTES:

Monday, 11:30 a.m.

Gross B&C Scores of Offspring from a Deer Management Permit Program in South Texas.
John S. Lewis - Caesar Kleberg Wildlife Research Institute, Mickey W. Hellickson - King Ranch, and David G. Hewitt - Caesar Kleberg Wildlife Research Institute *

The State of Texas allows owners of high-fenced properties to enter the Deer Management Permit (DMP) program after meeting requirements set forth by the Texas Parks and Wildlife Department. This permit allows the owner to place 1 buck and up to 20 does in a breeding enclosure that is between 5 and 100 acres. Our objective was to assess the effectiveness of this program by comparing antler scores between pastures including DMP offspring and pastures without DMP offspring. White-tailed bucks were trapped using the helicopter net-gun technique on a 13,300 acre portion of a high-fenced ranch in south Texas. Offspring from enclosures were released in specific DMP pastures and were available for capture during our annual deer capture. We hypothesized that bucks released into pastures as part of the DMP program would have greater gross Boone and Crockett (GBC) scores compared to deer in pastures without DMP offspring. Using 2006-07 data, mean GBC score for DMP pasture yearlings was 37.4 GBC inches while GBC scores for yearlings in non-DMP pastures was 31.3 GBC inches (t =1.00, d.f. = 12, P = 0.34). Two year old bucks in DMP pastures average GBC score was 88.8 inches whereas the mean GBC score for 2.5 year olds in non-DMP pastures was 74.3 inches (t = 2.81, d.f. = 36, $P \leq 0.01$). Three year old bucks averaged 121.4 and 102.3 inches for DMP and non-DMP pastures, respectively (t = 2.98 d.f. = 10, P = 0.01). Results from this analysis indicate that the DMP program on this ranch may be positively affecting GBC scores of offspring released from these pens.

NOTES:

Monday, 11:50 a.m. **Lunch (On Your Own)**

Technical Session II: Habitat Manipulation – Ballroom A & B

Moderator: Brian Murphy, Executive Director, Quality Deer Management Association

Monday, 1:30 p.m. Announcements/Door Prizes

Monday, 1:35 p.m.

Quality Deer Management on Forest Industry Land via a Hunting Club Cooperative (HCC). **Darren Miller - Weyerhaeuser Company and Scott Edwards – Mississippi Department of Wildlife, Fisheries, and Parks.**

Hunting leases on forest industry land generally operate independently, making it difficult to practice quality deer management (QDM). However, improving habitat quality while practicing QDM may provide opportunities to set lease prices to match cost of implementing Quality Vegetation Management (QVM) on forest industry land, increasing hunting quality and helping meet habitat diversity goals. Therefore, beginning in the 2004-2005 hunting season, we established a HCC on 11,500 contiguous acres (6 leases) owned and managed by Weyerhaeuser Company in Kemper County, Mississippi. We implemented QVM, improved access control, and re-established fire lanes in wildlife-friendly vegetation. Mississippi Department of Wildlife, Fisheries, and Parks (MDWFP) set harvest guidelines, collated data, and conducted periodic health checks. During 2004-07, we re-established 9.96 miles of fire lanes, and herbicide-treated (1,701 acres) and then burned (1,089 acres) thinned plantations. New plantations were established on 20 foot row spacing. During 2004-07, hunters on the HCC harvested 277 does and 220 bucks. Percentage of bucks < 2.5 years old in the harvest was lowest (7%) during 2006-07. The health check in March 2007 indicated doe weights above average for the region with conception dates 10 days behind the average and fetuses per doe comparable to the region. Challenges to HCC success have included data collection by hunters, adherence to buck and doe harvest recommendations, and controlling baiting and feeding. Regular communication of HCC goals to hunt club members appears key to meeting harvest objectives. Future work will include surveys of hunters to examine marketability of the HCC concept.

NOTES:

Monday, 1:55 p.m.

Deer Forage Availability Following Seven Silvicultural Treatments in Mixed Hardwood Forests. **Marcus A. Lashley and Craig A Harper - University of Tennessee***

Forage for white-tailed deer (*Odocoileus virginianus*) is typically more abundant in old-fields and agricultural openings than forested sites. Unmanaged forests often contain less than 50 pounds of available dry forage per acre. Past research has shown forage availability increases dramatically following forest stand regeneration. More recent work has shown intermediate timber stand improvement practices in pine forests can increase nutritional carrying capacity for white-tailed deer, rivaling that in forage food plots. Related data are not available for hardwood forests. To compare nutritional carrying capacity following silvicultural treatments in mixed hardwood stands and planted forage food plots, we measured forage production and quality following 7 silvicultural treatments with controls in 4 mixed upland hardwood stands. We compared that to forage produced in 4 adjacent warm-season food plots, each containing 3 separate plantings of soybeans (*Glycine max*), lablab (*Lablab purpureus*), and iron-and-clay cowpeas (*Vigna sinensis*), June through October 2007. We will present these comparisons as related to nutritional carrying capacity for white-tailed deer, as well as the cost for implementing each treatment and recommendations for managers.

NOTES:

Monday, 2:15 p.m.

Mechanical Brush Manipulation Effects on White-tailed Deer Habitat Utilization in South Texas. **Don A. Draeger - Comanche Ranch**

We modeled white-tailed deer use of habitat prior, during, and after mechanical habitat manipulation (root plowing) on a south Texas ranch for October 2003- August 2007. Our habitat utilization models were based on disappearance of pelleted deer feed from sites spaced every 175 acres over the 3,547-acre study area. Our assumption that feed use was correlated with deer use of the landscape was supported by a strong relation between deer density measured by annual helicopter surveys and feed use. Pellet consumption was recorded weekly at 20 feeder sites across the 45-month study period. Consumption levels at each feeder site were tallied and aggregated by week or by season, then placed into PROGRAM MAPINFO and subjected to a natural neighbor analysis. The natural neighbor technique enables the creation of accurate surface models from data that is sparsely distributed or very linear in spatial distribution, this interpolation makes use of an area-weighting technique to determine a new value for every grid node. There was apparent negative relation between deer utilization and plow activity. However, deer utilization patterns returned to "normal" within 4 weeks of completion of the mechanical manipulation work. Habitat utilization patterns revealed in this study will guide managers to more efficient habitat manipulation and management of semi-arid landscapes similar to the one we studied.

NOTES:

Monday, 2:35 p.m. **Break – Ballroom C**

Technical Session III: Deer Browsing Effects on Plants – Ballroom A & B

Moderator: Dr. Bronson Strickland, Assistant Professor, Mississippi State University

Monday, 2:55 p.m. Announcements/Door Prizes

Monday, 3:00 p.m.

The Effect of White-tailed Deer on Soybean Yield. **Jacob L. Bowman, Joe Rogerson, and Greg Colligan - University of Delaware**

Little is understood regarding the effect of white-tailed deer (*Odocoileus virginianus*) browsing on soybean yield. In 2003-2006, we investigated spatially where browsing was most intense on soybeans and temporally when browsing had the greatest effect on yield within full-season and double-crop soybeans in Little Creek, Delaware at a deer density of 50 deer/mi^2. We systematically placed 50 ft^2 plots (n=1340) at 33 ft intervals in 4 fields in 2003-2004 and 2 fields in 2005-2006. We randomly assigned 10, 5, or 3 different protection treatments based on plant growth stage to plots in 2003, 2004, and 2005-2006, respectively, and protected plots using 4 ft welded wire fencing. To examine what impact deer had on yield, we harvested a 3 ft^2 centralized area in each plot. Protected plots did not differ from unprotected plots in the double crop fields in 2003 (P=0.2062), 2004 (P=0.5769), 2005 (P=0.9936), or 2006 (P=0.4016). Protected plots had lower yield compared to unprotected plots in full season fields in 2003 (P=0.0553), 2004 (P=0.0001), and 2005 (P=0.0055) but not 2006 (P=0.9008). Yield was least in the first 60 ft from the forest edge in 2003 (double P=0.0451, full P<0.0001), 2004 (double P<0.0001, full P<0.0001), 2005 (double P<0.0001, full P<0.0001), and 2006 double crop fields (P=0.0349) but not 2006 full season fields (P=0.8952). Although we documented an effect, deer browsing increased yield because deer browse increased branching of individual plants. The effect of distance was independent of treatment so shading and forest edge effects may have been more important than deer browsing on yield. Our results can be used to demonstrate the positive impact of deer on soybeans at a relatively high deer density.

NOTES:

Monday, 3:20 p.m.

The Effect of Deer Browsing on Bearded and Unbearded Wheat Yield. **Matthew T. Springer and Jacob L. Bowman - University of Delaware ***

Wheat is an important agronomic crop that is a common winter food source for white-tailed deer (*Odocoileus virginianus*) in agricultural landscapes. Two types of wheat are grown, unbearded and bearded. Farmers believe bearded wheat deters deer browsing because of the long awns. In 2007, I investigated spatial and temporal browsing on the 2 types of wheat in Little Creek, Delaware in fields bordered on one side by a forest. I placed 600, 50 ft^2 plots in the middle of 33 ft distance classes starting from the forested edge out to 200 ft. I systematically assigned 1 of 3 treatments (no protection, protected at planting, and protected just prior to head development) to the plots. Plots were protected using a 4ft welded-wire fence. I harvested a 3 ft^2 area in the middle of each plot to determine the impact yield. Wheat type and protection treatment interacted to effect wheat yield ($P = 0.0051$). Bearded wheat had a greater yield than the unbearded wheat. Deer browsing prior to head development increased yield for both types of wheat. Our research demonstrated the positive impact of deer browsing on wheat yield but more research is needed to better elucidate the effect of awns on deer browse and the subsequent effect on wheat yield.

NOTES:

Monday, 3:40 p.m.

Seed Loss of a Rare Wetland Plant to White-tailed Deer Herbivory: Implication for Reproduction and Dispersal. **Kelley L. Flaherty and James T. Anderson - West Virginia University***

White-tailed deer (*Odocoileus virginianus*) may influence the reproduction and dispersal of plant populations through herbivory of flowering stems. We examined the effects of white-tailed deer herbivory on the seed production of VanBrunt's Jacob's Ladder (*Polemonium vanbruntiae*), a wetland plant considered rare throughout its range. We measured four external morphometric characteristics (number of leaflets per stem, height, basal diameter of the stem, the number of flowers present) of 529 flowering individuals found in ten populations throughout Canaan Valley, West Virginia during 2005 (n = 276) and 2006 (n = 253). We compared 13 a priori models using these variables to predict seed production using Akaike's Information Criterion corrected for small sample size (AIC_c). Our best performing model included the basal stem diameter and number of flowers as predictors of seed production. We used this model to predict potential seed production loss to herbivory. Seed loss due to consumption of flowering stems ranged between 25.1 and 92.5% within individual populations ($\bar{x}$ = 63.2%, SE = 4.8%). We found no difference between the stem diameter and flower number on unbrowsed plants (stem diameter $\bar{x}$ = 0.15 in., SE = 0.04, flower number $\bar{x}$ = 11, SE = 3) and estimated production of browsed plants (stem diameter $\bar{x}$ = 0.15 in., SE = 0.04, flower number $\bar{x}$ = 9.0, SE = 2.0, $p > 0.05$) suggesting that white-tailed deer randomly select *Polemonium* flowers. Although deer may affect levels of seed production within a population, browsing may not influence dispersal of remaining seeds.

NOTES:

Monday, 4:00 p.m.

White-tailed Deer Habitat: Effects of Deer Density and Supplemental Feeding. **Eric D. Grahmann, Timothy E. Fulbright, Charles A. DeYoung, David G. Hewitt - Caesar Kleberg Wildlife Research Institute, and Don A. Draeger - Comanche Ranch***

Supplemental feeding has been viewed as a way for wildlife managers to artificially increase deer numbers and antler sizes through improved nutritional status. However, little is understood about how white-tailed deer affect their habitat under known densities. A research project was initiated on the Comanche and Faith Ranches in the western Rio Grande plains (south Texas) in 2003 to determine the effects of different deer densities and supplemental feeding on the vegetation community. Six high-fenced, 200 acre enclosures were erected on both ranches. They are divided into 3 pairs – 2 have high deer densities (40 deer); 2 have medium (25 deer); and 2 have low deer densities (10 deer). One of each pair is supplementally fed with 2 feeders containing a pelleted protein feed in the center of the enclosure with the other enclosures not fed. Vegetation canopy cover and biomass are annually estimated. Results indicate that forbs consumed by white-tailed deer tend to decline in treatments where feed is not provided and increase slightly when feed is available relative to pre-treatment canopy cover. Sampling date x treatment interactions were not significant ($P > 0.05$) for forbs eaten by deer, suffrutescents eaten by deer, and shrubs eaten by deer. Canopy cover of forbs, suffrutescents, and shrubs was similar ($P > 0.05$) among deer densities. Supplemental feeding appears to alleviate foraging pressure on forbs palatable to deer. However, our results should be considered preliminary because extreme annual variation in rainfall may have ameliorated treatment effects.

NOTES:

4:30 p.m. **DINNER (Own Your Own)**

7:00 p.m. **Shoot from the Hip -** Grand Casino Event Center

Tuesday, February 19, 2008

8:00 a.m. – 5:00 p.m. Exhibitors and Vendors – Ballroom C

Technical Session IV: Movement, Survival, and Recruitment - Ballroom A&B

Moderator: Dr. Harry Jacobson, Professor Emeritus, Mississippi State University

Tuesday, 8:30 a.m. Announcements/Door Prizes

Tuesday, 8:40 a.m.

Movements and Survival of Translocated Deer in South Texas. **Aaron M. Foley, Brent Pierce, David G. Hewitt, Randy W. DeYoung - Caesar Kleberg Wildlife Research Institute, Mickey W. Hellickson, Justin Field - King Ranch, Tyler A. Campbell - USDA-APHIS-WS National Wildlife Research Center, Scott Mitchell– Texas Parks and Wildlife Department, and Fred C. Bryant - Caesar Kleberg Wildlife Research Institute***

Translocations of white-tailed deer (*Odocoileus virginanus*) were first used to restore extirpated populations during the early 20th century. In the modern era, translocations are becoming increasingly common as a management tool for augmenting low-density populations and as an alternative to harvest for managing overabundant populations. Although several thousand deer are translocated for these purposes each year in Texas and northern Mexico, the survival and performance of translocated deer have received little attention. For translocation programs to be successful, the translocated deer should experience high survival and remain in the vicinity of the release area. We evaluated the movements and survival of translocated deer at 2 sites in southern Texas during 2005–2007. In 2005, 13 does and 7 bucks were captured in Webb County and released in a partially enclosed property in Calhoun County, ~150 miles away. In 2007, 29 bucks were captured in Kleberg County and released on a low-fenced property <50 miles away. Survival of translocated deer ranged from 75-82% after 6 months. Of those deer that survived, 15-31% of the deer left the release area. The net effect was that 50-60% of the translocated deer remained alive near the release area in both instances. Our study gives managers a basis for evaluating translocations as a tool to achieve management goals.

NOTES:

Tuesday, 9:00 a.m.

Home Range Fidelity and Seasonal Shifts in Adult, Male White-tailed Deer. **Robert W. Holtfreter, Stephen S. Ditchkoff - Auburn University, Ronald E. Masters - Tall Timbers Research Station, Michael S. Mitchell - University of Montana, Edgar R. Welch, Jr. - Red Rock Ranch, and William R. Starry - McAlester Army Ammunition Plant***

Intensive management for white-tailed deer **(***Odocoileus virginianus*) normally involves considerable effort expended for determining population characteristics and identification of areas heavily used by quality deer within the population. However, management and scouting efforts operating under the assumption that deer will remain within the areas they are initially observed may prove erroneous should the deer in question shift their activity patterns on a seasonal or annual basis. We examined fidelity (percent area in year one retained in year two) of radio-collared sub-adult (1.5-3.5 years old), and prime-age ($\geq$4.5 years old) male white-tailed deer (n = 52) to successive annual, breeding season (1 Oct - 15 Dec), and non-breeding season (16 Dec - 31 Sep) home ranges, as well as the magnitude of seasonal and annual center of activity shifts from 1995-1997, at McAlester Army Ammunition Plant in Oklahoma. We found a high degree of fidelity in annual ($\bar{x}$ = 65%) and breeding season ($\bar{x}$ = 53%) ranges. Additionally, 58% of non-breeding season home range area, on average, was retained during the breeding season. Mean distance between centers of consecutive annual home ranges ($\bar{x}$ = 604 yards) was very similar to the mean distance between successive breeding season ranges ($\bar{x}$ = 594 yards). Mean shifts from non-breeding home ranges to breeding home ranges were 850 yards on average, and prime-age males ($\bar{x}$ = 1171 yards) exhibited 38% greater shifts to breeding ranges than did sub-adults ($\bar{x}$ = 724 yards). Implications for these data, and anomalies in these data will be discussed.

NOTES:

Tuesday, 9:20 a.m.

Examination of Social Stress in a Population of White-tailed Deer. **J. Clint McCoy and Stephen S. Ditchkoff - Auburn University***

Wildlife managers typically simplify management plans so that they are easily understood and implemented by interest groups. White-tailed deer management is a prime example, where we simplify population management to include prescriptions designed to control or manipulate density, sex ratio, and buck age structure. With this approach, we have been extremely successful at achieving our management objectives, which normally focus on increased antler development and numbers of large-antlered deer. In some cases, management plans on individual parcels of property intensify their respective programs to increase the number of large-antlered deer that are produced, and exceed carrying capacity of the area. A potential flaw of this approach to management is that it assumes if the deer are adequately fed then they will be healthy, thus, maximizing growth and antler development. However, this common assumption fails to consider many less obvious factors that influence health of deer, one of which is stress. Deer exposed to abnormally high densities and/or increased levels of agonistic interactions can experience chronic stress, which has been shown to negatively influence body growth, antler development, and reproduction. In response to stress, deer secrete glucocorticoids which are eventually metabolized and excreted in feces. We collected feces from a population of deer maintained at high density (>100 deer/mile^2), with an estimated sex ratio of 2 bucks:1 doe, and a large proportion of mature males to measure glucocorticoid concentrations and develop a stress profile of the population. We will discuss our findings and outline the potential consequences of these population characteristics.

NOTES:

Tuesday, 9:40 a.m.

Effects of Intensive Predator Removal of White-tailed Deer Recruitment in Northeast Alabama. **Cory L. VanGilder - University of Georgia, Grant Woods - Woods and Associates, Inc., Karl V. Miller - University of Georgia ***

Outside of Texas, few studies have investigated the impacts of predators on white-tailed deer (*Odocoileus virginianus*) recruitment in the Southeast. On a 2,000 acre study site in northeast Alabama, we inferred predation impacts by comparing recruitment data before and after an intensive predator removal. Initial deer camera surveys in September 2006 and February 2007 revealed a fawn:doe ratio of 0.18 and 0.41 respectively. No female deer were removed from the study area during the 2006-2007 hunting season. Hunter observation data indicated a pre-removal fawn:doe ratio of 0.56. We also monitored fawn:doe ratios from August 2006 through January 2007 using remote web based cameras (n = 11) mounted over food plots. Observed pre-removal fawn:doe ratios were similar to camera surveys and hunter observations: August-0.03; September-0.17; October-0.56; November-0.56; and January-0.5. We removed 22 coyotes (*Canis latrans*) and 10 bobcats (*Lynx rufus*) during trapping efforts from February - July 2007. We monitored predator populations throughout the study using scat deposition rates and scent station surveys to determine relative predator abundance. These indices of abundance declined to near zero just prior to fawning season. In response, the September 2007 camera survey indicated a modest increase in the fawn:doe ratio to 0.24. However, hunter observation data, web camera observations, as well as the February 2008 camera survey likely will provide a more accurate estimation of fawn recruitment. Because of increasing coyote populations over much of the Southeast, quantifying the effect of predation on fawn recruitment will provide important data for deer managers regarding future management decisions.

NOTES:

10:00 a.m. **Break – Ballroom C**

Technical Session V: Physiology and Ecology - Ballroom A & B

Moderator: Bob Zaiglin, Department Chair Wildlife Management, Southwest Texas Junior College; Owner, Zaiglin Wildlife Resources Management

Tuesday, 10:20 a.m. Announcements/Door Prizes

Tuesday, 10:30 a.m.

Effects of Soil Region, Litter Size, and Gender on Morphometrics of White-tailed Deer Fawns.
Amy C. Blaylock, Steve Demarais, Bronson Strickland – Mississippi State University, and Chad Dacus – Mississippi Department of Wildlife, Fisheries, and Parks*

Previous research documented that white-tailed deer body mass and antler size varied across physiographic regions of Mississippi. Deer from regions with greater soil fertility had greater body mass and antler size; however, this information is known only for individuals 6 months of age and older. We monitored birth mass and skeletal size of fawns produced by bred, adult, female white-tailed deer transplanted from the Delta, Thin Loess (Loess), and Lower Coastal Plain (LCP) soil regions to fawns in the Mississippi State University Rusty Dawkins Memorial Deer Unit. We evaluated the effect of soil region of origin, litter size, and fawn gender on mass and size of fawns at birth. Birth mass was not as variable as mass of older animals, but LCP fawns were lighter and shorter than loess and/or delta fawns. Twins were lighter and shorter than singletons. Males were heavier than females. Differences between regional birth dates within the pens and estimated regional birth dates based on a fetal growth curve raises questions about the wide-spread application of this method of estimating deer breeding and fawning dates.

NOTES:

Tuesday, 10:50 a.m.

Environmental Influences on Conception Date Variation in White-tailed Deer*. Mike Dye, Steve Demarais, Bronson Strickland - Mississippi State University, Chad Dacus – Mississippi Department of Wildlife, Fisheries, and Parks, Harry A. Jacobson – Mississippi State University, and Dale Prochaska, Texas Parks and Wildlife

Understanding the factors that influence timing of reproduction can be of value to wildlife managers. I used estimated conception dates of confined individual deer in Texas and Mississippi and wild deer populations within Mississippi to document natural variation within individuals and populations, and to determine if age or moon phase explained conception date variation. I used a one sample t-test to determine accuracy of moon phase as a predictor of conception date at the individual and population levels. I used a mixed model ANOVA to determine effects of age on individual- level variation. Mean conception date of confined individual deer was 30 November with a median of 25 November, standard deviation of 11.9 days and a mean range of 31 days. Mean conception date for wild populations in Mississippi was 1 January with a median of 31 December, standard deviation of 13 days, and a mean range of 46 days. Annual population mean conception date had a standard deviation of 4 days and a range of 12 days. Moon phase did not predict accurately conception date for individuals or populations of deer in the southern U.S. Individual does 2.5 years old bred earlier than does 1.5 and 3.5 years old; however, the difference was minimal and may have been influenced by the mean gestation used to determine conception date. Further assessment of the individual variation in conception date and potential environmental cues is warranted.

NOTES:

Tuesday, 11:10 a.m.

Patterns of Mating in Female White-tailed Deer: Does Male Age Matter? **Jason A. Sumners, Randy W. DeYoung - Caesar Kleberg Wildlife Research Institute, and Rodney L. Honeycutt – Pepperdine University***

Although the mating system of white-tailed deer is commonly described as a dominance-based hierarchy, recent studies have documented the breeding success of all age classes of male white-tailed deer. It has been suggested that the breeding success of young males is the result of exclusively mating with young females, while older males concentrate their efforts on mature females. Additionally, older females may not tolerate mating attempts of younger males. The occurrence of multiple paternity in many white-tailed deer populations indicates that female choice may play an important role in determining the pattern of male breeding success. We sampled litters of offspring from the King Ranch in South Texas. Genetic paternity was assigned to 76 litters of offspring using 17 microsatellite loci to determine the role of male and female age on the distribution of breeding success among age classes. Our results indicate that yearling males successfully mated with females of all ages. The mean age of female mates was 5.1, 4.8, 5.0 for 1.5, 2.5, and 3.5+ males, respectively. Additionally, we documented two incidents of multiple paternity involving yearling males. There was no correlation between male and female age as young and old males successfully sired offspring with females of all ages. However, breeding success of yearling males was restricted to the peak of the breeding season when most females are in estrous. The formation of tending bonds may limit the availability of mature males during this period, and limit the ability of females to preferentially mate with mature males.

NOTES:

Tuesday, 11:30 a.m.

Ecology of an Insular Population of Fallow Deer in Coastal Georgia. **Brian W. Morse, Karl V. Miller, Nathan Nibbelink, David Osborn, Mandi McElroy, Debra L. Miller, and Charles A. Baldwin - University of Georgia***

During the 1920s several exotic deer species were introduced to Little Saint Simons Island, Georgia, a 12,000 acre privately owned barrier island. Currently, only fallow deer (*Dama dama*) inhabit the island. The substantial economic value of fallow deer hunting, in conjunction with concerns over island development, have triggered the need for research on this unique population about which there is little ecological knowledge. From 2003-2006 we examined the population's size and composition, health, food habits, and spatial ecology. Antler and body measurements of individuals were relatively smaller than those from other populations. Density estimates ranged from 14-24 deer/mi.^{2} and the sex ratio was estimated at 1.1 bucks to 1 doe. No clinical signs of disease were noted, and overall the population was in good health. Parasite burdens were low. Parasite species were similar to those found in white-tailed deer with the exception of two abomasal nematodes. Fallow deer foraged on a wide variety of food items, preferring grasses and mast. Data from deer instrumented with global positioning system (GPS) collars indicated an average adult female home range of 317.8 acres. Male home ranges were more variable, ranging from 138.8 to 865.3 acres. No general patterns of habitat preference were observed among deer. Fallow deer have adapted well to the barrier island ecosystem and competitive advantages apparently have helped to exclude native white-tailed deer. However, the population likely has exceeded carrying capacity for LSSI and a reduction in herd size may be warranted.

NOTES:

11:50 a.m. **Lunch - Ballroom C**

Technical Session VI: Harvest Management – 1 – Ballroom A & B

Moderator: Dr. Steve Demarais, Professor, Mississippi State University

Tuesday, 1:30 p.m. Announcements/Door Prizes

Tuesday, 1:35 p.m.

***Mississippi's Deer Records Program*. Rick Dillard - United States Forest Service**

Other than bucks qualifying for national records books (Boone & Crockett Club, Pope & Young Club), no formal records existed in Mississippi on the harvest of trophy white-tailed deer prior to 2001. In an effort to meet the growing demand from hunters on providing this information, the Mississippi Wildlife Federation and the Mississippi Department of Wildlife, Fisheries & Parks (MDWFP) created the Magnolia White-tailed Deer Record Program. Minimum scores for entry were determined by a panel of wildlife biologists and set at 125 – Typical; 155 – Nontypical. Antler measurements are taken by trained measurers at scoring sessions according to the Boone & Crockett scoring system. Other data collected from the scoring sessions includes: county of harvest, season of harvest, method of harvest, soil physiographic region, and land management status. Data are entered and stored in a Microsoft Access database. Net scores and gross scores are generated for each buck entered. Hunter name, county of harvest, net score, gross score, and trophy photo are posted on the MDWFP website for public viewing.

From 2001-2007, a total of 84 scoring sessions were held in various locations across the state, in which over 4,300 bucks were scored. Of this total, over 2,800 met the minimum entry requirements. Season of harvest dated back as far as 1895. Total entries for each harvest year gradually increased, peaking in 2001, and then showed a slight decline. Total entries were generally higher in Delta and Upper Thick Loess soil physiographic regions.

NOTES:

Tuesday, 1:55 p.m.

Trends in Deer Hunting and Management in the Coastal Plain of South Carolina. **Charles R. Ruth - South Carolina Department of Natural Resources**

The Antlerless Deer Quota Program (ADQP) is South Carolina Department of Natural Resources' private lands deer management program. With approximately 1,700 properties totaling 3.7 million acres, the program encompasses about 40% of the deer habitat in the coastal plain. In January 2006 program cooperators were surveyed to determine hunting and management trends in the region.

Survey response rates were 77%. Still-hunting (87%) was used on more properties than dog hunting (13%). Though no enforceable buck bag limits exist in the region, 69% of cooperators felt there should be a bag limit and 11% of those not favoring a limit indicated that only mature bucks should be harvested. Bucks were selectively harvested on 79% of properties and for 7 years average duration. Food plots were used on 83% of properties, averaged 1.8 ac./plot, made up 1.5% of the habitat, and extrapolated to 187,000 ac. region wide. Cool season plantings were used more frequently (55%) than warm season (45%). Feed/bait (corn) was used on 94% of properties and averaged 18 locations/property, 7.5 months/year, 34,600 lbs/property, 1,200 lbs/deer harvested, and $94.50 deer/harvested at $4.50 bu. On the average, one bait station is located every 422 linear yards. A deer home range of 1 mi^2 would contain an average of 5 bait stations. If feed/bait accounts for 50% of the daily diet, this rate of feeding could support 70 deer/mi^2 for 7.5 months annually. Extrapolating survey results to the region yields 80,000 bait stations, 2.33 million bushels of feed, and feed costs of $10.4 million. Implications to population and harvest management will be discussed.

NOTES:

Tuesday, 2:15 p.m.

Tagging Deer Again in Louisiana. **R. Scott Durham and David Moreland - Louisiana Department of Wildlife and Fisheries**

A two dollar Big Game License was created in 1960 and along with it came a deer tagging and reporting system. Tagging was supposed to provide deer managers with the total deer harvest, however hunters did not report their harvest and a paper license system made it difficult to identify deer hunters who did not report. Tagging was eliminated in 1973 and a game harvest survey was developed. Interest in older aged bucks and quality deer management began to increase in the late eighties and Louisiana hunters once again wanted a system to regulate the buck harvest. The legislature passed a law that would allow deer tagging if there was a buck limit. A three buck limit was established for the 2006/07 deer season and hunters were required to document their harvest on a deer tag harvest card. This simple introduction to deer tagging provided information on 77,000 harvested deer and the department moved forward with a mandatory tagging and reporting program for the 2007/08 season. Unfortunately the license contractor was unable to develop the program and have it working correctly prior to the season, therefore tagging and reporting were done on a voluntary basis. It is anticipated that tagging and reporting will provide harvest data at the county and regional level that has not been available from the annual harvest survey.

NOTES:

2:35 p.m. **Break – Ballroom C**

Technical Session VII: Harvest Management – 2 – Ballroom A & B

Moderator: Chris McDonald, Deer Program Biologist, Mississippi Department of Wildlife, Fisheries and Parks

Tuesday, 2:55 p.m. Announcements/Door Prizes

Tuesday, 3:00 p.m.

Is the 3-point Antler Restriction in Arkansas Producing Bucks with Higher Quality Antlers?
Don White, Jr. - University of Arkansas and M. Cory Gray - Arkansas Game and Fish Commission

In 1998, the Arkansas Game and Fish Commission implemented a 3-antler point restriction (3APR) statewide to increase the survival of yearling bucks and improve recruitment of bucks into older age classes. It was assumed antler quality of harvested bucks would subsequently increase as the number of older bucks in the population increased. Although antler-based harvest criteria are widely used in the southeastern U.S., their effectiveness in achieving management objectives is typically not well studied. In this study, we quantified the effects of the 3APR on age composition and compared cohort antler quality of bucks harvested before implementation of the 3APR (1981-1997) and after implementation (1999-2006) within 4 physiographic regions in Arkansas: Ozark Highlands, Ouachita Mountains, West Gulf Coastal Plains, and Mississippi Alluvial Plains. We used chi-square tests to determine whether proportions of harvested 1.5-, 2.5-, and ≥3.5-year-old bucks differed between time periods. Proportions of all age classes differed between time periods in all 4 regions. A 3-factor ANOVA of the effects of region, age class, time period, and their interactions on mean antler quality showed antler quality within region, age class, and time period was not the same. Antler quality within region and age class was dependent on time period. Antler quality within region was independent of age class, however. Mean antler quality in all regions differed by age class. The 3APR in Arkansas seems to be achieving the management objectives we studied. We suggest, however, that these results be viewed with caution. Harvest data are potentially biased; they may not accurately reflect standing herd composition.

NOTES:

Tuesday, 3:20 p.m.

Experimental Antler Restriction Regulation in the Post Oak Savannah Ecological Area of Texas. **Norman D. Forrester, Bob K. Carroll, Royce Jurries, Greg Pleasant, Len G. Polasek, Kerry Peterson, and Mary Ann Schubert - Texas Parks and Wildlife Department**

Ten years (1991-2001) of white-tailed deer harvest data collected in the Post Oak Savannah ecological area indicated that about 80% of the bucks harvested annually were ≤2.5-year-old. Restricting the harvest pressure on 1.5 and 2.5-year-old cohorts could improve the age structure of the buck herd while increasing hunter opportunity and recreation. Texas Parks and Wildlife Department's (TPWD) Oak-Prairie District staff explained the need for antler restrictions at wildlife management association meetings and public seminars in order to gain the public support needed prior to implementation. After receiving positive feedback from the public, TPWD Commissioners voted to implement a 3-year experimental antler restriction regulation in 6 proposed counties within the Post Oak Savannah ecological area, from 2002-2005. The antler regulation defined a legal buck as one that had an inside spread of ≥13 inches, or ≥1 unbranched antler, or ≥6 points on one side. Data was collected by TPWD staff at voluntary check stations within the 6 experimental counties over the 3-year period to evaluate the results. Overall statewide harvest data indicated a 38% decrease in the buck harvest in the 6 experimental counties the first year, and a 93% increase the second year of the experiment. Hunter opportunity was increased. By the third year, the harvest of ≤2.5-year-old bucks declined to 29% while the harvest of ≥3.5-year-old bucks increased to 71%, shifting the harvest away from the younger age-classes.

NOTES:

Tuesday, 3:40 p.m.

***Effects of Alternative Hunting Regulations on Antlerless Deer Harvest in Minnesota*. Marrett Grund - Minnesota Department of Natural Resources**

I examined deer harvest data associated with traditional and alternative hunting regulations being tested in Minnesota. In general, hunters could harvest only 1 antlered deer (>3" spike) and up to 5 antlerless deer per year under traditional regulations. Alternative regulations included: 1) an antlerless-only hunting season that occurred 3 weeks prior to the regular firearms deer season, 2) a 3-points-to-a-side antler-point restriction regulation that occurred during the regular firearms season, and 3) an earn-a-buck regulation that occurred during the regular firearms season. I found hunters participating in the antlerless-only season and earn-a-buck regulation study areas were more willing and able to harvest multiple antlerless deer. Antlerless harvest projections associated with these 2 hunting regulations were highest of those I investigated. However, a previous study conducted in Minnesota indicated that only 57% of hunters were willing to participate in an early antlerless-only season. Accounting for this level of hunting effort, antlerless-only season harvest projections remained 14-20% higher than traditional regulations. Earn-a-buck antlerless harvest projections were 60-86% higher than traditional regulations. Antlerless harvest projections associated with antler-point restriction regulations were comparable to traditional regulations during this study, which indicates that Minnesota hunters did not harvest an antlerless deer instead of a young buck. These results suggest early antlerless-only seasons may be effective in management units that require slight increases in antlerless harvests, but earn-a-buck regulations will be necessary in units that require marked increases in antlerless harvests to achieve harvest objectives.

NOTES:

Tuesday, 4:00 p.m.

Management Implications Associated with Hunter Preferences toward Alternative Hunting Regulations in Minnesota. **Lou Cornicelli - Minnesota Department of Natural Resources, David Fulton - Minnesota Cooperative Fish and Wildlife Research Unit, and Marrett Grund – Minnesota Department of Natural Resources**

Recreational hunting is the primary tool to manipulate deer populations. In some areas of Minnesota, the number of antlerless deer harvested by hunters under the current seasonal framework has not been adequate to reduce deer densities toward population goals. As a result, we surveyed hunters to assess preferences toward regulations that may be more effective at increasing the numerical antlerless deer harvest using a choice survey design. Using the choice survey design, hunters were required to rank hunting regulations under different management scenarios that we presented in the survey. We found hunters supported early antlerless-only seasons and ranked early antlerless-only seasons higher than other hunting regulations that we presented in the survey. However, hunters ranked antler-point restriction and earn-a-buck regulations at relatively high levels when we presented regulations that could be used in deer population reduction management scenarios. Our findings suggest implementing early antlerless-only seasons would be a logical first step toward managing overabundant deer populations followed by antler-point restriction or earn-a-buck regulations. Based on findings derived from the choice survey, we believe that a public outreach effort may be required if earn-a-buck regulations are implemented as hunter support for this regulation was relatively low. To maintain long-term hunter satisfaction, we speculate that implementing a regulation that protects bucks may be a necessary management component while managing deer densities at prescribed goal levels.

NOTES:

7:00 p.m. **Banquet – Ballroom A&B**

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 its 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 Low-lands (West Gulf Coastal Plain, Mississippi Alluvial Plain and Crowley's Ridge Natural Divisions). General vegetation in the Ozarks, Ouachitas, West Gulf Coastal Plain, and Mississippi Alluvial Plain divisions is upland hardwood and bottomland hardwood, respectively. Crowley's Ridge is forested with upland and bottomland hardwood types. The state is still classed as rural with a total human population of less than 2.5 million. Eighty-nine percent of the total land base is privately owned.

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

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

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

Starting in 2001, a biological data collection initiative was implemented. Recently biological data collection is at or near 10% of total harvest.

DELAWARE

At 1,954 square miles, Delaware is the second smallest state in the United States (Texas has counties that are larger than all of Delaware). While Delaware may be small in area, it is very densely populated. In 2005, Delaware was the 6th most densely populated state at 432 people/square mile. Delaware is divided into 2 physiographic regions, the Piedmont and Coastal Plain. Excluding the developed areas, the landscape in Delaware consists primarily of agricultural lands interspersed with small woodlots. These combinations create a unique situation for managing white-tailed deer (*Odocoileus virginianus*).

During the first part of the 20th century, over hunting and habitat destruction eliminated many of the deer in Delaware. The population eventually rebounded without any restocking efforts, and the first season was held on January 1st, 2nd, and 3rd, 1954. A total of 505 deer were harvested during the 3 day either sex season, with the heaviest being a 225 pound 1 ½ year old buck. Unlike most states, Delaware has maintained an either sex deer season since its inception. An aerial infrared survey in December 2005 indicated the statewide deer population was approximately 50,000 deer before the 2005/06 hunting season. Deer densities in the 17 deer management zones ranged from 18.8 to 145.4 deer/square mile of deer habitat. The median deer density was 60.5 deer/square mile of deer habitat. Currently, 14 of the 17 deer management zones are above the Division's population goal.

Throughout much of the state the deer population has exceeded the cultural carrying capacity so liberal bag limits and seasons have been established. To promote antlerless harvest, a Delaware hunter may harvest an unlimited number of antlerless deer and only 2 bucks. However, 1 of the bucks must have an outside spread = 15 inches. The current seasons are as follows: Archery – September 1st through January 31st; Muzzleloader – 8 days in October and 6 days in January; Shotgun – 8 days in November and 8 days in January. To increase the harvest of antlerless deer, every Friday, Saturday, and Monday in October, and 8 days in December are open to antlerless deer hunting with a shotgun. The Saturday before the opening of the November shotgun season is set aside for youth hunting only. During the 2005/06 season Delaware held its first handgun season in early January.

During the 2005/06 season Delaware hunters harvested 13,670 deer. This marked the second all-time harvest for the state (the previous season was #1). The increase in harvest is attributed to the addition of antlerless only days in October. Nearly 50% of the total deer harvest occurred during the 8 day November shotgun season. Since the 2001/02 season, at least 50% of the statewide harvest has been comprised of does, and the trend continued this past season (54.8%). Recently, the Delaware Division of Fish and Wildlife went through some major personnel changes within its Game Section. As a result, 2 new positions were created, an overall Game Program Manager and a Game Mammal Biologist. Due to the additional staff, data collection and public outreach efforts have been increased. While Delaware is not part of the Southeast Section of The Wildlife Society, Delaware petitioned to become a member of the Southeast Deer Technical Committee and was accepted into the group in July 2006. Delaware is currently in the

early stages of developing a Strategic White-tailed Deer Management Plan and the hope is to have this document completed in 2007. The purpose of this plan is to maintain a healthy deer population that meets the needs of the people, but is also in line with what the environment can support.

FLORIDA

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

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

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

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

GEORGIA

Data on legally harvested white-tailed deer (Odocoileus virginianus) were compiled from July 1, 1978 through June 30, 2003. Population models were used in conjunction with hunter harvest estimates to calculate population size. Specific objectives were to determine population levels,

monitor condition indices, and disease frequency in the state as well as for individual physiographic provinces, and deer management units (DMU). Included in this report are data from 1978-2002 for the statewide population.

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

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

According to model estimates, the statewide population averaged slightly more than 1.2 million deer over the 10- year period 1993-2002 with peaks occurring in 1991 (1.31 million), 1997 (1.39 million) and 2000 (1.31 million). Previous estimates had indicated that the statewide population was declining after the peak in 1991; however, since 1995 the population has shown an increase in 4 of the 8 years through 2002. Statewide the percent does in the harvest ranged from 48.3% to 63.3% over the last 10 years, and from 22.0% to 63.3% for 1978-2002. Percent does in the harvest for 2002¬2003 (63.3%) was higher than the 10-year average (53.1%). Despite this high figure for percent does, total doe harvest for the 2002 season was similar to recent years. However, the adult buck harvest for 2002 was 30% lower than in 2001 and was 36% lower than the 15 year average (96,757 vs. 150,723). This represents the largest one-year decrease in adult buck harvest on record. This likely is the result of the addition of a "4 points on one side" antler restriction. The adult buck harvest of 96,757 was 36% and 32% lower than the 15 and 20 year averages respectively. Further, the 2002 antlered deer harvest represents only 24% of the total harvest. This is the smallest proportion of the harvest recorded for antlered bucks in the 25 years of this study. The effects of this decrease in antlered harvest are unknown. The assumption is

that many of the bucks that were not harvested as a result of the 4- point restriction will be available for harvest in future seasons. It is unlikely that the harvest of these bucks in subsequent seasons will offset the total decrease seen in the current harvest. However, if these passed over bucks are eventually harvested, they should be of somewhat better quality in terms of antler development.

KENTUCKY

Nestled among the Southeast, Midwest and Northeast, Kentucky is rapidly becoming known for its high quality deer herd. We have several luxuries in Kentucky including high quality soil, extensive agriculture and enthusiastic hunters. But the real reasons Kentucky's deer herd is in such good shape are timing and a little good luck. Restocking of whitetails in Kentucky was completed in 1999, much later than our southern counterparts. Therefore, Kentucky is dealing with a relatively young deer herd. Numbering about 800,000, Kentucky's deer population is well below carrying capacity and we intend to keep it that way. We have learned much from our neighbors: stay on top of herd growth, or you may never get control. Kentucky has promoted and instituted liberal antlerless harvest for over 10 years. In fact, 30% of the state has an unlimited bag limit on 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" covers 4 physiographic regions – Coastal Plain, Piedmont, Ridge & Valley and the Appalachian Plateau. Forests cover 46% of the landmass. Woodlands vary from the northern hardwoods of the extreme western mountainous section of the state to the Atlantic Coast loblolly pine forests growing just above sea level adjacent to marshlands. Even with increasing development, agriculture remains Maryland's largest industry. Farming includes poultry, grain crops, truck crops, sod farms, nurseries and orchards.

By 1900 Maryland's deer population survived only in the remote western mountain sections. Habitat destruction and over hunting eliminated deer from the rest of the state. Restocking of deer began in the early 1900s when deer from Michigan, Pennsylvania and Wisconsin were released. Deer restocking accelerated after World War II with deer relocated from Aberdeen Proving Grounds, a U. S. Army weapons testing center located in Harford County Maryland. Maryland's first deer season opened in the late 1920s with limited hunting in the remote Western Maryland. Mandatory check stations opened in 1931 with 31 deer taken in western Maryland.

The first either sex deer hunting occurred in 1957. By 1960 the entire state opened for deer hunting except in Montgomery County.

Maryland currently has two Deer Management Regions for deer hunting regulations. The far western mountainous counties of Garrett and Allegany, with high hunting pressure and lower deer productivity, have 2 deer bag limits for each season (Bow, Firearm, and Muzzleloader). One antlered deer and 1 antlerless deer may be taken for each season. Antlerless harvest is also controlled by either sex days. The other Deer Management Region consists of the remaining 21 counties. Ten antlerless and 2 antlered deer may be taken in each deer hunting season. Two antlerless deer must be taken before a second antlered deer is hunted during each season. Archers have no bag limit for antlerless deer within a 5 county Suburban Deer Archery Zone.

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

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

Maryland's rural deer population appears to have stabilized and declined in some locales. The antlered buck harvest has declined in the past five years. Liberal antlerless bag limits and liberal deer crop damage regulations have helped to stop the rapid deer population growth in most rural Maryland landscapes.

MISSISSIPPI

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

The deforestation of the early 20th Century occurred throughout the eight physiographic regions of Mississippi. Rural, subsistence-level agriculture briefly became the dominant land use practice. But, subsequent second-growth forests created ideal conditions for exponential herd expansion. Currently, forested lands cover 20 million acres, or 66%, 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 is 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 decreased to 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.

For more information on deer management in Mississippi visit www.mdwfp.com/deer.

MISSOURI

Missouri has five distinct physiographic provinces. The Glaciated Plains, characterized by rolling hills and deep glacial till and loess soils, lies north of the Missouri River. Extant vegetation includes some native prairie and deciduous forest; however, much of the region has been altered by farming. The Ozark Plateau, located in southern Missouri, has thin soils and rocky terrain. Most of the area is forested with an oak-hickory cover type dominating and shortleaf pine common in the southeastern portions. Between these 2 largest provinces lie the Ozark Border and Osage Plain transition provinces. The Ozark Border is similar to the Ozark Plateau; however, its soils are richer and more productive. The Osage Plains is chiefly prairie in nature; however, most native prairie has been converted to cool season pastures. The Mississippi Lowland province, located in southeastern Missouri, is best described as a broad flat alluvial plain under intensive agriculture, with a small amount of bottomland hardwood forest.
Ninety-three percent of Missouri is in private ownership. Average farm size ranges from 183 acres in the Ozark Border to 484 acres in the Mississippi Lowland. The amount of land in crops varies from a low of 8% in the Ozark Plateau to 83% in the Mississippi Lowland. Leasing for hunting rights is uncommon but increasing throughout Missouri. Generally the better deer habitat occurs north of the Missouri River, although portions of the Ozark Border and Glaciated Plains offer excellent habitat. Deer densities, growth potential and reproductive rates are highest in these 3 regions. Deer abundance in the Ozark Plateau varies with habitat and hunter densities. Deer numbers are typically lower in the southeast Ozarks where productivity is lower and illegal harvest is high.

The history of deer in Missouri is similar to that in most Midwestern states. Prior to settlement, deer were abundant but populations declined rapidly from habitat loss and unrestricted harvest. In 1925 it is estimated there were only 395 deer left in the state. An aggressive program of public education, enforcement, reintroductions, and land acquisitions was successful in restoring the deer and in 1944 the first modern day deer season was held. It was a bucks-only season in a limited number of Ozark counties and 535 deer were taken. In 1951, the first any-deer season was held. Other major changes include the implementation of deer management units in 1970, an any-deer quota system in 1975, and a bonus antlerless-only permit system in 1987.
Deer herd management in Missouri is accomplished on a unit basis. Quotas of permits that allow the harvest of antlerless deer are established annually for each of 57 management units. Antlered-only permits are unlimited. Quotas are based on population modeling, harvest statistics from mandatory check-ins, conservation agents' perceptions of populations and crop damage

reports. Stabilization of deer populations in most parts of Missouri is desirable and emphasis in recent years has been on increasing doe harvests through liberal quotas.

NORTH CAROLINA

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

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

The 2006 pre-season population estimate was 1.3 million deer. During the 2006-07 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 tall grass, mixed grass and short grass prairies occurring east to west. Sand sage and shinnery oak grasslands are common along the western border and in the panhandle.

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

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

SOUTH CAROLINA

South Carolina's deer herd reached an extremely low point around the turn of the last century with deer becoming essentially non-existent in the piedmont and mountains (the upstate). Fortunately there were good residual populations associated with the major rivers in the coastal plain. Restoration efforts began in the 1950's and involved the capture and relocation of approximately 314 deer from the coastal plain to the upstate. All restocking efforts utilized native deer. Over the last 20 years, changes in agriculture and more importantly, changes in

forestry related activities have created exceptional deer habitat in most parts of the state. Currently, huntable populations exist in all 46 counties and many areas have over 50 deer per square mile and annual harvest rates of around 20 deer per square mile.

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

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

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

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

TENNESSEE

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

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

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

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

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

TEXAS

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

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

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

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

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

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

Additionally, TPWD biologists may make recommendations on management activities such as livestock management, vegetation management, watering devices, and the like. The biologist will approve a wildlife management plan that considers all aspects of management and considers the effects of the management on other wildlife species as well as deer. The effect of the deer herd on the native habitat is the prime consideration for deer-harvest recommendations. If a landowner fails to make progress toward the herd and/or habitat objectives, that property may be dropped from the program in succeeding years until significant progress has been made. While there is no minimum acreage required for the Managed Lands Deer Permit program, small land holdings are not expected to be enrolled because of the strict limitations on the number of bucks that may be harvested. Properties under "deer-proof" fence are eligible, but a high fence is not required. Small landowners are encouraged to join together in a cooperative effort to apply for MLD Permits. In that case, permits are issued to the cooperative's officers, who are then responsible for distributing them fairly to the participating landowners. Landowners are encouraged to practice good management, regardless of the size of the place or the amount of money they have to invest in expensive management tools such as fencing or supplemental feeds.

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

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

VIRGINIA

The statewide deer kill during the 2005 hunting season was 215,082 (101,041 antlered males, 20,403 male fawns, 93,638 females (43.5%)). The archery, crossbow, and muzzleloading deer kill were 17,291 (8%), 5,476 (<3%) and 49,356 (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 1,200 check stations located statewide. The mandatory check station system has been in operation continuously since 1947 and is operated by volunteers. In fall 2004, a telephone checking option was added and in fall 2006 an internet checking option was also added. The deer kill by county by year dating back to 1947 can be seen

on the Department's web site at
www.dgif.virginia.gov/hunting/va_game_wildlife/deer_harvest.asp.

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

Two distinct season frameworks characterize general firearms deer hunting, which begins the Saturday prior to the third Monday in November. East of the Blue Ridge Mountains, the firearms season runs through the first Saturday in January (43 days). West of the Blue Ridge and in the southwestern Piedmont, the firearms season is 13 days long. During the firearms season, either-sex deer can only be taken on prescribed either-sex days. West of the Blue Ridge the bag limit for all deer hunters (archers, muzzleloaders, and general firearms hunters) is 1 per day, 5 per season, three of which must be antlerless. Also during the early muzzleloading season west of the Blue Ridge, hunters are limited to one antlered buck. East of the Blue Ridge the bag limit for all deer hunters (archers, muzzleloaders, and general firearms hunters) is 2 per day, 6 per season, three of which must be antlerless. Bonus permits (for antlerless deer only) allow hunters to exceed the season bag limit statewide on private land(s) and designated public areas. No deer hunting is allowed on Sunday in Virginia.

In addition to the standard county seasons and bag limits, Virginia has several site-specific private land deer management programs including the deer management assistance program (DMAP) and the damage control assistance program (DCAP). Both programs were initiated during the 1988 season and continue to achieve wide acceptance. During the 2005 season, there were 837 DMAP cooperators encompassing 1.5 million acres in 92 counties. These DMAP cooperators were issued a total of 28,303 antlerless tags and reported a total deer kill of 23,517. Biological data is collected from all these animals. Also during the 2005 deer season, there were 1,276 DCAP cooperators comprising 366,000 acres. These DCAP cooperators were issued 12,918 antlerless tags and reported a kill of 4,169 antlerless DCAP deer.

Deer farming is no longer permitted in Virginia and only one grandfathered commercial fallow deer farm remains in business. Also, since 2001 high fencing (>=61 inches in height) of deer on private land is no longer legal. About twenty-three captive cervid facilities holding approximately 500 animals, which are mostly petting zoo type operations, are under Department regulation (no movement, mandatory tagging and testing, annual inventory, etc.). In fall 2006, a regulation was enacted making it illegal to feed deer statewide from September first through the first Saturday in January. Lastly, insurance company estimates indicate that there are approximately 40,000 deer vehicle collisions annually in Virginia. The Department's deer management plan was updated and revised using a stakeholder advisory committee during 2005-06. It can be found on the Department's web site at www.dgif.virginia.gov.

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 majority of the Commonwealth of Virginia, current deer management objectives call for the deer herd(s) to be stabilized at their current level.

WEST VIRGINIA

West Virginia, known as the "Mountain State", lies within the Allegheny Mountain Range. It is comprised of 3 major physiographic regions. The Eastern Ridge and Valley Section found in the far eastern portion of West Virginia is made up of oak-pine forests and has a drier climate. The Allegheny Mountains and Uplands make up the central portion of the state, and are comprised of a northern forest type with twice the rainfall of the eastern region. The remaining area, which is the largest in size, is the Western Hills Section. This section contains the Monongahela-Upper Ohio Province to the north and the Cumberland Mountains to the south. The region is characterized by the central hardwood forest type which is predominantly oak-hickory.
The average elevation of the state is higher than any other state in the east. The highest point in the state is Spruce Knob (4,862 feet), while the lowest is where the Potomac River flows out of West Virginia at Harpers Ferry (247 feet). Most of West Virginia is characterized by a branched (dendritic) drainage pattern.

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

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

West Virginia contains three national forests: the Monongahela, by far the largest, covering 901,678 acres; the George Washington, the second largest in the eastern portion of the state, covering 104,861 acres, and the Jefferson in southeastern West Virginia which covers 18,400 acres. In addition to this public land, the state owns or leases an additional 437,000 acres.
Deer in West Virginia reached their lowest level about 1910, following large scale logging operations and market hunting. Restocking programs were initiated in 1923 on a small scale, but as moneys were made available in 1939, restocking of deer escalated tremendously. Stocking of deer is no longer practiced in West Virginia with the exception of occasional releases of orphan animals from the Wildlife Center.

West Virginia sportsmen have experienced just about every type of season imaginable in the past, from bucks-only, to hunter's-choice, to permit hunting. In 1973, an antlerless deer permit system was established. From 1945 through 2003, 4,454,356 deer have been recorded as harvested in West Virginia. In 1970, the bag limit was 2 deer. Today, resident hunters may take

as many as 9 deer. West Virginia offers a wonderful opportunity for deer hunter recreation and, with a progressive program, deer hunting in the mountains should remain excellent in the future.

APPENDIX II

STATE DEER HARVEST SUMMARIES

Table 1. Southeastern state deer harvest summaries for the 2006-2007 or most recent available season.

State	Land Area (sq. mi)	Deer Habitat (sq. mile)	Deer Habitat (% Total)	Percent Forested	% Land Area Public Hunting	Harvest Male	Harvest Female	Harvest Total
AL	51,628	48,014	93	71	5	215,400	221,500	436,900
AR	52,609	44,718	85	53	12	102,775	61,179	165,663[10]
DE	1,954	714	36	15	8	6,222	8,140	14,401
FL	51,628	29,280	50	45	16			
GA	57,800	37,181	64	64	6	125,332	194,045	319,377
KY	40,395	39,654	97	59	9	82,153	76,750	158,903
LA	41,406	26,562	64	52	4	107,360	87,840	195,200
MD	9,837	8,766	89	46	4	43,925	48,005	91,930
MO	69,561	21,396	31	31	4	171,051	150,778	321,829
MS	47,296	31,250	66	66	6	144,118	141,012	285,130
NC	48,794	35,312	72	58	6	146,779	95,116	241,895
OK	69,919	37,425	54	19	2	57,614	42,988	100,602
SC	30,207	21,920	73	63	7.5	115,917	105,403	221,320
TN	42,246	25,770	61	49	9	104,006	78,008	182,014
TX	261,914	152,730	58	40	<2	251,772	197,258	449,030
VA	39,675	37,232	94	66	9	120,550	97,225	223,775
WV	24,064	22,889	95	79	9	90,473	46,702	137,621
Avg or Total	940,933	620,813	69.5	51.5	6.9	1,885,447	1,651,949	3,545,590

Table 1. Continued.

State	Harvest/sq. mi. Deer Habitat	Method of Data Collection[1]	Estimated Pre-season Population	Length of Season (Days)[2]			Method of Setting Seasons[3]	% Land Area Open to Dog Hunting
				Archery	Black Powder	Firearms		
AL	9.1	A,B,C,I	1,750,000	111 (C)	22 (A,B,C)	78 (A,C)	A,B	70
AR	3.7	A,C	750,000	151 (C)	12 (C)	48 (C)	A,B	70
DE	20.2	A	50,000	131 (C)	14 (A,B)	35 (A,B)	A,B,C	0
FL		B		30	9	72	A,B	20
GA	8.4	A,C,D,E	1,021,000	115-146 (A,B,C)	80-95 (A,C)	73-88 (C)	A,B	30
KY	4.0	D,F,G	900,000	136 (C)	11 (A,B)	10-16 (C)	A,B,C	0
LA	7.3	A,B,C,H	750,000	123(C)	14(A,B)	65	A,B,C	80
MD	10.5	B,C,D,F,G	234,000	87 (C)	3+9 (A), 13 (B)	13 (A), 2 (B), + 1 Jr. day	A,B,C	0
MO	15.0	B,C,D,F,G	1,500,000	98	10	25	A,B	0
MS	9.0	A,B,C	1.75-2 million	50 (A), 12(B)	14 (A),12 (B)	47	A,B,C	90
NC	6.9	A,B,C,D	1,265,000	24-54	6	18-68	A,B,C	50
OK	2.7	A,C, E	500,000	107	9	16	A,B	0
SC	10.5	A,B,C	725,000	16 (A)	10 (A)	70-140	A,B,C	60
TN	6.7	A,D	900,000	52	14	39	A,B,C	0
TX	2.9	B,C	3.0-3.2 million [9]	30	9	81-94	A,B	0
VA	6.0	A,B,C,D,F	~950,000	36-66	12-24	13-43	A,B	55
WV	6.0	A	660,000	69 (C)	6 (C)	22 (C)	A,B,C	0
Avg. or Total	8.1		16.70 – 17.15 million					30.9

Table 1. Continued.

State	No. of Hunters[4]	5-Year Trend	Hunting License Fees (Full Season)		Tagging System		
			Resident	Non-Resident	Physical Tag? License Tag? None?	Mandatory? Volunteer? None?	Bonus Tags Available?
AL	207,500	Stable	$24	$275	License Tag	Mandatory	N/A
AR	300,000	Stable	$10.50 – 25	$100 – 300	License Tag	Mandatory	Female/Mgt buck
DE	18,000	Down	$25	$130	Physical Tag	Mandatory	2 Antlered, Unlimited Antlerless
FL	150,000	Stable	$12	$151	Some WMA's	Mandatory	No
GA	241,971	Down	$19	$210	License Tag	Mandatory	WMA'S
KY	271,000*	Stable	$40	$165	License tag/ Hunter Log	Mandatory	Yes
LA	160,500	Up	$29-50	$300-352	Physical Tag	Voluntary	None
MD	68,000	Down	$36.50	$130	Physical Tag	Mandatory	Antlered only
MO	475,000	Stable	$17	$175	License Tag	Mandatory	Antlerless only
MS	146,700	Down	$18.85-33.85	$303.85-382.70	None	Volunteer-Telcheck	Antlerless, DMAP & FMAP
NC	250,000	Down	$25	$120	License Tag	Mandatory	No
OK	170,275	Stable	$20	$201	Carcass Tag	Mandatory	No
SC	134,965	Stable	$25	$225	None	None	Yes
TN	211,000	Stable	$56	$251	Physical	Mandatory	Quota permits
TX	533,237	Stable	$23	$300	License Tag	Mandatory	MLDP permits
VA	~250,000	Down	$37-72	$152-212	License Tag	Mandatory	Unlimited on private lands, antlerless only
WV	230,000*	Down	$33	$110	Physical Tag	Mandatory	Yes
Total	3,818,148						

Table 1. Continued.

State	Mandatory Hunter Ed.	Mandatory Orange	Handguns Permitted	Crossbows Permitted	Drugged Arrows Permitted	# Fatal Hunting Accidents		Highway Kill[5]
						All	Deer	
AL	Yes	Yes	Yes	Yes	No	1	1	25,000 (B)
AR	Yes	Yes	Yes	Yes	No	0	0	Unknown
DE	Yes	Yes	Yes	DDAP farms, Handicap, Gun	No	0	0	3,500 (B)
FL	Yes	Yes	Yes	Yes	No	0	0	Unknown
GA	Yes	Yes	Yes	Yes	No	4	2	50,000
KY	Yes	Yes	Yes	Season & handicap	No	5	4	2,940 (A)
LA	Yes	Yes	Yes	Handicap & >60	No	1	1	9,700 (C)
MD	Yes	Yes	Yes	Handicap, 4 wks; >65	No	1	1	11,553(A)
MO	Yes	Yes	Yes	Yes, Firearms	No	4	2	7,660 (A)
MS	Yes	Yes	Yes	Yes, Firearms, Primitive Weapons	No	4	4	13,197 (B)
NC	Yes	Yes	Yes	Handicap	No	5	4	15,000 (B)
OK	Yes	Yes	Yes	Handicap	No			Unknown
SC	Yes	WMA's only	Yes	Gun, handicap, >62	Yes (28/46 co.)	1	0	1,466
TN	Yes	Yes	Yes	Yes	No	4	4	Unknown
TX	Yes	WMAs only	Yes	Yes	No	4	2	Unknown
VA	Yes	Yes	Yes	Yes	No	4	2	42,000 (B)
WV	Yes	Yes	Yes	Yes (Disabled)	No	1	1	15,918 (A)
Total						39	28	

Table 1. Continued.

State	Limits [6]			Antler Restrictions [7]	% Hunting Success			Avg. Leasing Fees/Acre
	Season	Antlerless	Antlered		Archery	Muzzleloader	Firearms	
AL	3/None[6]	2 per day	3	B,C (1 County, 6 WMA's)	~30	N/A	~60	$5-16
AR	4	2	2	A,C	?	?	?	$5.50
DE	None	4+	2	One buck must have a spread ≥15"	?	?	?	?
FL	2/day [6]	1 or 2/day[6]	2/day [6]	C	23	20	57	$2-4
GA	12	10	2	A (One buck must be 4-points on 1 side) B (9 counties, 11 WMA's)	26	23	52	$5-15
KY		varies	1	C (7 WMAs)	----------	35% Combined	----------	$5-8
LA	6	3	3	Yes (C)	24	34	57	$5-30
MD		Regional	Regional	No	35	34 (C)	46	$5-35
MO	None[6]	None[6]	3; 1 with firearm	Yes, 29 counties	19	-	39	$10
MS	8	3+2 Archery	3	C	48	57	70	?
NC	6	up to 6	2/4 [6]	NA	?	?	?	$2-6
OK	Gun	1	1	No	16	23	41	$2-5
SC	15+	10+	5+	C (8 WMA's)	30	31	68	$8–10+
TN		Varies	3 statewide	None	----------	43% Combined	----------	$4.50
TX	5	Up to 5	Up to 3	C	52	46	61	$6-12
VA	6 (east) & 5 (west)	6	3 (east)& 2 (west)	On 2 WMA's + 1 County	~30	~40	~50	$4
WV	11	Up to 9	Up to 3	5 WMA	54	23	45	$1-5
Avg.					33.2	34.1	51.7	

Table 1. Continued.

State	Private Lands Programs				Trailing wounded deer with dogs legal?	Supplemental feeding legal?	Baiting legal?
	Type[8]	Min. Acreage Requirements	Fee	No. of Cooperators			
AL	A	None	Yes	175	Yes	Yes	No
AR	A,C,D	200 ac	$25	A=264,D=3,000	Yes	Yes	Yes
DE	DDAP SDDAP	None	None	230 100	No	Yes	Yes
FL	A	640	None	1,250	Yes	Yes	Yes
GA	None				Yes	Yes	No
KY	B	None	No	390	Yes	Yes (except March – July)	Yes
LA	A,D	40	Yes	A=622,D=821	Yes	Yes	Yes
MD	None				Yes	Yes	Yes, Private
MO	B	5	None	150,000	Yes	Yes	No
MS	A,D	Variable	None	670	Yes, dog seasons	Yes	No
NC	A	Regional; 1,000/500	$50	135	Yes, dog areas	Yes	Yes
OK	A	1,000	$200-400	154	No	Yes	Yes
SC	A	None	$50	1,708 3.8 mil ac.	Yes	Yes	Yes 28 co. No 18 co.
TN					With officer approval	Yes	No
TX	A,B,C	None	None	~4,000 >11 mil ac.	Most of Texas	Yes	Yes
VA	DCAP DMAP	None	None	1,333; 877	Yes(east), No(west)	No (Sept 1 – first Sat in Jan)	No
WV	None				No	Yes except for CWD area	Yes except for CWD area

Table 1. Continued; footnotes.

[1] A–Check Station; B–Mail Survey; C–Jawbone Collection; D–Computer Models; E–Telephone Survey; F– Telecheck; G– Butchers/Processors, H – Harvest card submitted end of season, I – Voluntary Internet Reporting

[2] A–Early Season; B–Late Season; C–Full Season.

[3] A–Harvest & Biological; B–Departmental/Commission Regulatory; C–Legislative.

[4] Asterisk if estimate includes landowner exempted hunters.

[5] A–Actual number based on reports; B–Estimated road kill; C-State Farm estimate

[6] AL – 3 antlered bucks per season; no season limit on antlerless deer.; FL- A total of two deer may be harvested per day, both may be anterless deer during archery season and if taken with antlerless deer permits, only one/day may be antlerless during the 7-day antlerless deer season.; MO - No daily or annual limit of antlerless deer but number that can be harvested in each county varies. NC - Up to 2 bucks in those areas in the western season, northwestern season, and those areas of the central season where hunting with dogs is not allowed. Up to 4 bucks in those areas in the eastern season and those areas of the central season where hunting with dogs is allowed.

[7] A–Statewide Antler Restrictions; B–County Antler Restrictions; C–Region or Area Antler Restrictions.

[8] A–DMAP; B–Landowner tags; C–Antlered buck tags; D–Fee MAP.

[9] Texas population estimates should not be compared to estimates prior to 2005 due to changed methodology.

[10] Total harvest includes 1,709 deer of unknown sex.

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