

**37th Annual Meeting of the
Southeast Deer Study Group**
*The Politics of Deer Management-Balancing Public
Interest and Science*



sedsg.com

February 16-18, 2014
UGA Hotel and Conference Center
Athens, Georgia



UGA
DEER LAB



GEORGIA
DEPARTMENT OF NATURAL RESOURCES

WILDLIFE RESOURCES DIVISION



QDMA

**Hosted by the Georgia Department of Natural Resources, the University of
Georgia and the Quality Deer Management Association**

WELCOME

The Georgia Department of Natural Resources welcomes you to the 37th Annual Southeast Deer Study Group Meeting in Athens, Georgia.

We would like to thank the South Carolina Department of Natural Resources who hosted last year's meeting, as well as the following sponsors and donors for their generous contributions to this meeting:

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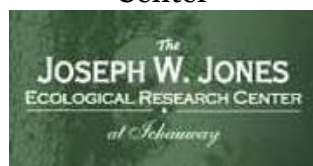


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2014 Southeast Deer Study Group Meeting
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Georgia, and the Quality Deer Management Association

COMMITTEES

MEETING ORGANIZER

Charlie Killmaster

DISPLAY and EXHIBITS – Charlie Killmaster (Chair)

FUNDRAISING – Kevin Lowrey (Chair), Brian Murphy, Charlie Killmaster, Brent Howze, Theron Menken, Will Ricks

PAPER/POSTER SELECTION – Charlie Killmaster (Chair), Kip Adams, John Bowers, Karl Miller, Lindsay Thomas, Jr.

PROGRAM and AGENDA – Charlie Killmaster (Chair), Don McGowan, Brandon Anderson

REGISTRATION – UGA Hotel and Conference Center

SITE COORDINATION – Charlie Killmaster, Barbara Marable

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 value of the white-tailed deer 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. A list of the meetings, their location, and theme are listed below. 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.

TWS PROFESSIONAL DEVELOPMENT

The 37th 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.

QUALIFYING STATEMENT

Abstracts in the Proceedings and presentations at the Southeast Deer Study Group meeting often contain preliminary data and conclusions that have not undergone the peer-review process. This information is provided to foster communication and interaction among researchers, biologists and deer managers. Commercial use of any of the information presented in conjunction with the Southeast Deer Study Group Annual Meeting is prohibited without written consent of the author(s).

Participation of any vendor/donor/exhibitor with the Southeast Deer Study Group Annual Meeting does not constitute nor imply endorsement by the Southeast Deer Study Group, the SE Section of The Wildlife Society Deer Committee, the host state, or meeting participants.

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 Em, What Are We Going To Do With Em?
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	Herds Without Hunters: The Future of Deer Management?
2010	San Antonio, TX	QDM to IDM: The Next Step or the Last Straw?
2011	Oklahoma City, OK	All Dressed Up With No Place to Go: The Issue of Access.
2012	Sandestin, FL	Shifting Paradigms: Are Predators Changing the Dynamics of Managing Deer in the Southeast?
2013	Greenville, SC	Challenges in Deer Research and Management in 2013
2014	Athens, GA	The Politics of Deer Management – Balancing Public Interest and Science

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

STATE	NAME	EMPLOYER
Alabama	Chris Cook	Alabama Department of Conservation & Natural Resources
Arkansas	Cory Gray	Arkansas Game & Fish Commission
	Ralph Meeker	Arkansas Game & Fish Commission
Delaware	Joe Rogerson	Delaware Division of Fish & Wildlife
Florida	Cory R. Morea	Florida Fish and Wildlife Conservation Commission
	Steve M. Shea	Florida Fish and Wildlife Conservation Commission
Georgia	Charlie Killmaster	Georgia Department of Natural Resources
	John Bowers	Georgia Department of Natural Resources
	Karl V. Miller	University of Georgia
	Tina Brunjes	Kentucky Department of Fish & Wildlife Resources
Kentucky	Gabe Jenkins	Kentucky Department of Fish & Wildlife Resources
Louisiana	Scott Durham	Louisiana Department of Wildlife & Fisheries
Maryland	Brian Eyler	Maryland Department of Natural Resources
	George Timko	Maryland Department of Natural Resources
Mississippi	Lann Wilf	Mississippi Department of Wildlife, Fisheries, & Parks
	Steve Demarais (Ch)	Mississippi State University
Missouri	Emily Flinn	Missouri Department of Conservation
	Jason Sumners	Missouri Department of Conservation
North Carolina	David Sawyer	North Carolina Wildlife Resources Commission
	Evin Stanford	North Carolina Wildlife Resources Commission
Oklahoma	Erik Bartholomew	Oklahoma Department of Wildlife & Conservation
South Carolina	Charles Ruth	South Carolina Department of Natural Resources
Tennessee	Chuck Yoest	Tennessee Wildlife Resource Agency
	Ben Layton	Tennessee Wildlife Resource Agency
	Craig Harper	University of Tennessee
Texas	Alan Cain	Texas Parks & Wildlife Department
	Bob Zaiglin	Southwest Texas Junior College
Virginia	Matt Knox	Virginia Department of Game & Inland Fisheries
	Nelson Lafon	Virginia Department of Game & Inland Fisheries
West Virginia	Jim Crum	West Virginia Division of Natural Resources
QDMA	Kip Adams	Quality Deer Management Association

SOUTHEAST DEER STUDY GROUP AWARDS

Career Achievement Award

1996 – Richard F. Harlow
1997 – Larry Marchinton
1998 – Harry Jacobson
1999 – David C. Guynn, Jr.
2000 – Joe Hamilton
2002 – Robert L. Downing
2004 – Charles DeYoung
2005 – Kent E. Kammermeyer
2006 – William E. “Bill” Armstrong
2007 – Jack Gwynn
2008 – (none)
2009 – David E. Samuel
2010 – Bob K. Carroll
2011 – Quality Deer Management Association
2012 – Robert E. Zaiglin
2013 – (none)

Outstanding Student Oral 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)
2008 – Cory L. Van Gilder (University of Georgia)
2009 – Michelle Rosen (University of Tennessee)
2010 – Jeremy Flinn (Mississippi State University)
2011 – Kamen Campbell (Mississippi State University)
2012 – Brad Cohen (University of Georgia)
2013 – Michael Cherry (University of Georgia)

Outstanding Student Poster Presentation Award

2010 – Emily Flinn (Mississippi State University)
2011 – Melissa Miller (University of Delaware)
2012 – Brandi Crider (Texas A&M University)
2013 – Jacob Haus (University of Delaware)

SCHEDULE OF EVENTS

Sunday, February 16, 2014

2:00 p.m. – 6:00 p.m.	Registration	Registration Desk
12:00 p.m. – 6:00 p.m.	Poster & Vendor Set-up	Hill Atrium
12:00 p.m. – 6:00 p.m.	Vendor Set-up	Pecan Tree Galleria
3:00 p.m.	Deer Committee Meeting	Upstairs, Room F/G
6:00 p.m. – 9:00 p.m.	Social/Welcome Reception	Magnolia Ballroom

Monday, February 17, 2014

7:00 a.m. – 12:00 p.m.	Registration	Registration Desk
7:00 a.m. – 8:00 a.m.	Poster Set-up	Hill Atrium
7:00 a.m. – 8:00 a.m.	Vendor Set-up	Pecan Tree Galleria
8:00 a.m. – 5:00 p.m.	Posters/Exhibitors/Vendors	Atrium/Galleria
8:00 a.m. – 9:40 a.m.	Technical Session I	Mahler Hall
9:40 a.m. – 10:00 a.m.	Break	Hill Atrium
10:00 a.m. – 10:10 a.m.	Announcements/Door Prizes	Mahler Hall
10:10 a.m. – 11:50 a.m.	Technical Session II	Mahler Hall
11:50 a.m. – 1:30 p.m.	Lunch (on your own)	
1:30 p.m. – 1:40 p.m.	Announcements/Door Prizes	Mahler Hall
1:40 p.m. – 3:00 p.m.	Technical Session III	Mahler Hall
3:00 p.m. – 3:20 p.m.	Break	Hill Atrium
3:20 p.m. – 3:30 p.m.	Announcements/Door Prizes	Mahler Hall
3:30 p.m. – 4:50 p.m.	Technical Session IV	Mahler Hall
4:50 p.m. – 6:30 p.m.	Dinner (on your own)	
6:30 p.m. – 7:00 p.m.	Social	Hill Atrium
7:00 p.m.	Shoot From The Hip	Mahler Hall

Tuesday, February 18, 2014

8:00 a.m. – 5:00 p.m.	Posters/Exhibitors/Vendors	
8:00 a.m. – 8:10 a.m.	Announcements/Door Prizes	Mahler Hall
8:10 a.m. – 9:50 a.m.	Technical Session V	Mahler Hall
9:50 a.m. – 10:10 a.m.	Break	
10:10 a.m. – 10:20 a.m.	Announcements/Door Prizes	Mahler Hall
10:20 a.m. – 12:00 p.m.	Technical Session VI	Mahler Hall
12:00 p.m. – 1:30 p.m.	Lunch (on your own)	
1:30 p.m. – 1:40 p.m.	Announcements/Door Prizes	Mahler Hall
1:40 p.m. – 3:20 p.m.	Technical Session VII	Mahler Hall
3:20 p.m. – 3:40 p.m.	Break	
3:40 p.m. – 3:50 p.m.	Announcements/Door Prizes	Mahler Hall
3:50 p.m. – 4:50 p.m.	Technical Session VIII	Mahler Hall
5:10 p.m. – 5:50 p.m.	Business Meeting	Upstairs, Room R
6:15 p.m. – 7:00 p.m.	Social	Magnolia Ballroom
7:00 p.m.	Awards Banquet	Magnolia Ballroom

Wednesday, February 19, 2014

Check-out. Tour of UGA Deer Research Facility (Limited space available, registration opportunity will be announced on Monday)

MONDAY, FEBRUARY 17, 2014

**TECHNICAL SESSION I
MAHLER HALL**

**MODERATOR: CHARLIE H. KILLMASTER – GEORGIA DEPARTMENT OF
NATURAL RESOURCES, WILDLIFE RESOURCE DIVISION**

- 8:00 WELCOME**
Dan Forster, Director, Wildlife Resources Division – Georgia Department of Natural Resources
- 8:20 THE INCREASING POLITICIZATION OF STATE FISH AND WILDLIFE AGENCIES – NAVIGATING AN UNCERTAIN FUTURE FOR SCIENCE AND MANAGEMENT**
Jon W. Gassett – Wildlife Management Institute
Guest Speaker
- 8:40 HEMORRHAGIC DISEASE: NEW VIRUSES AND CHANGING PATTERNS**
David E. Stallknecht – Southeastern Cooperative Wildlife Disease Study
Guest Speaker
- 9:00 CHRONIC WASTING DISEASE: THE POLITICAL DISEASE THAT KILLS**
John R. Fischer – Southeastern Cooperative Wildlife Disease Study
Guest Speaker
- 9:20 *RISK FACTORS FOR CRANIAL ABSCESS DISEASE IN WHITE-TAILED DEER OF GEORGIA**
Bradley S. Cohen – University of Georgia; Emily H. Belser –University of Georgia; Shamus P. Keeler –Southeastern Cooperative Wildlife Disease Study; Charlie H. Killmaster –Georgia Department of Natural Resources; John W. Bowers –Georgia Department of Natural Resources; Michael J. Yabsley – Southeastern Cooperative Wildlife Disease Study; John R. Fischer – Southeastern Cooperative Wildlife Disease Study; Karl V. Miller – University of Georgia
- 9:40 BREAK**

**TECHNICAL SESSION II
MAHLER HALL
STUDENT MODERATOR: MICHAEL CHERRY – UNIVERSITY OF GEORGIA**

- 10:00 ANNOUNCEMENTS**
- 10:10 HUNTER SATISFACTION AND PREFERENCES A PUBLICLY
HUNTED HUNTER MILITARY INSTALLATION**
Damon R. Lowery – Marine Corps Base, Quantico; Robert T. Stamps –
Marine Corps Base, Quantico
- 10:30 STONEWALL RESORT CONTROLLED DEER HUNT**
Randy L. Tucker – West Virginia Division of Natural Resources
- 10:50 CAN SUBURBAN DEER BE MANAGED WITH THE SAME
STANDARDS AS RURAL DEER?**
Philip C. Norman – Howard County (MD) Department of Recreation and
Parks
- 11:10 *INFLUENCE OF A QUALITY DEER MANAGEMENT PROGRAM
ON HUNTER KNOWLEDGE, PERCEPTIONS, AND
SATISFACTION**
Jordan S. Nanney – University of Tennessee; Allan E. Houston –
University of Tennessee; Craig A. Harper – University of Tennessee
- 11:30 *NEGATIVE HUNTER ATTITUDES TOWARDS CWD;
IMPLICATIONS FOR HARVEST AND MANAGEMENT**
Jacob M. Haus – University of Delaware; Jacob L. Bowman – University
of Delaware; Brian Eyler – Maryland Department of Natural Resources
- 11:50 LUNCH: On Your Own**

**TECHNICAL SESSION III
MAHLER HALL
STUDENT MODERATOR: JARRED BROOKE – UNIVERSITY OF TENNESSEE**

- 1:30 ANNOUNCEMENTS**
- 1:40 PUBLIC INVOLVEMENT IN DEER MANAGEMENT – A
COMPARISON AMONG STATE WILDLIFE AGENCIES**
Kip Adams – QDMA; Brian Murphy – QDMA; Matt Ross – QDMA

- 2:00 WISCONSIN DEER MANAGEMENT – PUBLIC PERCEPTIONS AND MANAGEMENT DECISIONS**
 Bob R. Nack – Wisconsin Department of Natural Resources; Kevin Wallenberg – Wisconsin Department of Natural Resources; Melinda Nelson – Wisconsin Department of Natural Resources; Dan Kaminski – Wisconsin Department of Natural Resources
- 2:20 GEORGIA’S NEXT ITERATION OF A 10-YEAR DEER MANAGEMENT PLAN**
 Charlie H. Killmaster – Georgia Department of Natural Resources; John W. Bowers – Georgia Department of Natural Resources
- 2:40 HERDS WITHOUT HUNTERS: THE FUTURE OF DEER MANAGEMENT?**
 W. Matt Knox – Virginia Department of Game and Inland Fisheries; Todd H. Holbrook – Georgia Wildlife Federation; John W. Bowers - Georgia Department of Natural Resources
- 3:00 BREAK**

**TECHNICAL SESSION IV
 MAHLER HALL**

STUDENT MODERATOR: BRADLEY COHEN – UNIVERSITY OF GEORGIA

- 3:20 ANNOUNCEMENTS**
- 3:30 *EVALUATING MATE SELECTION IN WHITE-TAILED DEER**
 Timothy J. Neuman – Auburn University; Chad Nebolt – Auburn University; Stephan Ditchkoff – Auburn University; Todd Steury – Auburn University
- 3:50 *SPATIAL USE AND MOVEMENTS OF MATURE MALE WHITE-TAILED DEER IN NORTHCENTRAL PENNSYLVANIA**
 Andrew K. Olson – University of Georgia; Michael E. Byrne – University of Georgia; William D. Gulsby; University of Georgia; Bradley S. Cohen – University of Georgia; David A. Osborn – University of Georgia; Karl V. Miller – University of Georgia
- 4:10 *SOCIAL AND ENVIRONMENTAL FACTORS DIFFERENTIALLY INFLUENCE MALE AND FEMALE VIGILANCE**
 Marcus A. Lashley – North Carolina State University; M. Colter Chitwood – North Carolina State University; Michael T. Biggerstaff – North Carolina State University; Daniel L. Morina – North Carolina State University; Chris E. Moorman – North Carolina State University; Chris S. DePerno – North Carolina State University

4:30

***NON-BREEDING EXCURSIONS BY MALE WHITE-TAILED DEER**

David B. Stone – University of Georgia; Andrew K. Olson – University of Georgia; Taylor N. Simoneaux – University of Georgia; Michael J. Chamberlain – University of Georgia; Karl V. Miller – University of Georgia

4:50

DINNER

**SHOOT FROM THE HIP SESSION
MAHLER HALL**

MODERATOR: STEVE SHEA – FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

6:30

SOCIAL – HILL ATRIUM

7:00

WHERE ARE “WE” FAILING IN RELATION TO DEER MANAGEMENT? A LOOK OF THE CURRENT STATE OF DEER MANAGEMENT BY FUTURE DEER MANAGERS

Student Panelists:

Kory R. Gann – Caesar Kleberg Wildlife Research Inst., Texas A&M University
Marcus A. Lashley - North Carolina State University
Jordan S. Nanney – University of Tennessee
Eric Michel – Mississippi State University
William D. Gulsby; University of Georgia

TUESDAY FEBRUARY 18, 2014

**TECHNICAL SESSION V
MAHLER HALL**

STUDENT MODERATOR: EMILY BELSER – TEXAS A&M UNIVERSITY, KINGSVILLE

8:00

ANNOUNCEMENTS

8:10

***IS FERTILIZATION THE “SILVER-BULLET” TO INCREASE WHITE OAK ACORN PRODUCTION?**

Jared M. Brooke – University of Tennessee; P. Seth Basinger – Dream Lake Lodge, Livingston, AL; Marcus A. Lashley – North Carolina State University; John M. McCord – Tennessee Wildlife Resources Agency; Craig A. Harper – University of Tennessee

- 8:30 *SIBLING AND PLANT COMMUNITY INFLUENCE SURVIVAL OF WHITE-TAILED DEER NEONATES**
M. Colter Chitwood – North Carolina State University; Marcus A. Lashley – North Carolina State University; John C. Kilgo – US Forest Service, Southern Research Station, SRS, SC; Kenneth H. Pollock – North Carolina State University; Christopher E. Moorman – North Carolina State University; Christopher S. DePerno – North Carolina State University
- 8:50 *DO LANDSCAPE METRICS ALTER DEER IMPACTS ON UNDERSTORY VEGETATION IN NORTHWESTERN PENNSYLVANIA?**
Dave W. Kramer – University of Georgia; Alexandro Royo – US Forest Service, Northern Research Station, Irvine, PA; Susan Stout - US Forest Service, Northern Research Station, Irvine, PA; Nate Nibbelink – University of Georgia; Karl Miller – University of Georgia
- 9:10 *DO CATTLE AND NILGAI COMPETE WITH WHITE-TAILED DEER FOR FORAGE IN SOUTH TEXAS?**
Stacy L. Hines - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Timothy E. Fulbright - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; J. Alfonso Ortega-S - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; David G. Hewitt - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Thomas W. Boutton – Texas A&M University, College Station
- 9:30 INFLUENCE OF LARGE-SCALE WEATHER PATTERNS ON BODY AND ANTLER SIZE OF MALE WHITE-TAILED DEER**
Bronson K. Strickland- Mississippi State University; P. Grady Dixon, Stephen Demarais, Nathan O. Owen, David A. Cox, Katie E. Landry, W. Mark Baldwin – Mississippi State University; Lann Wilf – Mississippi Department of Wildlife, Fisheries, and Parks
- 9:50 BREAK**
- TECHNICAL SESSION VI
MAHLER HALL
STUDENT MODERATOR: COLTER CHITWOOD – NORTH CAROLINA STATE UNIVERSITY**
- 10:10 ANNOUNCEMENTS**

- 10:20 *POPULATION ESTIMATES AND HOME RANGE SIZES OF URBAN DEER IN FAIR OAKS RANCH, TX**
Kara B. Campbell - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Charles A. DeYoung - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Randy W. DeYoung - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; David G. Hewitt - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Richard Heilburn – Texas Parks and Wildlife; Jessica Alderson – Texas Parks and Wildlife Department; Ryan Schoeneberg – Texas Parks and Wildlife Department
- 10:40 LONG-TERM REMOTE CAMERA MONITORING OF WHITE-TAILED DEER IN SOUTHERN FLORIDA: A SNAPSHOT OF UNIQUE SELECTION PRESSURES AND REGIONAL ADAPTATIONS**
Elina Garrison – Florida Fish and Wildlife Conservation Commission; David Shindle – Conservancy of Southwest Florida; James Kelly – Florida Fish and Wildlife Conservation Commission; Erin Leone – Florida Fish and Wildlife Conservation Commission; Cory Morea – Florida Fish and Wildlife Conservation Commission; Larry Richardson – U.S. Fish and Wildlife Service
- 11:00 A QUANTITATIVE SCALE TO MEASURE AWE EXPERIENCES WHILE HUNTING**
Susan T. Guynn – Clemson University; D. Moore – Clemson University; Robert B. Powell – Clemson University
- 11:20 *GETTING AN EDUCATION IN HUNTER BEHAVIOR: DOES WISDOM COME WITH AGE?**
Clint McCoy – Auburn University; Stephen S. Ditchkoff – Auburn University; Bret A. Collier – Texas A&M University, College Station; Joshua B. Raglin – Norfolk Southern Railway, Brosnan Forest, SC; Charles Ruth – South Carolina Department of Natural Resources
- 11:40 A COMPARATIVE STUDY ON THE EFFECTIVENESS OF FIXED BLADE AND MECHANICAL BROADHEADS**
M. Andy Pedersen – Naval Explosive Ordnance Disposal Division; Seth M. Berry – Natural Resources Office, Naval Support Facility Indian Head, Indian Head, MD; Jeffery C. Bossart – Naval Support Activity South Potomac, Indian Head, MD
- 12:00 LUNCH**

**TECHNICAL SESSION VII
MAHLER HALL
STUDENT MODERATOR: ALLISON KEEVER – AUBURN UNIVERSITY**

1:30 ANNOUNCEMENTS

**1:40 *FACTORS AFFECTING COYOTE DIETS IN NORTHEASTERN
NORTH CAROLINA**

Joseph W. Hinton – University of Georgia; Michael J. Chamberlain –
University of Georgia

**2:00 *COYOTE PREDATION RISK AND WHITE-TAILED DEER
FORAGING BEHAVIOR**

Michael J. Cherry – University of Georgia; Robert J. Warren – University
of Georgia; L. Mike Conner – Jones Ecological Research Center

**2:20 *COYOTE SPACE USE AND HABITAT SELECTION IN
NORTHEASTERN NORTH CAROLINA**

Joseph W. Hinton – Warnell School of Forestry and Natural
Resources, University of Georgia; Michael J. Chamberlain –
University of Georgia; F.T. van Manen, USGS Interagency Grizzly Bear
Study Team

**2:40 *A COMPARISON OF METHODS FOR ESTIMATING COYOTE
ABUNDANCE IN THE SOUTHEAST**

William D. Gulsby – Warnell School of Forestry and Natural Resources,
University of Georgia; Ben Sacks – University of California, Davis; Charlie
H. Killmaster – Georgia Department of Natural Resources; John W.
Bowers - Georgia Department of Natural Resources; James D. Kelly –
Florida Fish and Wildlife Conservation Commission; Karl V. Miller –
University of Georgia

**3:00 *COYOTE SPACE USE AND POPULATION TURNOVER IN
VIRGINIA’S WESTERN MOUNTAINS: IMPLICATIONS FOR
WHITE-TAILED DEER**

Dana J. Morin – Virginia Polytechnic Institute and State University;
Marcella J. Kelly – Virginia Polytechnic Institute and State University;
Nelson W. Lafon – Virginia Department of Game and Inland Fisheries

3:20 BREAK

TECHNICAL SESSION VIII

MAHLER HALL

STUDENT MODERATOR: CALEB HINTON – MISSISSIPPI STATE UNIVERSITY

3:40 ANNOUNCEMENTS

3:50 NON-CONSUMPTIVE EFFECTS OF COYOTES ON DEER

L. Mike Connor – Joseph W. Jones Ecological Research Center; Michael J. Cherry – University of Georgia; Keri E. Morgan – University of Georgia; Brandon T. Rutledge – Jones Ecological Research Center; Robert J. Warren – University of Georgia

4:10 EFFECTS OF COYOTE REMOVAL AND HABITAT CONDITION ON FAWN SURVIVAL IN SOUTH CAROLINA

John C. Kilgo – U.S. Forest Service, Southern Research Station, SRS, SC; Mark Vukovich – U.S. Forest Service, Southern Research Station, SRS, SC; Scott Ray – U.S. Forest Service, Olustee, FL; Christopher Shawn- U.S. Forest Service, Southern Research Station, SRS, SC; Charles Ruth – South Carolina Department of Natural Resources

4:30 RELEASING PEN-RAISED BUCKS TO INCREASE ANTLER SIZE OF WILD DEER POPULATIONS: SIMULATED LONG-TERM GENETIC AND PHENOTYPIC IMPACT

Steve Demarais – Mississippi State University; B.K. Strickland – Mississippi State University; S. Webb – Samuel Roberts Noble Foundation; C. McDonald – Mississippi Department of Wildlife, Fisheries, and Parks; T. Smith – Mississippi State University

5:10 BUSINESS MEETING – UPSTAIRS, ROOM R

6:15 SOCIAL – MAGNOLIA BALLROOM

7:00 BANQUET – MAGNOLIA BALLROOM

**POSTER SESSION
PECAN TREE GALLERIA**

***AGE-DEPENDENT SEXUAL CONFLICT IMPACTS VIGILANCE BEHAVIOR AT CONCENTRATED FOOD SOURCES**

Michael T. Biggerstaff – North Carolina State University; Marcus A. Lashley – North Carolina State University; M. Colter Chitwood – North Carolina State University; Daniel L. Morina – North Carolina State University; Christopher S. DePerno – North Carolina State University; Christopher E. Moorman – North Carolina State University

***ESTIMATING THE EFFECTS OF COYOTE REMOVAL AND WILD PIGS ON WHITE-TAILED DEER ABUNDANCE**

Allison C. Keever – Auburn University; Stephen P. Ditchkoff – Auburn University; Conor P. McGowan – Alabama Cooperative Fish and Wildlife Research Unit, Auburn University; James B. Grand – Alabama Cooperative Fish and Wildlife Unit, Auburn University

***AGE STRUCTURE AND PRODUCTIVITY OF UNMANAGED WHITE-TAILED DEER POPULATIONS IN SOUTH TEXAS**

Kory R. Gann – Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; David G. Hewitt - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Timothy E. Fulbright - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Alfonso Ortega-S - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Randall W. DeYoung - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Thomas W. Bouton – Texas A&M University, College Station; Alfonso Ortega-S, Jr. – East Wildlife Foundation; Tyler A. Campbell – East Wildlife Foundation

*** TENSAS RIVER NATIONAL WILDLIFE REFUGE DEER STUDY**

Elizabeth A. Cooney – University of Georgia; Rebecca Shuman – University of Georgia; Michael Chamberlain – University of Georgia; Karl V. Miller – University of Georgia; Scott Durham – Louisiana Department of Wildlife and Fisheries; John C. Kilgo – US Forest Service Southern Research Station, Savannah River Site, South Carolina

***LIVER COPPER LEVELS IN LOUISIANA WHITE-TAILED DEER (*ODOCOILEUS VIRGINIANUS*)**

Samira R. Elkharrash – University of Louisiana, Monroe; James M. LaCour – Louisiana Department of Wildlife and Fisheries; Kim Marie Tolson – University of Louisiana, Monroe

***EASY PICKINGS – ARE COYOTES EATING FLORIDA GAME?**

Lauren N. Watine – University of Florida; William M. Giuliano – University of Florida

***EFFECTS OF WHITE-TAILED DEER DENSITIES AND SUPPLEMENTAL FEEDING ON HEIGHT AND CANOPY STRUCTURE OF SHRUBS**

Lindsey M. Phillips - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; David G. Hewitt - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Charles A. DeYoung - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville

* Student Presenter

***HOW CAN WE MANAGE WHITE-TAILED DEER EFFECTIVELY? A MULTISTATE MODEL APPROACH**

Rebecca L. Cain – University of South Carolina

***MARK-RESIGHT USING MOTION-SENSING CAMERAS TO ESTIMATE WHITE-TAILED DEER FEED SITE VISITATION RATES**

Hank C. Birdsall - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Chase R. Currie – San Pedro Ranch, Carrizo Springs, TX; Greta Schuster – Texas A&M University, Kingsville; Timothy E. Fulbright - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Daniel R. Baca – USDA-APHIS, Zapata, TX

***MANAGING SYMPATRIC WHITE-TAILED DEER AND SIKA DEER FOR SUSTAINED HARVEST WITH DIETARY OVERLAP**

David M. Kalb – University of Delaware; Jacob L. Bowman – University of Delaware; Deborah A. Delaney – University of Delaware; Randy W. DeYoung - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville

***COMPARISON OF ACORN PRODUCTION OF WHITE OAKS AND SAWTOOTH OAKS**

Daniel L. Morina – North Carolina State University; Marcus A. Lashley - North Carolina State University; M. Colter Chitwood - North Carolina State University; Michael T. Biggerstaff - North Carolina State University; Christopher S. DePerno - North Carolina State University

***USING DEER-VEHICLE COLLISIONS TO MAP BREEDING ACTIVITY IN GEORGIA**

James H. Stickles – University of Georgia; Charles S. Evans – University of Georgia; David B. Stone – University of Georgia; Karl V. Miller – University of Georgia; Robert J. Warren - University of Georgia; David J. Osborn - University of Georgia; Charlie H. Killmaster – Georgia Department of Natural Resources

***EFFECT OF DENSITY AND SUPPLEMENTAL FEED ON WHITE-TAILED DEER (*ODOCOILEUS VIRGINIANUS*) BODY SIZE**

John H. Clark - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Nathan Cook - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Timothy E. Fulbright - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; David G. Hewitt - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Charles A. DeYoung - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Kim N. Echols - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Don A. Drager – Comanche Ranch, Carrizo Springs, TX

***LOW-COST GPS SOLUTION FOR STUDYING SPATIAL ECOLOGY OF WHITE-TAILED DEER FAWNS**

Michael J. Cherry – University of Georgia; Dana J. Morin – Virginia Polytechnic Institute and State University; Robert J. Warren – University of Georgia; L. Mike Conner – Joseph W. Jones Ecological Research Center

* Student Presenter

Monday, 8:20 AM

THE INCREASING POLITICIZATION OF STATE FISH AND WILDLIFE AGENCIES –NAVIGATING AN UNCERTAIN FUTURE FOR SCIENCE AND MANAGEMENT

Jon W. Gassett – Wildlife Management Institute

ABSTRACT: Currently, one of the greatest challenges facing state fish and wildlife agencies is the shift from a science-based management approach to one more driven by public opinion and political pressures. State fish and wildlife agencies are becoming increasingly politicized, with Directors being replaced at an unprecedented rate, state legislatures increasing their scrutiny in wildlife agency decision-making, and increasing involvement and input by outside entities (state agriculture departments, federal agencies, production-oriented industries, insurance companies, etc.). This has resulted in decreased stability of agencies and a subsequent decrease in their ability to make informed decisions based on science. One of the seven tenets of the North American Model for Wildlife Management is the use of “best science” in the management of our resources, and that tenet is under a direct attack by these influences. The motivating factors behind this push presents mid and upper-level managers with increasing levels of risk and uncertainty. State agencies must adapt to these rapid shifts in pressure to successfully blend science, policy, and common sense in order to reduce this threat to the North American Model to an acceptable level.

NOTES

Monday, 8:40 AM

HEMORRHAGIC DISEASE: NEW VIRUSES AND CHANGING PATTERNS

David E. Stallknecht – Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia

ABSTRACT: Hemorrhagic disease (HD) is caused by related orbiviruses in the bluetongue virus (BTV) and epizootic hemorrhagic disease virus (EHDV) serogroups. These viruses infect numerous wild ungulates in North America and are transmitted by biting midges in the genus *Culicoides*. White-tailed deer (*Odocoileus virginianus*, WTD) are highly susceptible to HD, but clinical disease and potential population impacts are highly variable throughout their range. In general, the disease is most severe in more northern latitudes where HD occurs sporadically and where population immunity is minimal. In contrast, areas of enzootic stability exist in areas of the Southwestern United States where high infection rates occur annually but clinical disease is rarely reported. In WTD, this variation in clinical response is believed to be associated with variation in both acquired and innate immunity. In fawns, passive immunity also may be protective but this has not been sufficiently evaluated. There is recent evidence that the epidemiology of both bluetongue and epizootic hemorrhagic disease are changing globally. In the United States (including southeastern states), multiple exotic serotypes of both BTV and EHDV have been detected since the late 1990s. Likewise, the range of HD and frequency of large regional outbreaks appears to be increasing. Potential impacts associated with these changes are not well documented or understood. Likewise, the ecological drivers behind these introductions and the changing epidemiologic patterns of HD are not adequately identified.

NOTES

Monday 9:00 AM

CHRONIC WASTING DISEASE: THE POLITICAL DISEASE THAT KILLS

John R. Fischer - Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia

ABSTRACT: Chronic wasting disease (CWD) is a fatal transmissible spongiform encephalopathy that naturally affects white-tailed deer, mule deer, elk, moose, red deer, and sika deer. CWD was known to occur in wild cervids in a portion of Colorado and Wyoming from the 1980s until 1996, when it first was found in captive elk in Saskatchewan, in 1997, when it was detected in captive elk herds in South Dakota, and in 2001, when it first was found in captive white-tailed deer. CWD was regarded as a 'western disease' until it was confirmed in wild deer in Wisconsin in 2002. To date, CWD has been found in wild cervids in 16 states, Alberta, and Saskatchewan, and in captive cervids in 13 states, Alberta, Saskatchewan, and the Republic of Korea. CWD management is confounded by several epidemiological unknowns, as well as by long incubation periods that may vary with host genotype, and by environmental persistence of the disease agent. A national CWD management plan for wild and captive cervids was published in 2002, and USDA-APHIS-Veterinary Services published a Proposed Rule for a national *CWD Herd Certification Program and Interstate Movement of Farmed or Captive Deer, Elk, and Moose* in 2003. The Interim Final Rule and accompanying CWD Program Standards were implemented in 2012, and a revised version of the CWD Program Standards is available for public comment through March 2014. Deer managers and their agencies should scrutinize the revised standards and provide comments that promote adequate disease control measures.

NOTES

Monday, 9:20 AM

RISK FACTORS FOR CRANIAL ABSCESS DISEASE IN WHITE-TAILED DEER OF GEORGIA

Bradley S. Cohen, E – Warnell School of Forestry and Natural Resources, University of Georgia; Emily H. Belser – Warnell School of Forestry and Natural Resources, University of Georgia; Shamus P. Keeler –Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia ; Charlie H. Killmaster – Wildlife Resources Division, Georgia Department of Natural Resources; John W. Bowers – Wildlife Resources Division, Georgia Department of Natural Resources; Michael J. Yabsley – Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia; John R. Fischer – Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia; Karl V. Miller – Warnell School of Forestry and Natural Resources, University of Georgia

ABSTRACT: Cranial abscess disease is a reported cause of natural mortality, particularly for mature, male white-tailed deer (*Odocoileus virginianus*). Most cases of cranial abscesses are associated with infection by the opportunistic bacterium *Trueperella pyogenes* (formerly *Arcanobacterium pyogenes*) but little else is known about the disease. We examined 4473 male white-tailed deer across 58 properties throughout Georgia for signs of cranial abscesses to model the distribution of the disease across the state and investigate risk factors for the disease. A general linearized mixed model treating property as a random effect suggested that age was the most important risk factor. Furthermore, habitat variables (percent evergreen, percent agriculture, etc.) and soil features were not strongly associated with increasing risk of the disease. However, the model suggested that a large amount of variance occurred at the property level. To investigate the source of variation across properties, we examined the infectious potential of *T. pyogenes* from the foreheads of male white-tailed deer from these properties. We used Polymerase Chain Reaction (PCR) to determine the presence of 7 different virulent factors. Five of the seven virulence factors, all of which promote bacterial adhesion to epithelium, were more commonly detected on properties where abscesses were found ($p < .001$). This suggests the patchy distribution of cranial abscess disease across Georgia is caused by differences in the genetics of the commensal bacteria and causative agent, *T. pyogenes*. White-tailed deer managers must recognize the potential to transport pathogenic bacteria and disease when transporting white-tailed deer.

* Student Presenter

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Monday, 10:10 AM

HUNTER SATISFACTION AND HARVEST PREFERENCES ABOARD A PUBLICLY HUNTED MILITARY INSTALLATION

Damon R. Lowery – Marine Corps Base, Quantico; Robert T. Stamps – Marine Corps Base, Quantico

ABSTRACT: In January 2012 Marine Corps Base, Quantico, Virginia conducted its first large scale hunter survey to identify hunter demographics, characteristics, and satisfaction levels. The survey also explored which harvest regimes deer hunters employ and satisfaction with those regimes. A total of 454 out of 816 hunters who hunted aboard Base in 2011 returned completed surveys, resulting in a response rate of 56%. Satisfaction with hunting aboard Base was high as 81% of participants were satisfied with their hunting experiences, and 83% agreed the installation provided high quality hunting. Our findings suggested that most (70%) deer hunters were not overly concerned with harvesting older, large antlered bucks but rather hunted with a traditional management mindset of harvesting any legal deer. Although many current Quantico hunters seek to harvest any deer, harvest records from the last 20 years indicate the Base has also been able to provide harvest opportunities for hunters seeking large antlered bucks, as the annual buck harvest has consisted of over 60% adults (≥ 2.5 years) throughout the last decade. Disparity in satisfaction levels between traditional hunters and hunters focused on harvesting larger antlered bucks was absent. In a time when antler restriction policies are being strongly promoted, we suggest wildlife managers be cautious when formulating future harvest regulations as many hunters may still adhere to traditional harvest approaches. Only by coupling sound scientific data with public input from hunters, as we have demonstrated in this study, can managers ensure proper resource management while simultaneously providing high hunter satisfaction levels.

NOTES

Monday, 10:30 AM

STONEWALL RESORT CONTROLLED DEER HUNT

Randy L. Tucker – West Virginia Division of Natural Resources

Abstract: Deer management on State owned lands can often be a challenging task. This is particularly true for parks and recreational areas where hunting is often prohibited. Non-hunted areas can provide refuge for deer and make their management even more difficult. Vehicle collisions with deer and damage due to over browsing are just a couple of the problems associated with elevated deer populations in non-hunt areas. The West Virginia Division of Natural Resources (DNR) Wildlife Resources Section and Parks and Recreation Section cooperated to conduct 3-day controlled antlerless deer hunts on the Stonewall Resort, Lewis County, West Virginia in 2008, 2009, 2010 and 2013. Hunters were chosen by lottery based on their choice of weapon and type of hunting area (stand or roaming). Success of hunts was supported by anecdotal observations such as reduction in vehicle collisions and reduced browsing of vegetation while maintaining a satisfactory wildlife observation rate by park visitors. Management implications will be discussed.

NOTES

Monday, 10:50 AM

CAN SUBURBAN DEER BE MANAGED WITH THE SAME STANDARDS AS RURAL DEER?

Philip C. Norman – Howard County (MD) Department of Recreation and Parks

ABSTRACT – For generations, deer management has been driven primarily by hunter dollars and the need to maintain a healthy population on the ground in a rural setting. Recent decades have seen the rise of suburban deer overabundance. With far more stakeholders and philosophical world-views, the suburbs present an entirely different playing field for deer managers. Indeed, the entire context of deer management is changed, both in terms of the driving forces behind deciding management goals and the sites upon which such management can be accomplished. How much, then, do deer managers have to change their perspectives, goals, and tools in order to manage this resource within the suburban landscape? This presentation offers an overview of some of the unique characteristics of the suburban landscape which impact management decisions in new and challenging ways. Some of the new and challenging management options which have recently developed are presented, in hopes that discussion will be enhanced, perhaps to the betterment of deer management throughout the Southeast. The author is the Deer Project Manager for the Howard County, Maryland, Department of Recreation and Parks. Howard County is an affluent suburban jurisdiction located between Baltimore and Washington D. C. Deer densities in excess of 400 deer per square mile have been documented on some Howard County parklands, which has a human density in excess of 1,000 people per square mile.

NOTES

Monday, 11:10 AM

INFLUENCE OF A QUALITY DEER MANAGEMENT PROGRAM ON HUNTER KNOWLEDGE, PERCEPTIONS, AND SATISFACTION

Jordan S. Nanney – Department of Forestry, Wildlife, and Fisheries, University of Tennessee; Adam S. Wilcox - Department of Forestry, Wildlife, and Fisheries, University of Tennessee; Craig A. Harper - Department of Forestry, Wildlife, and Fisheries, University of Tennessee

ABSTRACT Measuring hunter knowledge, perceptions, and satisfaction is an important consideration and can influence the success of a deer management program. We surveyed hunters involved in a Quality Deer Management (QDM) program at Ames Plantation in western Tennessee from 2005 – 2013 to determine how prior hunting experience under QDM guidelines and participation in QDM educational programs influenced hunter knowledge and perceptions of white-tailed deer. A total of 532 surveys were completed during the study period. We divided our survey data into two groups to measure program influence: new members (137) (first year in club) and experienced members (395). Results of the survey showed experienced members were 16% more confident in their knowledge of QDM. Experienced members (74%) thought QDM objectives could be met sooner than new members (66%). New and experienced members thought collecting biological, habitat, observation, and hunter satisfaction data were important for a successful QDM program. Neither new (8%) nor experienced members (4%) thought spikes should be “culled;” however, experienced members showed more support for antlerless deer harvest than new members. Experienced members (84%) were more inclined to think QDM could influence the rut than new members (69%). More experienced members (84%) thought prescribed burning was good for deer habitat than new members (74%). When asked which factor was most important to QDM success, >70% of experienced members indicated age, whereas new members were split between age (50%), nutrition (24%), and genetics (22%). Our survey results suggest educational programs can positively influence hunters’ perceptions of a QDM program and increase their knowledge, support, and participation in the program.

* Student Presenter

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Monday, 11:30 AM

NEGATIVE HUNTER ATTITUDE TOWARDS CWD; IMPLICATIONS FOR HARVEST AND MANAGEMENT

Jacob M. Haus – University of Delaware; Jacob L. Bowman – University of Delaware; Brian Eyler – Maryland Department of Natural Resources

ABSTRACT Previous research has reported negative hunter attitudes towards CWD and disease related regulations that may limit participation, reduce harvest, and generally complicate management. We surveyed 1,519 Maryland deer hunters from 3 counties of varying proximity to the disease management area (CWDMA) regarding behavioral changes due to CWD. We linked responses to each individual's 5 year harvest history to examine hunter retention, estimate the reductions in harvest attributable to CWD, and determine the degree to which distance from the disease affected behavior. Overall, 1.1% of respondents claimed to have stopped hunting because of CWD; however 47.1% of those respondents continued to register deer after disease discovery, resulting in a true decrease in retention of no > 0.6%. In the county containing the CWDMA, we observed the greatest percentage of hunters with negative attitudes (22.6%) and the largest reduction in harvest attributable to CWD (7.0%). In the county adjacent to the CWDMA and another county 170 miles southeast of the CWDMA, we observed a decrease in negative attitudes (14.1-16.8%) and no reduction in harvest due to the disease. Negative hunter attitude did not directly correlate with behavior. Behavioral shifts due to CWD were highly localized and had no more impact on annual harvest than normal year to year stochastic variability. Upon initial detection of CWD, we recommend managers implement necessary protocols for disease reduction and containment with the understanding that negative hunter attitude will have negligible impact on harvest.

* Student Presenter

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Monday, 1:40 PM

PUBLIC INVOLVEMENT IN DEER MANAGEMENT – A COMPARISON AMONG STATE WILDLIFE AGENCIES

Kip Adams – Quality Deer Management Association; Brian Murphy – Quality Deer Management Association; Matt Ross – Quality Deer Management Association

ABSTRACT: A key component of the North American Model of Wildlife Conservation is that wildlife are public trust resources managed by state agencies. We surveyed all 37 state wildlife agencies in the Midwest, Northeast and Southeast to determine their level and means for engaging the public on deer management issues. Only 18 of 37 states had a published deer management plan. All allowed the public to provide input to it and 11 of 14 allowed the public to serve on the plans' steering committees. Twenty-seven of 31 states were required to provide public involvement in regulatory changes involving deer. Only 3 of 33 states rated their agency's effectiveness at communicating with the public as excellent. Excluding Texas, states averaged 2.3 active deer staff, and this number remained stable in 26 of 37 states during the last five years. On a scale of 1 to 10, science ranked 7.0 and public desire ranked 5.7 for their impact on deer hunting regulations. Nine of 30 states reported public desire outranked science in these decisions. The most popular means for gauging public sentiment or accepting public comments on deer management/regulatory issues were public meetings (35 of 37 states), email (31 of 37), and traditional mail (30 of 37). Sportsmen and women are becoming increasingly engaged in their states' deer management program. This is important as white-tailed deer are the most popular big game animal in the United States, and whitetail hunters are the foundation of the \$87 billion hunting industry.

NOTES

Monday, 2:00 PM

WISCONSIN DEER MANAGEMENT - PUBLIC PERCEPTION & MANAGEMENT DECISIONS

Bob R. Nack – Wisconsin Department of Natural Resources; Kevin Wallenberg Wisconsin Department of Natural Resources; Melinda Nelson – Wisconsin Department of Natural Resources; Dan Kaminski – Wisconsin Department of Natural Resources

ABSTRACT – Wisconsin has a long and storied history of white-tailed deer management. Citizens and hunting interest groups have been debating deer management policy and strategies since Leopold's time. The keen interest and passion surrounding white-tailed deer management has been shared through generations of WI deer hunters. This passion leads to strong public opinion about the management of Wisconsin's deer herd. Wisconsin encourages and supports citizen and stakeholder involvement in the resource management decision making process. Discontent with deer management policies among hunters and stakeholders prompted the governor to hire a deer trustee to provide recommendations to improve the deer management program. The report recommendations were considered and discussed by citizen action teams using an extensive public involvement process. Recommendations were summarized and placed into the following four categories: regulations and season structure, herd health/chronic wasting disease, deer management assistance program (DMAP), and science and research. Each of the citizen action teams provided recommendations to the Wisconsin Department of Natural Resources (WDNR) that were considered during the administrative rule writing process. The WDNR rule proposal (new season structure, regulation changes, and programs) was presented at 35 public meetings around the state with very little public participation. The final rule proposal must be approved by the WDNR Natural Resources Board. A DMAP program was a key recommendation from the deer trustee report and was supported by the citizen action team. WDNR is planning to implement a DMAP program in 2014.

NOTES

Monday, 2:20 PM

GEORGIA'S NEXT ITERATION OF A 10-YEAR DEER MANAGEMENT PLAN

Charlie H. Killmaster – Georgia Department of Natural Resources , Wildlife Resources Division; John W. Bowers - Georgia Department of Natural Resources , Wildlife Resources Division

ABSTRACT: State law charges the Department of Natural Resources, Wildlife Resources Division (WRD) with the management and conservation of Georgia's wildlife resources. White-tailed deer (*Odocoileus virginianus*) are Georgia's most popular, and controversial, game species. At the core of deer management is the question: how many deer should Georgia have? The answer depends upon objectives for hunting, wildlife viewing, ecological functions, and deer-human conflicts. In an effort to broaden the issue of deer management and better fulfill its mandate to all Georgians, WRD initiated the development of a 10-year deer management plan encompassing multiple levels of public involvement. Planning was directed by a citizen-based steering committee representing broad interests in deer and deer management. The Steering Committee identified key issues of deer management, established four geographic-based subcommittees to develop management recommendations, and approved or amended recommended actions. To include a broad spectrum of public input into this process, WRD solicited input through 10 public meetings across the state and took comments in person, by telephone, email, and mail. A comprehensive telephone survey of hunters, landowners, and the general public provided a measureable distribution of public opinion on these issues. Prior to developing recommendations, committees were provided with deer population trends and statistics, public comment summaries, and survey results. All committees functioned on a consensus basis to ensure that all interests were served and improved. This extensive level of public involvement yields high hunter satisfaction of hunting regulations and provides crucial public support for resolution of deer management, regulatory, and legislative issues.

NOTES

Monday, 2:40 PM

HERDS WITHOUT HUNTERS: THE FUTURE OF DEER MANAGEMENT?

W. Matt Knox – Virginia Department of Game and Inland Fisheries; Todd H. Holbrook – Georgia Wildlife Federation; John W. Bowers – Georgia Department of Natural Resources, Wildlife Resources Division

ABSTRACT. The number of licensed big game hunters has declined significantly in Virginia over the past two decades, declining from 294,000 in 1993 to 223,000 in 2012. Over the 20 year period this represents an overall 24% decline or 1.2% average annual decline. Projecting this declining trend into the future results in an estimated 188,000 big game hunters in ten years (2023) and 133,000 in twenty-five years (2038). Additionally, Virginia's licensed hunters are growing older and the age structure of Virginia's big game hunters over the past 5 years demonstrates a large percentage of hunters between approximately 30 and 60 years of age. Declines in big game hunting license sales should increase as this wave of hunters grows older. However, the relationship between the number of licensed big game hunters and the actual number of big game hunters in Virginia is problematic due to the fact that numerous groups of persons are exempt from purchasing a hunting license (e.g., landowners, their spouse, children, grandchildren, spouses of children and grandchildren, or the landowner's parents, resident or nonresident, etc.) and the number and participation trend of these license exempt hunters is currently unknown. Anecdotal evidence indicates that the number of these license exempt big game hunters has increased over the same time frame big game license sales have declined. Continued declines in license sales in the future will have a significant negative impact on Department finances and, if the declines in big game license sales are representative of an overall decline in big game hunting participation, it will have a negative impact on the Department's ability to manage deer populations over much of the Commonwealth. On the bright side, big game hunting participation rates for female hunters have increased significantly in Virginia over the past decade.

NOTES

Monday, 3:30 PM

EVALUATING MATE SELECTION IN WHITE-TAILED DEER

Timothy J. Neuman – Auburn University; Stephan Ditchkoff – Auburn University; Todd Steury – Auburn University

ABSTRACT-Several theories have been proposed to explain how mate selection occurs in white-tailed deer. Whether it is female mate choice or male competition that drives the breeding system remains uncertain, but studies have suggested that females breed with males of similar age and quality to themselves. Our objective was to examine the breeding system of white-tailed deer with a specific focus on mate choice by comparing physical characteristics among mated pairs. We captured and genotyped 227 deer within a 430-acre enclosure in east-central Alabama from 2007 - 2013. We assigned parentage to 87 known-age offspring and found that females with larger skeletal size recruited more offspring into the fall population than smaller females ($z = 2.316$, d.f. = 71, $P = 0.021$). We compared age differences of breeding pairs to a random distribution of available pairings and found no difference (Chi sq. = 20.69, d.f. = 18, $P = 0.295$). Additionally, we found no relationship ($t = 1.48$, d.f. = 16, $P = 0.158$) between skeletal sizes of 18 mating pairs for which we had measurements of both parents. Using body percentile as a surrogate for body size allowed us to compare size relationships for 82 pairs, and we found no relationship ($t = 0.487$, d.f. = 81, $P = 0.628$). Our data do not support the hypotheses that male-female pairings are related to age or body size. Rather, male-female pairings may be a function of some unmeasured factor, such as behavior, dominance, hormone levels, etc. An alternative explanation is that pairings may actually be random, and are a function of what males are available when a particular doe comes into heat.

* Student Presenter

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Monday, 3:50 PM

SPATIAL USE AND MOVEMENTS OF MATURE MALE WHITE-TAILED DEER IN NORTHCENTRAL PENNSYLVANIA

Andrew K. Olson – Warnell School of Forestry and Natural Resources, University of Georgia; Michael E. Byrne – Warnell School of Forestry and Natural Resources, University of Georgia; William D. Gulsby - Warnell School of Forestry and Natural Resources, University of Georgia; Bradley S. Cohen – Warnell School of Forestry and Natural Resources, University of Georgia; David A. Osborn – Warnell School of Forestry and Natural Resources, University of Georgia; Karl V. Miller – Warnell School of Forestry and Natural Resources, University of Georgia

ABSTRACT: Little is known about the movement ecology and habitat use of mature (≥ 3 -years-old) male white-tailed deer, especially in unfragmented, forested landscapes where human disturbance is minimal. We assessed spatial use, habitat selection, and fine scale breeding season movements of mature males in a relatively unfragmented northern hardwood forest in northern Pennsylvania. During December 2011 – April 2012, we fit 19 mature bucks with GPS collars programmed to collect hourly fixes throughout the year as well as every 15 minutes from 1 October – 31 December 2012. We used the Dynamic Brownian Bridge Movement Model to construct seasonal home ranges and core areas and compare movement variances during the breeding season. We assessed seasonal ranges and habitat selection for 15 deer. Home ranges varied seasonally (fall \bar{x} = 907 ac, SE = 376; winter \bar{x} = 826 ac, SE = 99; spring \bar{x} = 717 ac, SE = 94; summer \bar{x} = 415 ac, SE = 61). Select-harvested and clear-cut stands as well as forest openings were important throughout the year. Mast drop during late summer/fall prompted home range shifts to mature oak stands. We were only able to obtain complete breeding season data from 3 mature bucks. Movement of the mature males increased during the peak rut period, as did weekly home range and core area sizes. Daytime movements increased up to 8 times from pre-rut to rut time period, although bucks remained predominately crepuscular throughout all breeding periods.

* Student Presenter

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Monday, 4:10 PM

SOCIAL AND ENVIRONMENTAL FACTORS DIFFERENTIALLY INFLUENCE MALE AND FEMALE VIGILANCE

Marcus A. Lashley – North Carolina State University; M. Colter Chitwood– North Carolina State University; Michael T. Biggerstaff – North Carolina State University; Daniel L. Morina – North Carolina State University; Chris E. Moorman – North Carolina State University; Chris S. DePerno – North Carolina State University

ABSTRACT: Vigilance behavior may directly affect fitness of white-tailed deer, and understanding factors influencing vigilance may provide important insight into predator-prey interactions. To evaluate factors influencing individual vigilance behavior of white-tailed deer while foraging at baited sites, we used 40,540 pictures taken with camera traps during August 2011 and 2012. We used binary logistic regression to determine if individual vigilance was affected by age, sex, group size, time of the day, moon phase, and presence of other non-predator wildlife species. All dependent variables significantly affected vigilance. Juveniles were 11% less vigilant at baited sites than adults. Females were 46% more vigilant when fawns were present. Males and females were less vigilant as group size increased, but with each addition of 1 individual to a group, males vigilance decreased nearly double that of females. Individual vigilance fluctuated with time of day and moon phase but generally was least during diurnal and moonlit nocturnal hours, indicating deer have the ability to adjust vigilance behavior to changing predation risk associated with varying light intensity. White-tailed deer were more vigilant when other non-predator wildlife were present. Our data indicate that differential effects of environmental and social constraints on vigilance behavior between sexes may encourage sexual segregation in white-tailed deer.

* Student Presenter

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Monday, 4:30 PM

NON-BREEDING SEASON EXCURSIONS BY MALE WHITE-TAILED DEER

David B. Stone – Warnell School of Forestry and Natural Resources, University of Georgia; Andrew K. Olson – Warnell School of Forestry and Natural Resources, University of Georgia; Taylor N. Simoneaux – Warnell School of Forestry and Natural Resources, University of Georgia; Michael J. Chamberlain – Warnell School of Forestry and Natural Resources, University of Georgia; Karl V. Miller – Warnell School of Forestry and Natural Resources, University of Georgia

ABSTRACT Theoretically, home ranges should provide all requisite resources for a species, but individuals sometimes venture outside of these ranges. Understanding long- and short-interval excursive behaviors of wildlife is important to understanding the species' ecology, potential gene flow, and disease transmission. Several prior studies have described excursions of male white-tailed deer (*Odocoileus virginianus*) outside of their home range during the breeding season. Interestingly, we observed excursive movements of male deer outside of their home ranges during the non-breeding season across 3 study areas ranging from Pennsylvania to Louisiana. From December 2011 – April 2012 and January 2013 – March 2013, we fitted 37 male white-tailed deer with GPS collars in the Allegheny Plateau of north-central Pennsylvania, the Piedmont region of west-central Georgia, and the Mississippi River floodplain of northeast Louisiana. We defined excursions as any occasion where a male traveled ≥ 1.0 miles outside of its 95% home range boundaries for ≥ 12 hours. Nine of 13 (69.2%), 4 of 10 (40%) and 3 of 14 (21.4%) males demonstrated non-breeding season excursions from 18 February through 12 June, in Pennsylvania, Georgia, and Louisiana, respectively. Eight males made multiple excursions during this period. Males making these excursions ranged from yearlings to 5 year-olds. Excursions averaged 2.3 miles (Range=1.06 to 8.0 miles), and the duration of excursions ranged from 12 hours to 11 days. Reasons for these short-term excursions during this time period are unclear; we could not identify landscape-level habitat features or individual male characteristics that may be the impetus for these movements.

* Student Presenter

NOTES

Tuesday, 8:10 AM

IS FERTILIZATION THE “SILVER-BULLET” TO INCREASE WHITE OAK ACORN PRODUCTION?

Jared M. Brooke – University of Tennessee, Department of Forestry, Wildlife, and Fisheries; P. Seth Basinger – Dream Lake Lodge, Livingston, AL; Marcus A. Lashley – North Carolina State University, Department of Forestry and Environmental Resources; John M. McCord – Tennessee Wildlife Resources Agency; Craig A. Harper – University of Tennessee, Department of Forestry, Wildlife, and Fisheries.

ABSTRACT: Acorns can be an important food source for white-tailed deer during fall and early winter and can influence white-tailed deer movement, condition, and population dynamics. Acorn production is highly variable, both spatially and temporally, and is controlled primarily by environmental factors and genetics. Nonetheless, recommendations abound in popular literature claiming acorn production can be increased with fertilization. Our objective was to determine the effect of fertilization on white oaks. Prior to treatment, we measured annual acorn production (acorns/yard² of crown) from 120 white oaks, 2006–2010, on Chuck Swan State Forest, which is located in the Ridge and Valley of east Tennessee. We placed individual white oaks into one of four production classes, based on average acorn production. We assigned trees to one of 4 treatment groups (fertilization, crown release, fertilization/crown release, or control), and stratified treatments within production classes. We implemented treatments in the spring of 2011, and fertilized trees were treated again in 2012 and 2013. Fertilization was implemented according to soil tests. Acorn production varied between years, with two good mast years (>54 acorns/yard²; 2008 and 2010), one marginal mast year (15 acorns/yard²; 2012), and 5 poor mast years (<3 acorns/yard²; 2006, 2007, 2009, 2011, and 2013). Mean acorn production for 2011, 2012, and 2013 was similar between treatment groups. We caution our data are preliminary, particularly since we have not experienced a heavy mast year with treatment. However, it is clear fertilization of white oaks does not increase acorn production within every given year.

* Student Presenter

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Tuesday, 8:30 AM

SIBLING AND PLANT COMMUNITY INFLUENCE SURVIVAL OF WHITE-TAILED DEER NEONATES

M. Colter Chitwood – North Carolina State University; Marcus A. Lashley – North Carolina State University; John C. Kilgo – US Forest Service, Southern Research Station, SRS, SC; Kenneth H. Pollock – North Carolina State University; Christopher E. Moorman – North Carolina State University; Christopher S. DePerno – North Carolina State University

ABSTRACT: Coyotes recently expanded into the eastern U.S. and have potentially caused localized white-tailed deer population declines. Previous research focused on coyote influence on neonate survival rates, without consideration of vegetative cover at bedsites. We quantified neonate survival using standard biological covariates (e.g., sex, birth weight), identified causes of mortality, and evaluated the effects of vegetative cover at bedsites on neonate survival. In 2011 and 2012, we radiocollared 65 neonates, monitored them intensively for 16 weeks, and assigned mortality causes. We used Program MARK to estimate survival to 16 weeks and included biological covariates (i.e., sex, sibling status [whether or not it had a sibling], birth weight, and Julian date of birth). Survival was 0.141 (95% CI = 0.075-0.249), and the top model included only sibling status, which indicated survival was lower for neonates that had a sibling. Predation was the leading cause of mortality (35 of 55; 64%), and coyotes were responsible for the majority of depredations (30 of 35; 86%). Additionally, we relocated neonates for the first 10 days of life and measured distance to firebreak, visual obstruction, and plant diversity at bedsites. Survival to 10 days (0.726; 95% CI = 0.586-0.833) was positively associated with plant diversity at bedsites. Our results indicate that neonate survival was low and coyote predation was an important source of mortality. Additionally, plant diversity was more important than visual obstruction at bedsites. Thus, management strategies encouraging plant diversity may help mitigate the impacts of coyote predation on southeastern deer populations.

* Student Presenter

NOTES

Tuesday, 8:50 AM

DO LANDSCAPE METRICS ALTER DEER IMPACTS ON UNDERSTORY VEGETATION IN NORTHWESTERN PENNSYLVANIA?

Dave W. Kramer – Warnell School of Forestry and Natural Resources, University of Georgia; Alexandro Royo – US Forest Service, Northern Research Station, Irvine, PA; Susan Stout - US Forest Service, Northern Research Station, Irvine, PA; Nate Nibbelink – Warnell School of Forestry and Natural Resources, University of Georgia; Karl Miller – Warnell School of Forestry and Natural Resources, University of Georgia

ABSTRACT: Forests in North America have experienced shifts in community composition over the last century partly due to changes in ungulate populations. In northwestern Pennsylvania the shift has resulted in secondary forests dominated by fern (*Dennstaedtia punctilobula*). Our objective was to use 10 years (2002-2011) of vegetation data and deer pellet surveys throughout the 75,000 acre Kinzua Quality Deer Management Area to determine whether there was support for direct effects (via deer density) or indirect effects (via landscape structure) on understory regeneration. We conducted pellet group counts and vegetation surveys within 21 blocks (640 acre each) distributed throughout the study area. We estimated deer densities annually using five 1 mile transects spanning each block in mid-Spring. Vegetation surveys sampled seedling density, herbaceous richness, and herbaceous cover within 121 permanent plots dispersed among the 21 blocks. We calculated landscape metrics using Fragstats with the landscape classified into four seral stages, although edge density was calculated for forest/non-forest only. Using AICc model selection, we found that the most recent 5-year mean deer density (2007-2011) was the top model for species richness and number of saplings. The model of patch density was significant for number of large seedlings and significant for herbaceous cover. The increase in variance explained for richness and herbaceous cover following the addition of landscape metrics suggest that deer density alone is not the sole driver in current forest composition in the region. Further work is needed to determine whether deer density is moderated by landscape structure or if alternate explanations of understory structure are plausible.

* Student Presenter

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Tuesday, 9:10 AM

DO CATTLE AND NILGAI COMPETE WITH WHITE-TAILED DEER FOR FORAGE IN SOUTH TEXAS?

Stacy L. Hines - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Timothy E. Fulbright - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; J. Alfonso Ortega-S - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; David G. Hewitt - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Thomas W. Boutton – Texas A&M University, College Station

ABSTRACT: Competition for forage resources between large ungulates and white-tailed deer (*Odocoileus virginianus*) can be of concern for ranch managers. Stable isotope analysis provides a way to investigate niche partitioning among species. Our objective was to determine if cattle (*Bos spp.*) and nilgai (*Boselaphus tragocamelus*) diets overlap with white-tailed deer diets during the peak of autumn growing season in south Texas. Stable isotope analyses of fecal samples reflect the average diet consumed within 2-8 days, and has little interspecific variation. We collected fresh fecal samples at 20 random locations from each species across 6 6,177-acre study sites on East Wildlife Foundation ranches in southern Texas. Total grazing niche is defined as variation within and between species, hence we analyzed carbon ($\delta^{13}\text{C}$) and nitrogen ($\delta^{15}\text{N}$) isotope signatures using F-tests with grazing niche overlap indicated if $P > 0.05$. There was a species*study site interaction ($P < 0.05$); therefore we analyzed each site separately. $\delta^{13}\text{C}$ was similar among sites ($P > 0.05$), but $\delta^{15}\text{N}$ differed between nilgai and deer at one site ($P < 0.05$). $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ varied between cattle and deer at 5 sites ($P < 0.05$) indicating no diet overlap, however diet overlap was apparent at one site ($P \geq 0.12$). Nilgai compete with deer, while cattle and deer only competed at one study site.

* Student Presenter

NOTES

Tuesday, 9:30 AM

INFLUENCE OF LARGE-SCALE WEATHER PATTERNS ON BODY AND ANTLER SIZE OF MALE WHITE-TAILED DEER

Bronson K. Strickland- Mississippi State University; P. Grady Dixon - Mississippi State University; Stephen Demarais - Mississippi State University; Nathan O. Owen - Mississippi State University; David A. Cox - Mississippi State University; Katie E. Landry - Mississippi State University; W. Mark Baldwin – Mississippi State University; Lann Wilf – Mississippi Departement of Wildlife, Fisheries, and Parks

ABSTRACT: Data from Mississippi Department of Wildlife, Fisheries, and Parks' (MDWFP) Wildlife Management Areas and private properties participating in MDWFP's Deer Management Assistance Program were used to compare annual measures of 2.5-year-old, male, white-tailed deer body weight (15 years; $n = 53,843$) and antler beam length (17 years; $n = 64,150$) to seasonal variations in the Pacific Decadal Oscillation (PDO). The PDO is an index of sea surface temperatures on the west coast and has been shown to influence large-scale, seasonal weather patterns in the southeastern U.S. Using a mixed effects model, we related the seasonal variation in PDOs from the current year as well as 1, 2, and 3 years prior to gauge it's influence on body and antler size of buck cohorts as 2.5-year-old adults, yearlings, fawns, and *in utero*. Results consistently illustrate a positive correlation between both body and antler size with winter PDO while showing a negative correlation with summer PDO. The effects of PDO were strongest on bucks *in utero* and as fawns, with weaker effects as yearlings. PDO did not influence body and antler size of bucks during the year of harvest at 2.5-years of age. Because animal condition affects both survival and reproductive success of individuals, weather conditions experienced early in life may have long-term consequences for individual bucks, cohorts, and the population dynamics of deer herds in the southeastern U.S.

NOTES

POPULATION ESTIMATES AND HOME RANGE SIZES OF URBAN DEER IN FAIR OAKS RANCH, TX

Kara B. Campbell - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Charles A. DeYoung - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Randy W. DeYoung - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; David G. Hewitt - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Richard Heilburn – Texas Parks and Wildlife; Jessica Alderson – Texas Parks and Wildlife Department; Ryan Schoeneberg – Texas Parks and Wildlife Department

ABSTRACT: Increasing urban sprawl leads to more human-wildlife conflicts. To formulate effective management recommendations, reliable estimates of wildlife population sizes are needed. Fair Oaks Ranch, TX, spans 5,105 ac, 26.7 mi north of San Antonio, and has an overabundant white-tailed deer (*Odocoileus virginianus*) population. Our objective was to determine a population estimate and home range size for white-tailed deer throughout Fair Oaks Ranch. We captured 458 deer (M:178, F:280) during January-April 2012 and January-March 2013 using drop-nets baited with corn throughout the city. Captured deer were sexed, aged, and given unique ear-tag combinations. Thirty six males and 32 females were fitted with VHF transmitters and located weekly (Apr.-Aug. 2012, Jan.-Aug. 2013) using a receiver and portable antenna. Mean 95% fixed kernel home range was 58.1 ± 11.9 (SE) and 32.3 ± 5.4 ac for males and females, respectively, in 2012 and 270.1 ± 52.9 and 86.7 ± 14.3 ac for males and females, respectively, in 2013. For population estimates marked and unmarked deer were counted along 3 pre-determined driving transects throughout the city. Using mark-resight models in Program MARK, 14 sampling periods generated population estimates of 876 ± 43 (SE) to $1,767 \pm 71$ white-tailed deer. We also conducted distance sampling along the same driving routes during 5 surveys and calculated population estimates using Program DISTANCE. DISTANCE estimates ranged from 964 ± 186 (SE) to 1500 ± 214 deer. Distance surveys produced acceptable estimates allowing population monitoring to continue without the need for marked animals. This information will allow us to model the effectiveness of different management strategies, such as removal or contraception.

* Student Presenter

NOTES

Tuesday, 10:40 AM

LONG-TERM REMOTE CAMERA MONITORING OF WHITE-TAILED DEER IN SOUTHERN FLORIDA: A SNAPSHOT OF UNIQUE SELECTION PRESSURES AND REGIONAL ADAPTATIONS.

Elina Garrison – Florida Fish and Wildlife Conservation Commission; David Shindle – Conservancy of Southwest Florida; James Kelly – Florida Fish and Wildlife Conservation Commission; Erin Leone – Florida Fish and Wildlife Conservation Commission; Cory Morea – Florida Fish and Wildlife Conservation Commission; Larry Richardson – U.S. Fish and Wildlife Service

ABSTRACT: White-tailed deer have adapted to a wide range of habitats and climates across their range and as a result, exhibit considerable variation in morphological, physiological, and behavioral characteristics. The white-tailed deer population in south Florida has been shaped by selective pressures that are rather unique among deer in much of their range including drastic seasonal changes in habitat due to hydrology and the presence of an apex predator, the Florida panther. To further our understanding of the dynamics of deer populations in this system, we analyzed a continuous year of camera data from a long-term, passive camera study in the Florida Panther National Wildlife Refuge (FPNWR). We compiled the data from 62 cameras established throughout FPNWR. We examined monthly and seasonal capture rates, antler cycle, fawning period, and diel activity patterns of deer and panthers. We did not observe the typical crepuscular activity pattern in deer, but rather a predominantly diurnal activity period. These observed peaks in diurnal activity suggest that white-tailed deer in southern Florida may exhibit a behavioral response that minimizes predation risks by panthers. We also observed several unique physiological and morphological patterns such as a wide range of fawning dates with a peak in February-March, and bucks shedding velvet just prior to peak breeding. Our results further demonstrate how exceptional white-tailed deer are in their ability to adapt to local conditions. It is important to understand these adaptations on a local scale when implementing management regulations.

NOTES

Tuesday, 11:00 AM

A QUANTITATIVE SCALE TO MEASURE AWE EXPERIENCES WHILE HUNTING

Susan T. Guynn – School of Agriculture, Forest, and Environmental Sciences, Clemson University; D. Moore – Department of Psychology, Clemson University; Robert B. Powell – School of Agriculture, Forest, and Environmental Sciences, Clemson University

ABSTRACT: A basis for understanding why people hunt is a determination of how hunting satisfies basic psychological needs. Maslow's Hierarchy of Needs (MHN) was used as a framework to test the theory that hunting satisfies basic psychological needs (Physiological, Safety, Love/Belonging, Self-Esteem, Self-Actualization). While each level of MHN is important, this study focused only on Self-Actualization. Self-actualization was operationalized as an awe experience, also referred to as peak, optimal, or spiritual experiences, that are moments in an individual's life that have dramatic, long lasting effect. To date, awe has been investigated only through qualitative methods. Our objective was to develop a quantitative awe scale to be used in a later survey to test each level of MHN. A survey with 44 measures of awe was sent to 300 South Carolina hunters (28% response rate). Using confirmatory factor analysis, results indicate that awe is multidimensional and can be measured quantitatively with good model fit (CFI = 0.956; RMSEA = 0.053) and good reliability ($\alpha = 0.971$). Dimensions of awe include Value of Life, Human-Nature Relationships and Mysticism. Almost 98% of respondents had an awe experience ($\bar{x} = 4.5$; SD = 1.4) on a scale from 1-7 (1 = no awe experience, 7 = highest awe experience). There was a significant positive linear relationship between hunting frequency and awe and a significant nonlinear relationship between age and awe (controlling for other variables). Awe increased until age 45 and then declined with age. Gender effects were non-existent and did not moderate any other effects.

NOTES

Tuesday, 11:20 AM

GETTING AN EDUCATION IN HUNTER BEHAVIOR: DOES WISDOM COME WITH AGE?

Clint McCoy – Auburn University; Stephen S. Ditchkoff – Auburn University; Bret A. Collier – Institute of Renewable Natural Resources, Texas A&M University, College Station; Joshua B. Raglin – Norfolk Southern Railway, Brosnan Forest, South Carolina; Charles Ruth- South Carolina Department of Natural Resources

ABSTRACT: With the advent of GPS collars to track fine-scale movements of white-tailed deer, our knowledge of movement characteristics continues to improve. However, our understanding of how adult male white-tailed deer react to hunting pressure is still lacking. Many hunting enthusiasts claim that old bucks are “smarter” than young ones, making them better able to avoid hunters. Conversely, older bucks may be more difficult to encounter just because there are fewer of them. In order to test this hypothesis, we captured and GPS-collared 37 males across 3 years in the Lowcountry of South Carolina. Collars recorded locations every 30 minutes from late August through November to encompass most of the hunting season. In addition to the variables date, age, and time of day, GPS fixes were assigned attributes such as distance to nearest hunting stand and whether the location fell within a food plot, a hunting stand buffer, or a bait site. On average, adult buck locations were 55 yd further away from hunting stands on the last day of the study versus the first, and 17.5 yd further away from stands during daylight versus dark hours. Conversely, yearling locations were 16.7 yd closer to hunting stands at the end of the study as compared to the beginning and 15.1 yd closer to hunting stands during daylight versus dark. Adult bucks were 80% less likely to use bait sites during daylight hours at the end of the study, and, compared to adults, yearlings were twice as likely to use bait sites during daylight.

* Student Presenter

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Tuesday, 11:40 AM

A COMPARATIVE STUDY ON THE EFFECTIVENESS OF FIXED BLADE AND MECHANICAL BROADHEADS

M. Andy Pedersen – Naval Explosive Ordnance Disposal Division; Seth M. Berry – Natural Resources Office, Naval Support Facility Indian Head, Indian Head, MD; Jeffery C. Bossart – Naval Support Activity South Potomac, Indian Head, MD

ABSTRACT: Bowhunting is often considered as an option for the harvest management of white-tailed deer (Odocoileus virginianus) in suburbs, parks, and similar restrictive environments. Bowhunters have a variety of equipment choices, yet little is known of the impact of these choices on bowhunter efficacy. The objective of this study was to evaluate the deer recovery metrics of bowhunters who used either compound bows or crossbows with either fixed blade broadheads (having no moving parts) or mechanical broadheads (having moving parts). Our retrospective study relied on the daily reports of bowhunters who participated in a managed hunting program at the Naval Support Facility Indian Head, at Indian Head, Maryland. All bowhunters were required to pass the International Bowhunter Education Program and an annual pre-season shooting proficiency test. Bowhunters recovered 1083 of the 1296 deer (83.6%, SE = 1.0) they had hit over the 1989 - 2012 hunting seasons. The choice of compound bow or crossbow did not affect deer recovery rates ($P = 0.108$). However, the choice of fixed blade broadheads or mechanical broadheads did affect deer recovery rates ($P = 0.001$). We found that the use of mechanical broadheads improved the deer recovery rates for both compound bow users ($P = 0.046$) and crossbow users ($P = 0.021$) over their counterparts who used fixed blade broadheads. We recommend the use of mechanical broadheads, particularly in those areas where bowhunters' actions are more open to public observation.

NOTES

Tuesday, 1:40 PM

FACTORS AFFECTING COYOTE DIETS IN NORTHEASTERN NORTH CAROLINA

Joseph W. Hinton – University of Georgia; Michael J. Chamberlain – University of Georgia

ABSTRACT: Foraging behaviors of coyotes are complex and they have been described as generalists or opportunistic foragers. We assessed factors affecting prey selection of coyotes in northeastern North Carolina and found them to be largely carnivorous with a narrow dietary breadth. Approximately 90% of prey remains found in coyote scat were rabbits, white-tailed deer, and small mammals, whereas coyote use of birds, fruit, human refuse, and insects was <8% of their diet. Deer comprised 30% of coyote diet and were consumed more during winter than summer (37.5% vs. 22.7%). We assessed factors influencing the diets of 13 coyote groups and included several variables (i.e., body weight and age of coyotes) that have not been used in analyses of scat remains to account for variation in diet. Assessing generalized linear models (GLMs) using stepwise procedures that calculate Akaike information criterion (AIC_c), we found coyote weight and season were important factors influencing diets of coyotes. The positive relationship between coyote consumption of deer and coyote body weight implies that body size is an important trait for coyotes to acquire deer in their diet through predation. Diets of eastern coyotes have lain at the heart of the species' impact on eastern ecosystems and comprehensive studies of coyote diet that include factors influencing its variation will allow us to understand the coyote's ecological role in the Southeast.

* Student Presenter

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Tuesday, 2:00 PM

COYOTE PREDATION RISK AND WHITE-TAILED DEER FORAGING BEHAVIOR

Michael J. Cherry – Warnell School of Forestry and Natural Resources, University of Georgia; Robert J. Warren - Warnell School of Forestry and Natural Resources, University of Georgia; L. Mike Connor – Joseph W. Jones Ecological Research Center, Newton, GA

ABSTRACT: Costs associated with antipredator behaviors have profound effects on numerous species, providing a non-consumptive mechanism through which predators can affect their prey. Coyotes have achieved abundances capable of influencing population dynamics of deer in parts of the southeastern USA, yet the non-consumptive effects have been unreported. During 2011-2012, we conducted 5, 14-day camera surveys within 4, approximately 105 acre predator exclosure and 4 control plots to investigate the effects of predator exclusion on white-tailed deer foraging site selection, vigilance, and resource-use at the Jones Ecological Research Center, in southwestern Georgia, USA. We used a chi-squared test to evaluate foraging site selection and found deer selected foraging sites in predator exclosures 1.5 times more than controls ($\chi^2 = 791$, $df = 2$, $P < 0.001$). We used a mixed effects logistic regression model to investigate the seasonal effects of predator exclusion on deer vigilance. Vigilance was less in exclosures for all seasons but the greatest treatment effect for bucks and does was during post-rut and fawning seasons respectively ($P < 0.001$). We created an index of resource use by visually inspecting bait every 2 days and found that resource-use was 14% greater in exclosures than control ($\chi^2 = 6.1$, $df = 1$, $P = 0.01$). Our results experimentally demonstrate predation risk influences foraging behavior of deer, which could affect nutritional condition, population dynamics and herbivory patterns. We suggest that ignoring the non-consumptive effects of coyotes may result in a dramatic underestimation of the totality of their effects on southeastern deer populations.

* Student Presenter

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Tuesday, 2:20 PM

COYOTE SPACE USE AND HABITAT SELECTION IN NORTHEASTERN NORTH CAROLINA

Joeseeph W. Hinton – University of Georgia; Michael J. Chamberlain – University of Georgia; F.T. van Manen – USGS, Interagency Grizzly Bear Study Team, Bozeman, Montana

ABSTRACT: Ubiquitous throughout the southeastern United States, coyotes (*Canis latrans*) have become an important predator of many game species. Several studies in the region have indicated that coyotes may be affecting white-tailed deer (*Odocoileus virginianus*) populations through predation on fawns, and potentially through direct predation on adults. Knowledge of coyote space use and habitat selection could assist managers with developing insights as to where coyotes are exploiting deer on the landscape. Specifically, the size and placement of home ranges on the landscape will indicate where coyotes center their activities and exploit prey populations. Likewise, areas and habitats on the landscape occupied infrequently by coyotes may serve as refugia for white-tailed deer. Therefore, we will develop a predictive map of relative probability of habitat selection using 30 coyotes monitored with GPS collars in a 600,000 ha region of northeastern North Carolina. We will describe proximate factors influencing variation and patterns of coyote movements, space use, and habitat selection by using resource selection functions (RSFs). The RSFs will provide information regarding where coyotes establish home ranges and where individual animals forage and disperse on the landscape. This information could assist state agencies with developing practical guidelines for predicting areas of the landscape where predation of white-tailed deer by coyotes could be of concern.

* Student Presenter

NOTES

Tuesday, 2:40 PM

A COMPARISON OF METHODS FOR ESTIMATING COYOTE ABUNDANCE IN THE SOUTHEAST

William D. Gulsby – Warnell School of Forestry and Natural Resources, University of Georgia; Ben N. Sacks – Canid Diversity and Conservation Laboratory, University of California, Davis; Charlie H. Killmaster – Georgia Department of Natural Resources, Wildlife Resources Division; John W. Bowers – Georgia Department of Natural Resources, Wildlife Resources Division; James D. Kelly – Florida Fish and Wildlife Conservation Commission; Karl V. Miller – Warnell School of Forestry and Natural Resources, University of Georgia Department of Natural Resources

ABSTRACT: Coyote predation on white-tailed deer has changed the face of deer management in many areas of the Southeast. However, traditional methods used to index coyote abundance, such as scent-station and scat-deposition surveys, are very coarse measures and validations of these techniques are scarce in the literature. Therefore, we evaluated these indices of coyote abundance on two study areas in central Georgia. We also used fecal genotyping to noninvasively mark and recapture individual coyotes and generate abundance estimates. We concurrently conducted all three methods on both sites during February – December 2010. Mark-recapture estimates were fairly precise and indicated similar coyote abundance between sites. We recorded only 18 coyote visits during 430 total scent-station nights. Visitation rates varied substantially among surveys and between sites, and we recorded no coyote visits during three of 10 total surveys, making comparison of visitation rates between sites uninformative. Although scat deposition rates varied among seasons and between sites, surveys indicated similar relative abundance between sites during June – September. Monthly scat deposition rates were closely related to the number of individual coyotes identified via fecal genotyping during each month. Scat-deposition surveys are inexpensive, intuitive, and may provide sufficient information for managers when potential confounds are controlled. Although fecal genotyping allows for estimation of actual abundance, the process is much more costly and difficult. However, genetics arguably provides some of the lowest cost/highest quality data available when compared to the extensive labor and equipment associated with other types of field work such as capture and telemetry.

* Student Presenter

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Tuesday, 3:00 PM

COYOTE SPACE USE AND POPULATION TURNOVER IN VIRGINIA'S WESTERN MOUNTAINS: IMPLICATIONS FOR WHITE-TAILED DEER

Dana J. Morin – Department of Fish and Wildlife Conservation, Virginia Polytechnic and State University; Marcella J. Kelly - Department of Fish and Wildlife Conservation, Virginia Polytechnic and State University; Nelson W. Lafon – Virginia Department of Game and Inland Fisheries

ABSTRACT: The Virginia Appalachian Coyote Study was initiated in 2011 in the western mountains of Virginia in response to documented declines in local white-tailed deer population on low productivity public lands. We deployed 21 satellite GPS collars on 19 coyotes over two years, and used biased-random bridges to estimate utilization, intensity, and recursion distributions to evaluate space use and territoriality. In addition, we collected fecal DNA from 5082 scat samples on established transects in the 3 summers and 2 winters (2011-2013). We used mtDNA to differentiate coyote, bobcat, and bear scat samples and used microsatellite markers to identify individuals and calculate relatedness between conspecifics. Coyote space use was highly variable (1.2 – 603 mi²) with individuals defending stable home ranges, shifting home ranges, or displaying transient behavior. Highest intensity of use was at the edges of home ranges, suggesting high effort allocated to defending territories and high levels of competition. Despite high detection rates of collared individuals in scat samples (75%), a large number of coyotes were only detected one time (84%), and few coyotes were detected throughout the study (0.02%). Considering the high known mortality rate of collared coyotes (63%), this suggests there is high population turnover and delayed dispersal resulting in larger, loosely-formed family groups. Potential implications for white-tailed deer include increased predation risk and associated stress as encounter rates with coyotes may increase with unstable coyote home ranges and high population turnover. This is the first of three studies evaluating predator guild impacts to white-tailed deer in the area.

* Student Presenter

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Tuesday, 3:50 PM

NON-CONSUMPTIVE EFFECTS OF COYOTES ON DEER

L. Mike Connor – Joseph W. Jones Ecological Research Center; Michael J. Cherry – University of Georgia; Keri E. Morgan – University of Georgia; Brandon T. Rutledge – Joseph W. Jones Ecological Center; Robert J. Warren – University of Georgia Department of Natural Resources

ABSTRACT: Increasingly researchers acknowledge that non-consumptive predator-prey interactions can have profound effects. We propose that coyote effects on deer may transcend direct mortality and that the non-consumptive interactions and their implications for deer populations and habitats should be investigated. We used a combination of monitoring data and experimentation to evaluate the potential for non-consumptive effects of coyotes on deer nutritional condition, reproductive strategy, and herbivory patterns on the Jones Ecological Research Center, in southwestern Georgia. We predicted harvest weights of 466 adult does from an 11 year period, and using an information theoretic approach we found support for the effects of predation risk ($\beta = -1.42 \pm 0.69$) and individual attributes (i.e., age [$\beta = -1.44 \pm 0.31$], evidence of lactation [$\beta = -1.11 \pm 0.55$]), but not resource availability. To evaluate the effects of predation risk on reproductive fitness we measured ovulations rates of does during a coyote decline. We found that during low coyote abundance, ovulation rates (1.5 CL/female deer) were 1.7 times greater than during high coyote abundance (0.9 CL/female deer, $P = 0.03$), despite increased deer abundance and similar nutritional condition. Increased recruitment was better explained by ovulation rates than survival rates of marked fawns. We previously demonstrated predator exclusion influenced deer foraging and therefore we measured the abundance of 10 selected browse species in predator exclosures and controls. Selected browse species were 1.3 times more abundant in controls ($P = 0.009$). We suggest coyotes may have substantial non-consumptive effects on deer and their habitats in the Southeast, and that future research should investigate these interactions.

NOTES

Tuesday, 4:10 PM

EFFECTS OF COYOTE REMOVAL AND HABITAT CONDITION ON FAWN SURVIVAL IN SOUTH CAROLINA

John C. Kilgo – U.S. Forest Service, Southern Research Station, Savannah River Site, South Carolina; Mark Vukovich – U.S. Forest Service, Southern Research Station, Savannah River Site, South Carolina; Scott Ray – U.S. Forest Service, Olustee, FL; Christopher Shawn- U.S. Forest Service, Southern Research Station, Savannah River Site, South Carolina; Charles Ruth – South Carolina Department of Natural Resources

ABSTRACT: Predation by coyotes (*Canis latrans*) on white-tailed deer (*Odocoileus virginianus*) fawns has led to reduced recruitment in many Southeastern deer populations. This low recruitment has led to increased interest in coyote population control. Our objectives were to determine whether fawn survival increased after coyote removal, whether coyote predation on fawns was additive to other mortality sources, and whether understory vegetation density affected fawn survival. We monitored fawn survival for 4 years prior to (2006-2009) and 3 years during (2010-2012) intensive coyote removal on three 8000-ac units on the United States Department of Energy's Savannah River Site, South Carolina. We removed 474 coyotes (4.2 coyotes/mi² per unit per year), reducing coyote abundance by 36.9%-70.8% from pre-removal levels. Under our best-supported model describing survival probability among 217 radio-collared fawns, survival differed among years during the removal period, being >100% greater than pre-treatment survival (0.228) during the first year (0.513), similar to pre-treatment survival during the second year (0.202), and intermediate during the third year (0.431). Thus, the overall effect of coyote removal on fawn survival was modest. Mortality rate attributable to causes other than coyote predation did not differ between the pre-treatment period and any removal year, indicating that coyote predation acted as an additive source of mortality. Survival probability was not related to vegetation cover. When increasing recruitment is an objective, we conclude that neither coyote control nor vegetation management appear viable, and that reduction of antlerless harvest may be the most effective strategy in many Southeastern deer populations.

NOTES

Tuesday, 4:30 PM

RELEASING PEN-RAISED BUCKS TO INCREASE ANTLER SIZE OF WILD DEER POPULATIONS: SIMULATED LONG-TERM GENETIC AND PHENOTYPIC IMPACT

Steve Demarais – Mississippi State University; B.K. Strickland – Department of Wildlife, Fisheries, and Aquaculture, Mississippi State University; S. Webb – Samuel Roberts Noble Foundation; C. McDonald – Mississippi Department of Wildlife, Fisheries, and Parks; T. Smith – Department of Animal and Dairy Sciences, Mississippi State University

ABSTRACT: Development of large antlers in penned deer, combined with other social influences, has increased interest in releasing pen-raised deer to “improve genetic composition of wild deer populations.” We modeled impact of such releases on average antler size using a livestock model with no ingress/egress to represent a fenced property (Fenced Model) and a model developed at the MSU Deer Lab that includes 10% dispersal/immigration to represent a free-ranging population (Free Model). We modeled release of fawns from pens with an antler distribution averaging 200 gross Boone and Crockett score at five intensities relative to the total population (1%, 5%, 10%, 25% and 50% replacement of the existing native population). After recruitment, we maintained a population of 2,000 animals by removing individuals using natural and harvest mortality. We report the results ten years after release. The impact of releasing pen-raised deer into native populations of white-tailed deer is limited below the 25% release rate (replacing 25% of the native population). Replacing 5% of a free-ranging population with 100 pen-raised deer in a free-ranging population increased B&C score by only 0.8 inch. Replacing 25% of free-ranging population with 500 pen-raised deer improved the score by 12 inches. Releasing pen-raised deer into a fenced property is twice as effective as releasing them into a fenced property; a replacement of only 10% (200 deer) accomplished a 12-inch impact. Assuming a cost of \$2,792 per fawn, the cost to produce a one-inch increase in B&C score was \$115,000 in a free-ranging population and \$56,000 in a fenced property. The increases in B&C score produced by releasing pen-raised deer will not be maintained without intensive management and/or continued release of pen-raised deer.

NOTES

AGE-DEPENDENT SEXUAL CONFLICT IMPACTS VIGILANCE BEHAVIOR AT CONCENTRATED FOOD SOURCES

Michael T. Biggerstaff – North Carolina State University; Marcus A. Lashley – North Carolina State University; M. Colter Chitwood – North Carolina State University; Daniel L. Morina – North Carolina State University; Christopher S. DePerno – North Carolina State University; Christopher E. Moorman – North Carolina State University

ABSTRACT: Although increased vigilance while foraging is surmised to decrease predation risk, it also may be associated with non-predator stimuli (e.g., age- or sex-related conflict). Previous studies concluded that vigilance in white-tailed deer may be affected by group size and environmental conditions, but little attention has been given to the effects of social interactions between sexes and age classes foraging together. Using 7,700 pictures taken with trail cameras in August 2011 and 2012, we conducted a standard least squares model to investigate the effects of male age (i.e., mature [2.5+] or yearling) and group type (mixed or single sex) on percent vigilance of mature males, yearling males, and females. We grouped males into age classes based on the number of antler points, a relationship which we derived from previous harvest data. Mature males were 30.2% more vigilant when in groups with females than with only other males. Females were 9.6% more vigilant when mature males were present than when yearling males or no males were present. Vigilance of females did not differ between mixed-sex groups that included only yearling males and single-sex female groups. However, yearling males were 12% less vigilant when females were present than in single-sex male groups. Our data indicate age-dependent sexual conflict may encourage sexual segregation in white-tailed deer and may have important implications for camera survey techniques.

* Student Presenter

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MARK-RESIGHT USING MOTION-SENSING CAMERAS TO ESTIMATE WHITE-TAILED DEER FEED SITE VISITATION RATES

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ABSTRACT: The USDA's Cattle Fever Tick Eradication Program is responsible for medicating free-ranging white-tailed deer (*Odocoileus virginianus*) that serve as intermediate hosts for cattle fever ticks along the United States – Mexico border. Analyzing visitation rates of bucks and does at medicated bait sites helps the USDA refine its program of treating deer with medicated corn to control cattle fever ticks. We captured deer using a net-gun fired from a helicopter on two private properties in the Cattle Fever Tick Quarantine Zone in Zapata County, Texas. Each deer was marked with uniquely colored and numbered cattle ear tags. Motion-sensing cameras were placed at medicated bait sites on each property. Photos of marked and unmarked bucks and does were tallied monthly from March 2011 - February 2012 and analyzed using mark-resight models in the computer program Program MARK. We determined the frequencies of bait site visitation of bucks and does on a 2007 acre low fence property and a 2170 acre high fence property. On both properties, bucks visited bait sites twice as often as does during summer and fall. During winter, does visited bait sites more frequently than bucks on both properties. On the high-fenced property, bucks visited bait sites nearly 7 times more than does during spring. These results follow the expected trends showing dominance of bucks over does at feed sites, except during the rut.

* Student Presenter

NOTES

HOW CAN WE MANAGE WHITE-TAILED DEER EFFECTIVELY? A MULTISTATE MODEL APPROACH.

Rebecca L. Cain – University of South Carolina

ABSTRACT: Citizen hunters are the most utilized tool of wildlife agencies to manage white-tailed deer populations. As such, it is beneficial to understand the influence each manipulative variable has on white-tailed deer harvest. I proposed that although there are differences between the states, there are universal results that arise from changes in harvest regulations. To compile the dataset used for the analysis, I contacted the wildlife agencies responsible for managing each state's white-tailed deer population to request historical records on harvest, estimated population size, the number of hunters, and other information relating to deer management. I collected statewide data from the southeastern U.S. and also data by county, depending on the level of data collection of the state. Through analyzing the data, one finding being that hunter effort, the number of days spent hunting, is a better predictor for total harvest than number of hunters in analyses of data at the county and state levels. This means that increasing the hunter numbers will not necessarily increase total harvest. Furthermore, I found a positive correlation between hunter effort and the percentage of total harvest being doe deer. These findings provide evidence to the importance of actively participating hunters, and therefore to make hunting a more efficient tool managers should focus more on hunter engagement rather than hunter recruitment.

* Student Presenter

NOTES

A LOW-COST GPS SOLUTION FOR STUDYING SPATIAL ECOLOGY OF WHITE-TAILED DEER FAWNS

Michael J. Cherry – Warnell School of Forestry and Natural Resources, University of Georgia; Dana J. Morin – Virginia Polytechnic and State University; Robert J. Warren – Warnell School of Forestry and Natural Resources, University of Georgia; L. Mike Conner – Joseph W. Jones Ecological Research Center, Newton, GA

ABSTRACT: Understanding spatial ecology of white-tailed deer fawns is increasingly important given changing predator dynamics in the southeastern USA. Researchers have long suggested that movement behavior and fine-scale resource selection may directly influence fawn survival, however those aspects fawn spatial ecology remain poorly understood. Investigating fine-scale spatial ecology of fawns using VHF technology requires researchers to repeatedly approach fawns, potentially affecting fawn and/or predator behavior, and influencing the process under study. The use of GPS technology has revolutionized the study of wildlife, yet high-costs associated with commercially available GPS transmitters, made for tracking wildlife, often result in inadequate sample size to make inference at the population level. Therefore we modified ATS expandable VHF fawn collars by affixing a low-cost CatTracker GPS unit (Catnip Technologies, Ltd. Anderson, SC) encased in a protective predator sleeve made of polyvinyl chloride pipe. The total cost of the GPS unit and all materials for attachment were \$55/collar. In 2011, we deployed 6 modified GPS collars on fawns at the Joseph W. Jones Ecological Research Center, in southwestern, Georgia. We recovered data from 3 collars; the remaining units were unrecovered due to loss of VHF signal. We developed utilization distributions from hourly relocation data collected from three fawns using biased random bridges to demonstrate an analytical approach that capitalizes on high frequency relocation data. We suggest low-cost GPS have great potential in wildlife research and provide a new opportunity to investigate the spatial ecology of white-tailed deer fawns.

* Student Presenter

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EFFECT OF DENSITY AND SUPPLEMENTAL FEED ON WHITE-TAILED DEER (*ODOCOILEUS VIRGINIANUS*) BODY SIZE

John H. Clark - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Nathan Cook - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Timothy E. Fulbright - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; David G. Hewitt - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Charles A. DeYoung - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Kim N. Echols - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Don A. Drager - Comanche Ranch, Carrizo Springs, TX

ABSTRACT: Body size of mature white-tailed deer (*Odocoileus virginianus*) has been shown to be linked to the deer's early life environment. Furthermore, maternal and grandmaternal nutritional status during gestation plays an important role in individual life development potential. While the effect of the nutritional status of the two previous generations affects an individual's mature body size, the magnitude of nutritional effects and the effects of deer density are still poorly understood. In 2004 deer were captured from two ranches in South Texas and placed into one of six, 81-ha enclosures on each ranch. Each ranch had a factorial array of three deer densities (10, 25, and 40 deer/enclosure) and two feed treatments (pelleted supplement and no supplement). We captured and harvested deer twice a year from winter 2004-spring 2013 and recorded body measurements for every deer handled. Our objective was to investigate the effect of deer density and improved nutrition on body length and hind foot-length; any changes in average deer body size will be a function of the interaction between nutrition, density, and time lag effects from past generations. By using measurements only from deer born into the enclosures, we will gain insight into the effects of early life environment on body size and generational effects of deer management practices on deer body size.

* Student Presenter

NOTES

TENSAS RIVER NATIONAL WILDLIFE REFUGE DEER STUDY

Elizabeth A. Cooney – Warnell School of Forestry and Natural Resources, University of Georgia; Rebecca Shuman – Warnell School of Forestry and Natural Resources, University of Georgia; Michael Chamberlain – Warnell School of Forestry and Natural Resources, University of Georgia; Karl V. Miller – Warnell School of Forestry and Natural Resources, University of Georgia; Scott Durham – Louisiana Department of Wildlife and Fisheries; John C. Kilgo – US Forest Service Southern Research Station, Savannah River Site, South Carolina

ABSTRACT: As with many areas of the Southeast, managers at Tensas River National Wildlife Refuge have expressed concern regarding declines in fawn recruitment. In cooperation with the Tensas River NWR and the Louisiana Department of Wildlife and Fisheries, we initiated a 3-pronged research study in 2013. Specific objectives of the study are to determine survival rates and cause-specific mortality of fawns, assess fawn bed-site selection to assess the importance of cover in fawn survival, and evaluate home range and fine-scale movements of mature male deer on the Refuge. Between January and April 2013, we captured 30 females and fitted them with VHF radio-collars and vaginal-implant transmitters (VITs). We monitored females and VITs to assess space use and locate birth sites. In 2013, we located and collared 35 fawns. Only 12 (37.5%) survived to 12 weeks of age. We used field evidence and DNA sampling to determine putative causes of mortality. We located 89 bed sites used during the first 6 weeks of life. We are using vegetation surveys at bed sites and spatial and forest inventory data to identify bed site selection by fawns and compare bed site characteristics of predated versus surviving fawns. We also captured and fitted 14 mature males with GPS collars. Location frequency is 1 location every 13 hours outside of the hunting season and every 30 minutes during the hunting season. Deer capture and collaring will continue throughout the 2014 and 2015 fawning seasons.

* Student Presenter

NOTES

LIVER COPPER LEVELS IN LOUISIANA WHITE-TAILED DEER (*ODOCOILEUS VIRGINIANUS*)

Samira R. Elkharash – University of Louisiana, Monroe, Department of Biology; James M. LaCour – Louisiana Department of Wildlife and Fisheries; Kim Marie Tolson – University of Louisiana, Monroe, Department of Biology

ABSTRACT: White-tailed deer, *Odocoileus virginianus*, population management is essential to control the increasing number of herds across the state. In order to ascertain the health of a deer herd, biologists may conduct liver analyses to check for adequate mineral levels. Copper is a necessary mineral required for normal growth and metabolism. Copper deficiency in ruminants has been associated with poor growth weights in offspring, low body weights in adults, and low rate of pregnancy in herds. Micronutrient information such as copper levels, will allow biologists to determine areas that are low in copper, and in turn, adjust their management programs accordingly. The livers of 222 Louisiana white-tailed deer were collected from hunter or agency harvested animals between 2009 and 2013. Samples were analyzed to determine liver copper levels, if any trends in copper deficiencies were associated with particular deer habitat types in Louisiana, and if any trends were discovered in association with age, gender, or collection season. Liver analyses revealed that female deer collected from late February to mid- May in the historic longleaf habitat in Rapides Parish had the lowest copper levels. This study revealed that copper deficiency in ruminants is most likely caused by a combination of many factors rather than just one, individual factor. While ecology of the animal and climatic conditions of a particular habitat cannot be changed, the quality of the habitat can. Soil and habitat quality must be addressed in order to provide white-tails with optimum browse selection and micronutrient availability.

* Student Presenter

NOTES

AGE STRUCTURE AND PRODUCTIVITY OF UNMANAGED WHITE-TAILED DEER POPULATIONS IN SOUTH TEXAS

Kory R. Gann – Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; David G. Hewitt - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Timothy E. Fulbright - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Alfonso Ortega-S - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Randall W. DeYoung - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville; Thomas W. Bouton – Texas A&M University, College Station; Alfonso Ortega-S, Jr. – East Wildlife Foundation, San Antonio, TX; Tyler A. Campbell – East Wildlife Foundation, San Antonio, TX

ABSTRACT: Environmental variability may affect productivity of white-tailed deer in South Texas, thus influencing the age structure of deer populations. Understanding the impacts of environmental variability on the productivity and recruitment of unmanaged deer populations will enable landowners to improve their deer management programs. From 2011–2013, we captured 1,347 deer on 2 properties where deer were unmanaged; one property was along the Texas Gulf Coast, whereas the other was 90 miles inland. Above average rainfall in 2010 led to high fawn recruitment. As a result, yearling deer (1 year old) composed 15–17% of females and 20–26% of males captured on both properties in 2011. Drought conditions in 2011 and 2012 decreased fawn recruitment on the inland property, where yearling deer composed 4–8% of females and 8–9% of males captured in 2012 and 2013. Effects of drought on recruitment were less evident on the coastal property, where yearling deer made up 11–12% of females and 13–25% of males captured in 2012 and 2013. Deer 6 years and older composed 30–43% of the females and 16–41% of the males captured on both properties from 2011–2013, suggesting that survival of adults is high regardless of rainfall. Recruitment of deer in western South Texas may be limited by erratic precipitation, whereas recruitment may be more stable in coastal populations. Frequent drought periods ensure that unmanaged populations in western South Texas rarely achieve high densities and large numbers of older deer act to sustain the population through periods of low reproduction. Lowering adult survival through intense harvest may reduce the ability of these populations to persist at reasonable levels.

* Student Presenter

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**MANAGING SYMPATRIC WHITE-TAILED DEER AND SIKA DEER FOR
SUSTAINED HARVEST WITH DIETARY OVERLAP**

David M. Kalb – University of Delaware; Jacob L. Bowman – University of Delaware; Deborah A. Delaney – University of Delaware; Randy W. DeYoung - Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville

ABSTRACT: White-tailed deer and sika deer have been harvested under separate regulations since the 1970's. Since the introduction of sika deer there has been concern regarding the interactions between these two species. Our research investigates the overlap in dietary resource use in areas of different relative abundances of deer. When sika deer are the dominant species in the area, they consume 14 different dietary resources with a high grass composition. When sika deer and white-tailed deer are present in roughly equal numbers, sika deer consume a wider range of resources (21), and white-tailed deer consume 34 different resources. Grasses dominated the diet of both species, but may be biased by the consumption of corn through standing agriculture or bait (white-tailed deer ranged from 8- 78% grass consumption). Our data suggest that in the presence of sika deer, white-tailed deer increase their foraging ranges consuming a wide variety of plants. White-tailed deer consume a higher degree of woody plants than sika deer, but showed overlap in 14 of the 34 species consumed including 4 of 6 woody plants (the 4 that dominated white-tailed deer woody plant consumption). White-tailed deer diet was dominated (more than 5% of total diet) by only 8 plants; all of which were also consumed by sika deer. Sika deer diet was dominated by 8 plants (7 of the 8 same plants in white-tailed deer diet). Our data show an intense overlap in resource use between these species, which may be contributing to competition.

* Student Presenter

NOTES

ESTIMATING THE EFFECTS OF COYOTE REMOVAL AND WILD PIGS ON WHITE-TAILED DEER ABUNDANCE

Allison C. Keever – School of Forestry and Wildlife Sciences, Auburn University; Stephen P. Ditchkoff – School of Forestry and Wildlife Sciences, Auburn University; Conor P. McGowan – Alabama Cooperative Fish and Wildlife Research Unit, Auburn University; James B. Grand – Alabama Cooperative Fish and Wildlife Research Unit, Auburn University

ABSTRACT: The expansion of coyotes (*Canis latrans*) into the Southeast has altered the predator community, and many studies have shown that coyote predation on white-tailed deer (*Odocoileus virginianus*) fawns can reduce recruitment. Predator removal temporarily increases fawn recruitment, however the long term effects of coyote removal on population size are still unknown. Additionally, wild pigs (*Sus scrofa*), which have recently expanded in range and numbers, are thought to displace or exclude deer from pulse food resources. We estimated white-tailed deer population size and structure at Fort Rucker, Alabama, and evaluated the effects of coyote removal, wild pigs, change in harvest regulations, and habitat type on these parameters using the N-mixture model for open populations in Unmarked. We conducted time-lapse camera surveys in the spring and fall of 2011-2012 and spring of 2013 to collect count data of does, bucks, and fawns. Fort Rucker biologists removed coyotes at random locations since spring 2011. Coyote removal had a positive effect on site-specific fawn abundance, however overall fawn abundance did not change year to year. There was a negative effect of coyote removal on site-specific fawn abundance the following year. Wild pigs greatly decreased detection probability of does, bucks, and fawns, and as wild pig abundance increased at a site, doe, buck, and fawn abundance decreased. Our results suggest that coyote removal efforts should be sustained to affect population size. Furthermore, our results support the hypothesis that wild pigs are, at least temporarily, displacing deer.

* Student Presenter

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COMPARISON OF ACORN PRODUCTION OF WHITE OAKS AND SAWTOOTH OAKS

Daniel L. Morina – North Carolina State University; Marcus A. Lashley - North Carolina State University; M. Colter Chitwood - North Carolina State University; Michael T. Biggerstaff - North Carolina State University; Christopher S. DePerno - North Carolina State University

ABSTRACT: Sawtooth oaks have been promoted as an alternative to native oaks to provide food for wildlife across the Southeast, with the primary justification given to 3 desirable characteristics: early maturity, abundant acorn production, and attractiveness to wildlife. We compared overall acorn production of sawtooth oaks and white oaks and the timing and duration of acorn fall for each species relative to hunting season dates. We followed mast production of 30 white oaks and 30 sawtooth oaks in openings with no competition from other trees as well as acorn viability and wildlife removal in a 1yd² ground plot. Sawtooth oaks tended to produce more acorns per yd² than white oaks, but the relationship was not significantly different because of substantial variation between trees. However, 89% of sawtooth acorns fell before opening day of the NC bow season (9/7/13), while 99% of white oak acorns fell after the bow season opener. Sawtooth oaks produced acorns for 8 weeks, with 70% falling in a 3-week period; white oaks produced acorns for 9 weeks, with 70% falling during a 4-week period. An average of 96% of sawtooth acorns and 70% of white oak acorns were viable, and 0.15% of sawtooth acorns and 29% of white oak acorns were removed by wildlife. Our preliminary data indicate sawtooth oaks are not a practical alternative to white oaks for attracting deer during hunting season because of the timing of mast production.

* Student Presenter

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EFFECTS OF WHITE-TAILED DEER DENSITIES AND SUPPLEMENTAL FEEDING ON HEIGHT AND CANOPY STRUCTURE OF SHRUBS

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ABSTRACT: The maximum white-tailed deer (*Odocoileus virginianus*) population that southwestern Texas can support without negative vegetation impacts is unknown. Supplemental feed may alter white-tailed deer foraging habits, which may reduce browsing pressure on vegetation or cause selective foraging on more palatable vegetation. Our objective was to determine the impacts of different white-tailed deer densities and provision of supplemental feed on selected shrub species. Three white-tailed deer densities were established in 6 200-acre enclosures for 10 consecutive years on each of 2 ranches, with target densities of 10, 25, and 40 deer/200 acres. Three enclosures per ranch received supplemental feed, while three did not. In 2013, height and canopy volumes of 120 guayacan (*Guaiaacum agustifolium*), blackbrush acacia (*Acacia rigidula*), and granjeno (*Celtis pallida*) were measured, with blackbrush acacia and granjeno split into 2 height classes (<4.92 ft tall and >4.92 ft tall). There was no effect ($P > 0.05$) of white-tailed deer density or supplemental feeding on blackbrush acacia canopy volume in either size class, granjeno <4.92 ft tall, or guayacan. However, granjeno plants >4.92 ft tall in the high white-tailed deer density enclosures had larger ($P < 0.05$) canopies below 4.92 ft in height than those in medium and low density enclosures. Density effects on canopy volume of these shrubs were independent ($P > 0.05$) of supplemental feed, and supplemental feed did not affect canopy volume ($P > 0.05$). High densities of white-tailed deer appeared to increase canopy volume of granjeno, possibly due to compensatory growth in response to browsing.

* Student Presenter

NOTES

USING DEER-VEHICLE COLLISIONS TO MAP BREEDING ACTIVITY IN GEORGIA.

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ABSTRACT: The most common method used to determine the breeding season for white-tailed deer (*Odocoileus virginianus*) is measuring fetuses collected from deceased pregnant females. However, collecting a sufficient number of pregnant females at large enough geographic scales to produce meaningful results is resource intensive, and fetal scale measurements are subject to human error and measurement bias. Numerous studies investigating deer-vehicle collisions (DVCs) state that DVCs that occur during the breeding season are the result of increased deer movement activity. Research involving fetal scale aging indicates that the timing of the breeding season is consistent from year-to-year, but can vary by geographic location, especially in southern states. We combined several years of DVC data to determine when peaks in DVCs occurred for each county in Georgia. Several counties lacked sufficient data to produce conclusive results, but counties with >100 DVCs tended coincide with current breeding season maps that are based on fetal scale data and hunter observation data. We propose that DVC data may be a cost effective supplemental data source to determine the timing of the breeding season at large geographic scales.

* Student Presenter

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EASY PICKINGS – ARE COYOTES EATING FLORIDA GAME?

Lauren N. Watine – Department of Wildlife Ecology and Conservation, University of Florida; William M. Giuliano – Department of Wildlife Ecology and Conservation, University of Florida

ABSTRACT: Coyotes (*Canis latrans*) are a relatively recent invader of Florida implicated in the decline of numerous wildlife species, and pet and livestock depredation. Our goal was to understand coyote food use in Florida, particularly the importance of game and rare wildlife species, pets, and livestock. We examined 79 coyotes harvested or road-killed in Florida from December 2011 through April 2013, to document coyote diets, and examine diet relationships with body mass, condition, and sex. Coyotes had a diverse diet, consuming both plant and animal material. Important mammalian species to diets included feral hogs (*Sus scrofa*) and medium-sized mammals (e.g., opossum [*Didelphis virginiana*] and skunks [*Mephitis mephitis*, *Spilogale putorius*]). We detected limited differences in diet based on sex, body mass, and condition of coyotes. Preliminary results suggest that more research is needed to assess impacts to domestic and other wild species in Florida. We are still collecting coyotes, and results will be updated in the presentation with additional animals.

* Student Presenter

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Table 1. Southeastern state deer harvest summaries for the 2012-2013 or most recent available season.

State	Land Area (sq. mi)	Deer Habitat		Percent Forested	% Land Area Public Hunting	Harvest		
		(sq. mile)	(% Total)			Male	Female	Total
AL	51,628	48,014	93	71	5	136,000	130,700	266,700
AR	52,609	44,718	85	53	12	110,448	103,039	213,487
DE	1,954	714	36	15	10	6,379	6,923	13,302
FL	51,628	29,280	50	45	16	89,025	53,300	142,325
GA	57,800	37,181	64	64	6	143,141	242,268	385,410
KY	40,395	39,654	97	59	9	73,096	58,299	131,395
LA	41,406	26,562	64	52	4	65,704	87,096	152,800
MD	9,837	8,766	89	41	4	38,891	46,238	85,129
MO	69,561	63,910	92	31	4	162,707	147,222	309,929
MS	47,296	31,250	66	66	6	125,636	147,489	273,126
NC	48,794	35,089	72	58	6	113,118	106,268	219,386
OK	69,919	37,425	54	19	3	64,573	43,275	107,848
SC	30,207	21,920	73	63	7.5	116,673	101,181	217,854
TN	42,246	25,770	61	49	9	100,323	76,640	176,963
TX	261,914	152,730	58	40	<2	304,035	242,325	546,360
VA	39,589	35,642	90	59	8	115,167	100,031	215,241 ¹
WV	24,064	22,972	95	79	9	78,395	53,021	132,261 ¹
Avg or Total	940,847	661,590	72.9	51.2	7	1,843,311	1,745,315	3,588,626

Table 1. Continued. Page 2

State	Harvest/sq. mi. Deer Habitat	Method of Data Collection ²	Estimated Pre-season Population	Length of Season (Days) ³			Method of Setting Seasons ⁴	% Land Area Open to Dog Hunting
				Archery	Black Powder	Firearms		
AL	4.9	A,B,C,I	1,500,000	109 (C)	5 (A)	74 (A,C)	A,B	70
AR	4.8	A,C, F, G	1,000,000	166 (C)	12 (C)	49 (C)	A,B	70
DE	8.35	B, F, G	36,000	131 (C)	14 (A,B)	35 (A,B)	A,B,C	0
FL	4.7	E		30	9	72	A,B	20
GA	10.4	A,C,D,E, G	1,000,000	115-146 (C)	80-95 (A,C)	73-88 (C)	A,B,C	23
KY	3.3	D,F,G	~1,000,000	136 (C)	2(A), 9(B)	10-16 (C) + 4 Jr. days	A,B,C	0
LA	5.7	A,B,C	500,000	123(C)	14(A,B)	65	A,B,C	80
MD	9.7	B,C,D,F,G	223,000	95 (C)	3+9 (A), 13 (B)	13 (A), 2 (B), + 2 Jr. day	A,B,C	0
MO	4.8	B,C,D,F,G	1,400,000	98	11	25	A,B	0
MS	8.7	C, E	1,700,000	122 (C)	12 (A),15 (B)	46	C	90
NC	6.3	A,B,C,D,F, G	1,165,000	21-56	12	18-69	A,B,C	50
OK	2.9	A,C, E, online	550,000	107 (C)	9	16	A,B	0
SC	10.4	A,B,C	750,000	16 (A)	10 (A)	70-140	C	60
TN	6.5	A,D	600,000	103(C)	62(C)	48(C)	A,B,C	0
TX	3.57	B,C	3.6 million ⁵	36	14	66-94 (B, C)	A,B	0
VA	6.0	A,B,C,D,F	~900,000	36-66	12-31	13-43	A,B	55
WV	5.8	A	608,000	80 (C)	6 (C)	22 (C)	A,B,C	0
Avg. or Total	6.28		16.4-16.6 million					30.47

Table 1. Continued. Page 3

State	No. of Hunters	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	185,606	Down	\$25.55	\$293.60	Hunter Log	Mandatory	N/A
AR	300,000	Stable	\$10.50 – 25	\$50 – 300	License Tag	Mandatory	Female/Mgt buck
DE	20,366	Stable	\$25	\$130+	Physical Tag	Mandatory	2 Antlered, Unlimited Antlerless
FL	122,949	Stable	\$17	\$152	None	None	No
GA	318,113	Stable	\$19-\$43	\$295-\$373	License Tag	Mandatory	WMAs
KY	298,132 ⁶	Stable	\$50	\$190	License Tag/ Hunter Log	Mandatory	Yes
LA	203,900	Stable	\$29-50	\$300-352	Physical Tag	Mandatory	DMAP
MD	60,000	Stable	\$36.50	\$130	Physical Tag	Mandatory	Antlered only
MO	517,618	Stable	\$17	\$225	License Tag	Mandatory	Antlerless only
MS	154,937	Up	\$18.85-33.85	\$303.85-382.70	None	None	Antlerless, DMAP & FMAP
NC	243,500	Stable	\$25	\$120	License Tag	Mandatory	Antlerless Only
OK	381,241	Stable	\$25	\$280	License Tag	Mandatory	DMAP
SC	142,107	Stable	\$25	\$225	None	None	Yes & DMAP
TN	200,000	Stable	\$56	\$251	Physical	Mandatory	Quota permits
TX	636,325	Stable	\$25	\$315	License Tag	Mandatory	MLDP permits
VA	225,000	Down	\$46-82	\$197-259	License Tag	Mandatory	Unlimited on private lands, antlerless only
WV	220,000	Stable	\$35	\$196	Physical Tag	Mandatory	Yes
Total	4,231,794						

Table 1. Continued. Page 4

State	Mandatory Orange	Crossbows Permitted	Deer Related Accidents						
			<u>Firearms</u>		<u>Stands</u>		<u>Other</u>		Highway Miles ⁷
			Inj.	Fat.	Inj.	Fat.	Inj.	Fat.	
AL	Yes	Yes	6	3	11	1	0	0	23,000 (B)
AR	Yes	Yes	9	2	10	0	0	0	21,913 (C)
DE	Yes	Yes	0	0	0	0	0	0	4,267 (B)
FL	WMAs only	Yes	1	1	0	0	0	0	14,284 (C)
GA	Yes	Yes	7	0	12	2	0	2	50,000 (C)
KY	Yes	Season & Handicap	5	1	6	2	1	0	2,798 (A)
LA	Yes	Yes	4	1	3	1	1	0	10,182 (C)
MD	Yes	Yes	4	0	11	1	1	1	31,300 (C)
MO	Yes	Yes, Firearms	9	3	2	0	0	0	37,042 (C)
MS	Yes	Yes, Firearms, Primitive Weapons	6	1	21	2	0	0	22,850 (C)
NC	Yes	Yes	12	1	8	1	0	0	59,270 (C)
OK	Yes	Yes							11,444 (C)
SC	WMAs only	Yes	10	1	18	1	0	0	2,281 (A)
TN	Yes	Yes	1	1	2	2	0	0	24,000 (C)
TX	WMAs only	Yes	2	2	0	0	0	0	46,537 (C)
VA	Yes	Yes	22	1	11	0	0	0	56,800 (C)
WV	Yes	Yes (Disabled)	4	0	8	1	1	3	14,263 (A)

Total

432,231

Table 1. Continued. Page 5

State	Limits ⁸			Antler Restrictions ⁹	% Hunting Success ¹⁰			Avg. Leasing Fees/Acre
	Season	Antlerless	Antlered		Archery	Muzzleloader	Firearms	
AL	3/None ⁸	1 or 2 per day	3	B,C (1 County, 6 WMAs)	~15	~20	~45	\$6-18
AR	6	3-6	2	A,C	?	?	?	\$6-10
DE	None	4+	2	One buck must have a spread ≥15"	?	?	?	?
FL	2/day ⁸	1 or 2/day ⁸	2/day ⁸	C	-----	52% Combined	-----	\$2-4
GA	12	10	2	A (One buck must be 4- points on 1 side) B (9 counties are more restricted)	25	18	56	\$30
KY		Varies	1	C (10 WMAs)	-----	41% Combined	-----	\$10-35
LA	6	3	2 with a choice on the 3rd	No	18	20	40	\$5-30
MD	Varies	3 with 1 bonus in Region B	3 with 1 bonus in Region B	No	38	35 (C)	46	\$5-35
MO	Varies	Varies	3; 1 with firearm	Yes, 63 counties	20	-	39	?
MS	8	5	3	C	32	35	50	?
NC	6 ⁸	6 ⁸	2/4 ⁸	NA	-----	50% Combined	-----	?
OK	6	Up to 6	2	No	26	29	31	\$5-10
SC	15+	10+	5+	C (10 WMAs)	32	30	64	\$8–20
TN		Varies	3 statewide	None	-----	33% Combined	-----	\$5-10
TX	5	Up to 5	Up to 3	C	-----	60% Combined	-----	\$7-15
VA	6 (east) & 5 (west)	6	3 (east)& 2 (west)	On 2 WMAs + 7 Counties	~35	~39	50	?
WV	10	Up to 9	Up to 3	6 WMAs	30	11	51	\$1-6
Avg.					27.1	26.3	47.2	

Table 1. Continued. Page 6

State	Private Lands Programs				Trailing wounded deer with dogs legal?	Supplemental feeding legal?	Baiting legal?
	Type ¹¹	Min. Acreage Requirements	Fee	No. of Cooperators			
AL	A	None	Yes	65	Yes	Yes	No
AR	A	None	None	800	Yes	Yes	Yes, Private
DE	DDAP SDDAP	None	None	124 201	No	Yes	Yes, Private
FL	A, C	640; 5000	None	1,573; 9	Yes	Yes	Yes
GA	None				Yes	Yes	No-North Zone Yes-South Zone
KY	B	None	None	275	Yes	Yes (except March – May)	Yes, Private
LA	A	40	Yes	734	Yes	Yes	Yes, Private
MD	None				Yes	Yes	Yes, Private Only. None W CWD
MO	B	5	None	150,000	Yes	Yes (except CWD zone)	No
MS	A,D	Variable	None	538	Yes	Yes	No
NC	A	Regional; 1,000/500	\$50	71	Yes	Yes	Yes
OK	A	1,000	\$200-400	147	No	Yes	Yes
SC	A	None	\$50	1,601	Yes	Yes	Yes
TN	None				With officer approval	Yes	No
TX	A,B,C	None	None	8,039 29 mil ac.	Most of Texas	Yes	Yes
VA	DCAP DMAP DPOP	None	None	625 844 14	Yes (no weapon)	No (Sept 1 – first Sat in Jan)	No
WV	None				No	Yes ¹²	Yes ¹²

Table 1. Continued; footnotes. Page 7

¹ Total harvest includes deer of unknown gender.

² 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.

³ A–Early Season; B–Late Season; C–Full Season.

⁴ A–Harvest & Biological; B–Departmental/Commission Regulatory; C–Legislative.

⁵ Texas population estimates should not be compared to estimates prior to 2005 due to changed methodology.

⁶ Asterisk if estimate includes landowner exempted hunters.

⁷ A–Actual number based on reports; B–Estimated road kill; C–State Farm estimate

⁸ 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 antlerless deer during archery season and if taken with antlerless deer permits. Only one/day may be antlerless during the 7-day antlerless deer season.

MD – Unlimited antlerless archery bag limit in Region B. Statewide antlerless bag limit of 1 buck per weapon (bow, muzzleloader, firearm). One bonus buck can be taken in Region B after buying bonus stamp and harvesting two antlerless deer.

MO – No daily or annual limit of antlerless deer but number that can be harvested in each county varies.

NC – Up to 2 buck in areas in the western, northwestern, and central deer seasons. Up to 4 bucks in areas in the eastern deer season. Unlimited bonus antlerless tags are available.

⁹ A–Statewide Antler Restrictions; B–County Antler Restrictions; C–Region or Area Antler Restrictions.

¹⁰ Averages do not include combined reports.

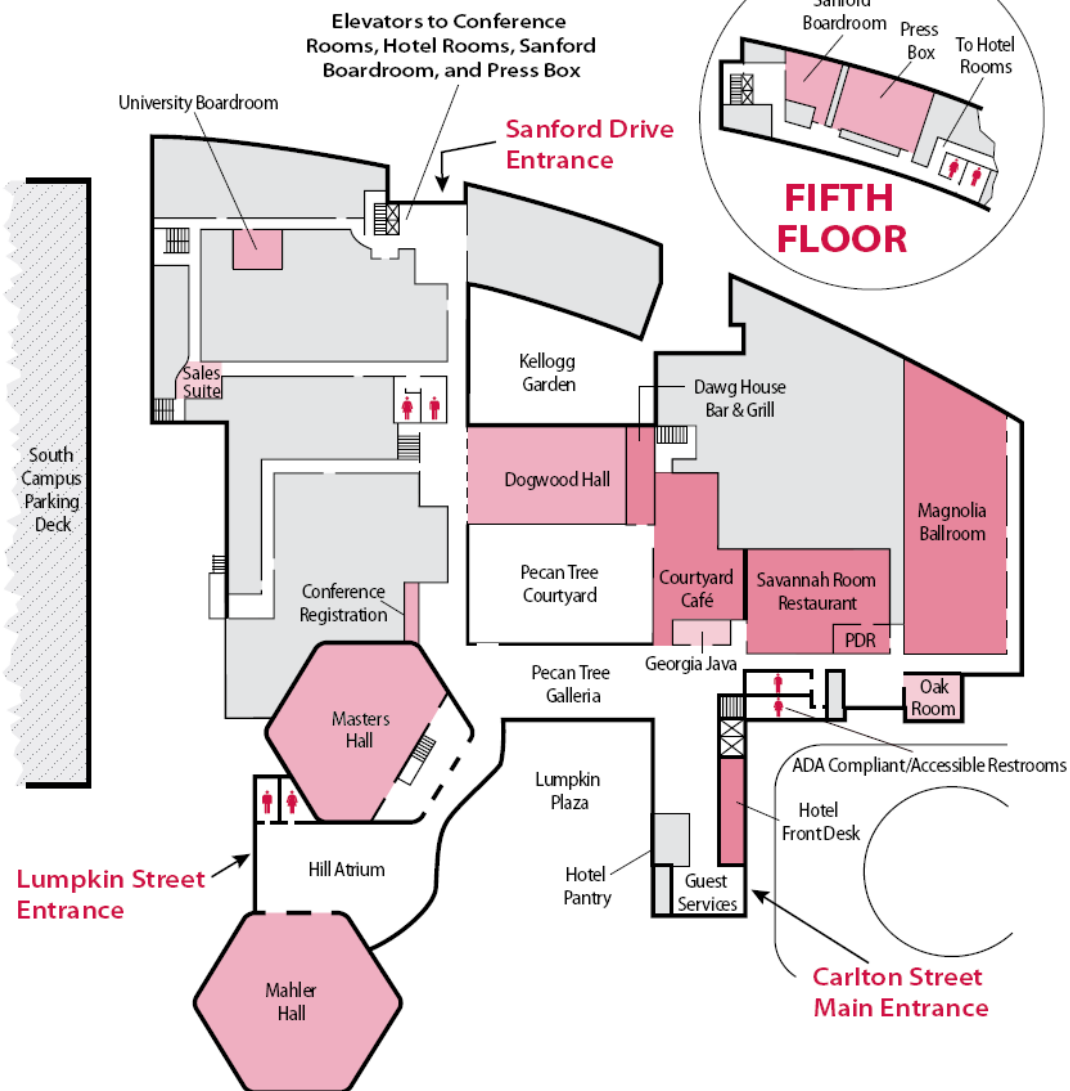
¹¹ A–DMAP; B–Landowner tags; C–Antlered buck tags; D–Fee MAP.

¹² Except for CWD area and public land from September 1 through December 31.

Note: All states require hunter education, permit handguns for use on deer, and do not permit use of drugged arrows on deer.

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