SEDSG 2024

47th Annual Meeting

February 11 - 14, 2024

Shepherdstown, WV

**IN OUR PURSUIT OF MANAGEMENT,
LET'S NOT FORGET OUR FOUNDATION**

WEST VIRGINIA DNR

THANK YOU TO OUR SPONSORS!

Priogen

NATIONAL DEER ASSOCIATION

ATS
ADVANCED TELEMETRY SYSTEMS

Westervelt
Wildlife Services

Lotek
advancing wildlife science

StewardGreen™
Wildlife Habitat Solutions

RESPONSIVE MANAGEMENT

VECTRONIC Aerospace

THANK YOU TO OUR CONFERENCE CONTRIBUTORS AND DONORS!

- VORTEX
- HARDY CUSTOM CALLS

IN OUR PURSUIT OF MANAGEMENT, LET'S NOT FORGET OUR FOUNDATION

47TH ANNUAL MEETING OF THE SOUTHEAST DEER STUDY GROUP

FEBRUARY 11-14, 2024 | SHEPHERDSTOWN, WV

CONTENTS

WELCOME / ACKNOWLEDGEMENTS

The West Virginia Division of Natural Resources welcomes you to the 47th Annual Meeting of the Southeast Deer Study Group in Shepherdstown, West Virginia.

We would like to thank the Louisiana Dept. of Wildlife and Fisheries, who hosted last year's meeting, Cully McCurdy and The National Wild Turkey Federation, the Southeast Deer Study Group, and all of the sponsors and contributors for their generous contribution to the 2024 meeting. A complete list of sponsors and contributors is listed inside the cover.

COMMITTEES

MEETING ORGANIZERS
Brett Skelly
Keith Krantz

PAPER/POSTER SELECTION
Christopher Ryan (Chair)
John Edwards
Sheldon Owen
David Milne

SITE COORDINATION & REGISTRATION
Keith Krantz (Chair)
Steven Rauch
Leslie Pelch
Brett Skelly

PROGRAM & AGENDA
Brett Skelly (Chair)
Christopher Ryan
Samantha Courtney
Brandy Bachman
Jerri Reed

HOSPITALITY
Keith Krantz (Chair)
Brett Skelly
Samantha Courtney
Zachary Wesner

GRAPHIC DESIGN
Brandy Bachman (Chair)
Jerri Reed

DOOR PRIZES
Thomas Pratt (Chair)
Ethan Barton
Brett Skelly
Keith Krantz

DEER DARTING
Zachary Wesner (Chair)
Brett Skelly
Keith Krantz

ADMIN SUPPORT
Steven Rauch (Chair)
Keith Krantz
Christopher Ryan
Paul Johansen

OTHER
James Crum
Mary Elliott

47TH ANNUAL MEETING OF THE SOUTHEAST DEER STUDY GROUP AGENDA

Hosted by the West Virginia Division of Natural Resources
February 11-14, 2024 | Shepherdstown, West Virginia
In Our Pursuit of Management, Let's Not Forget Our Foundation

Time		Location
SUNDAY, FEBRUARY 11		
12:00 – 6:00 PM	Conference Registration Desk Open	Auditorium Entryway
12:00 – 6:00 PM	Exhibitor Set-Up	Auditorium Entryway
12:00 – 6:00 PM	Poster Set-Up	Auditorium Entryway
2:00 – 3:00 PM	Southeast Deer Partnership Steering Committee Meeting	John Lemon Building 161
3:00 – 5:00 PM	SEDSG Technical Committee Meeting	John Lemon Building 161
5:30 – 7:30 PM	Dinner	Headwaters Lodge
6:00 – 9:00 PM	Super Bowl Party	Gallery
MONDAY, FEBRUARY 12		
6:30 – 8:00 AM	Breakfast	Headwaters Lodge
7:00 – 10:30 AM	Conference Registration Desk Open	Auditorium Entryway
8:00 – 8:15 AM	Welcome and Introduction	Auditorium
8:15 – 10:00 AM	Plenary Session	Auditorium
10:00 – 10:30 AM	Break	Auditorium Hall
10:30 – 11:30 AM	Technical Session 1	Auditorium
11:30 – 1:10 PM	Lunch	Headwaters Lodge
1:10 – 2:30 PM	Technical Session 2	Auditorium
2:30 – 3:00 PM	Break	Auditorium Hall
3:00 – 5:00 PM	Technical Session 3	Auditorium
5:30 – 7:00 PM	Dinner	Headwaters Lodge
TUESDAY, FEBRUARY 13		
6:30 – 8:00 AM	Breakfast	Headwaters Lodge
8:00 – 10:00 AM	Technical Session 4	Auditorium
10:00 – 10:30 AM	Break	Auditorium Hall
10:30 – 11:30 AM	Technical Session 5	Auditorium
11:30 – 1:10 PM	Lunch	Headwaters Lodge
1:10 – 2:50 PM	Technical Session 6	Auditorium
2:50 – 3:20 PM	Break	Auditorium Hall
3:20 – 5:00 PM	Technical Session 7	Auditorium
5:00 – 6:00 PM	SEDSG Technical Committee Business Meeting	John Lemon Building 161
6:00 – 6:30 PM	Pre-Awards Dinner Social	Roosevelt Room
6:30 – 8:00 PM	SEDSG Awards Dinner	Headwaters Lodge
WEDNESDAY, FEBRUARY 14		
Before 12:00 PM	Departure	

SOUTHEAST DEER STUDY GROUP

The Southeast Deer Study Group meets annually for researchers and managers to share the latest information on the most important wildlife species in North America. 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.

The Annual Southeast Deer Study Group Meeting is hosted with the support of the directors of the Southeastern Association of Fish and Wildlife Agencies and also the directors of Delaware, Maryland, Missouri, and Texas. The first meeting was held as a joint Northeast – Southeast Meeting in Virginia in 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 searchable list of all presentation abstracts from 1977 to present is available at SEDSG.com, as well as a list of the meetings, their locations, and themes.

The Southeast Deer Study Group was formed as a subcommittee of the Forest Game Committee of the Southeastern Section of The Wildlife Society. The Deer Subcommittee was given full committee status in November 1985 at the Southeastern Section of The Wildlife Society's annual business meeting. States participating regularly in the Southeast Deer Study Group include Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

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 Annual Meeting of the Southeast Deer Study Group is prohibited without written consent of the author(s). Electronic versions of this and previous proceedings are available at SEDSG.com. Participation of any vendor / donor / exhibitor with the Annual Meeting of the Southeast Deer Study Group does not constitute nor imply any endorsement by the Southeast Deer Study Group, the Southeast Section of The Wildlife Society Deer Committee, the host state, or meeting participants.

SOUTHEAST DEER STUDY GROUP MEETINGS

Year	Location	Meeting Theme
1977	Fort Picket, 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 and 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
2015	Little Rock, AR	Integrating the North American Model of Wildlife Conservation into Deer Management
2016	Concord, NC	The Challenges of Meeting Hunter Expectations
2017	St. Louis, MO	Disease: Science, Politics, and Management
2018	Nashville, TN	Stakeholder-focused, Science-based, and Data-driven: The Gold Standard for the State Deer Management System?
2019	Louisville, KY	Deer, It's What's for Dinner
2020	Auburn, AL	Deer Management in a Rapidly Changing World: Bridging a Generational Disconnect
2021	Virtual	Pandemic or Prospect: Managing Deer and Recruiting Hunters in 2021
2022	Virtual	The Importance of Deer and Deer Hunters to the American Public
2023	Baton Rouge, LA	Managing Deer When Normal Isn't Normal Anymore
2024	Shepherdstown, WV	In Our Pursuit of Management, Let's Not Forget Our Foundation

COMMITTEE MEMBERS

SOUTHEAST DEER STUDY GROUP, THE WILDLIFE SOCIETY, SOUTHEAST SECTION

STATE	NAME	AFFILIATION
Alabama	Chris Cook	Alabama Division of Wildlife and Freshwater Fisheries
	Kevin McKinstry	The Westervelt Company
Arkansas	Ralph Meeker	Arkansas Game and Fish Commission
	Jeremy Brown	Arkansas Game and Fish Commission
Delaware	Sam Millman	Delaware Division of Fish and Wildlife
Florida	Cory R. Morea	Florida Fish and Wildlife Conservation Commission
	Becky Peters	Florida Fish and Wildlife Conservation Commission
	Steve Shea (Chair)	Shea Wildlife & Environmental Services, Inc.
Georgia	Charlie Killmaster	Georgia Department of Natural Resources
	Gino D'Angelo	University of Georgia
Kentucky	Joe McDermott	Kentucky Department of Fish and Wildlife Resources
Louisiana	Johnathan Bordelon	Louisiana Department of Wildlife and Fisheries
	Robert Kennon	Louisiana Department of Wildlife and Fisheries
Maryland	Jonathan Trudeau	Maryland Department of Natural Resources
	George Timko	Maryland Department of Natural Resources
Mississippi	William McKinley	Mississippi Wildlife, Fisheries, and Parks
	Stan Priest	Mississippi Wildlife, Fisheries, and Parks
	Steve Demarais	Mississippi State University
Missouri	Jason Isabelle	Missouri Department of Conservation
	Kevyn Wiskirchen	Missouri Department of Conservation
North Carolina	April Pope	North Carolina Wildlife Resources Commission
Oklahoma	Jerry Shaw	Oklahoma Department of Wildlife Conservation
	Dallas Barber	Oklahoma Department of Wildlife Conservation
South Carolina	Charles Ruth	South Carolina Department of Natural Resources
	Jay Cantrell	South Carolina Department of Natural Resources
Tennessee	Craig Harper	University of Tennessee
Texas	Blaise Korzekwa	Texas Parks and Wildlife Department
	Bob Zaiglin	Southwest Texas Junior College
Virginia	Justin Folks	Virginia Department of Game and Inland Fisheries
	Katie Martin	Virginia Department of Game and Inland Fisheries
West Virginia	Brett Skelly	West Virginia Division of Natural Resources
NDA	Kip Adams	National Deer Association
USFWS	Larry Williams	United States Fish & Wildlife Service
At Large Member	James Kelly	

SOUTHEAST DEER STUDY GROUP AWARDS

CAREER ACHIEVEMENT AWARD

1996	Richard F. Harlow	2005	Kent E. Kammermeyer	2014	Mark O. Bara
1997	Larry Marchington	2006	William E. "Bill" Armstrong	2015	Larry E. Castle
1998	Harry Jacobson	2007	Jack Gwynn	2016	J. Scott Osborne
1999	David C. Guynn, Jr.	2009	David E. Samuel	2017	Karl V. Miller
2000	Joe Hamilton	2010	Bob K. Carroll	2018	Steve Demarais
2002	Robert L. Downing	2011	QDMA	2019	W. Matt Knox
2004	Charles DeYoung	2012	Robert E. Zaiglin	2020	Charles Ruth

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
2014	Blaise Korzekwa	Texas A&M University - Kingsville
2015	Lindsay D. Roberts	Texas A&M University - Kingsville
2016	Lindsey Phillips	Texas A&M University - Kingsville
2017	Daniel Morina	Mississippi State University Texas
2018	Onalise R. Hill	Texas A&M University - Kingsville
2019	Zachary Wesner	University of Georgia
2020	Lindsey M. Phillips	University of Tennessee
2021	Michael Muthersbaugh	Clemson University
2022	Lindsey Phillips	University of Tennessee
2023	Breanna R. Green	Texas A&M University - Kingsville

OUTSTANDING STUDENT ORAL PRESENTATION AWARD

1996	Billy C. Lambert, Jr.	Texas Tech University	2011	Kamen Campbell	Mississippi State University
1997	Jennifer A. Schwartz	University of Georgia	2012	Brad Cohen	University of Georgia
1998	Karen Dasher	University of Georgia	2013	Michael Cherry	University of Georgia
1999	Roel R. Lopez	Texas A&M University	2014	Brad Cohen	University of Georgia
2000	Karen Dasher	University of Georgia	2015	Eric Michel	Mississippi State University
2001	Roel R. Lopez	Texas A&M University	2016	Rebecca Shuman	University of Georgia
2002	Randy DeYoung	Mississippi State University	2017	Jared Beaver	Texas A&M University
2003	Bronson Strickland	Mississippi State University	2018	Dan Morina	Mississippi State University
2004	Randy DeYoung	Mississippi State University	2019	C. Moriah Boggess	Mississippi State University
2005	Eric Long	Penn State University	2020	Jordan R. Dyal	University of Georgia
2006	Gino D'Angelo	University of Georgia	2021	Seth T. Rankins	Texas A&M University
2007	Sharon A. Valitzski	University of Georgia	2022	Blaise Newman	University of Georgia
2008	Cory L. Van Gilder	University of Georgia	2023	Luke Resop	Mississippi State University
2009	Michelle Rosen	University of Tennessee			
2010	Jeremy Flinn	Mississippi State University			

ORAL PRESENTATION SCHEDULE

MONDAY, FEBRUARY 12

Time		Speaker
8:00 - 10:00 AM	**PLENARY SESSION** *Moderator: Paul Johansen, WVDNR*	
8:00 – 8:05 AM	Welcome	Brett Skelly, WVDNR
8:05 – 8:10 AM	Introduction to NCTC	Steve Chase, NCTC
8:10 – 8:15 AM	Introduction	Paul Johansen, WVDNR
8:15 – 8:45 AM	Wildlife Restoration Funding in the United States — Decades of Species Restoration and Management	Thomas Decker
8:45 – 9:15 AM	Good Intentions with Negative Consequences: Legislative Threats to Conservation Funding	John Culclasure
9:15 – 9:45 AM	Protecting Cultural Acceptance of Hunting	Peter Churchbourne
9:45 – 10:00 AM	Panel Discussion	
10:30 - 11:30 AM	**TECHNICAL SESSION 1: HABITAT** *Moderator: Keith Krantz, WVDNR*	
10:30 – 10:50 AM	Fire Seasonality in Upland Hardwoods Influences Forage Availability, Cover, and Deer Use *(page 15)*	*Mark Turner
10:50 – 11:10 AM	Effects of Prescribed Fire on Deer Forage Quality in Southern Pine Stands *(page 16)*	*Jacob Bones
11:10 – 11:30 AM	Interactive Effects of Deer Herbivory, Soil Conditions, and Competing Vegetation Influence Tree Seedling Communities *(page 17)*	Duane Diefenbach
1:10 - 2:30 PM	**TECHNICAL SESSION 2: DEMOGRAPHY AND PHYSIOLOGY** *Moderator: Dr. Christopher Ryan, WVDNR*	
1:10 – 1:30 PM	Survival and Recruitment of White-tailed Deer Fawns in South Texas *(page 18)*	*Kevin Lovasik
1:30 – 1:50 PM	White-tailed Deer Fawn Survival in a Chronic Wasting Disease Endemic Area in Northwestern Arkansas *(page 19)*	*Marcelo Jorge
1:50 – 2:10 PM	Comparison of BAM and NalMed-A in White-tailed Deer in a High-Prevalence CWD Area *(page 20)*	*Justin Kosiewska
2:10 – 2:30 PM	Antler Allometry: Evaluating Antler Size in Terms of Investment Potential *(page 21)*	*Monet Gomes
3:00 - 5:00 PM	**TECHNICAL SESSION 3: ABUNDANCE AND DENSITY** *Moderator: Dr. Sheldon Owen, WVU Extension*	
3:00 – 3:20 PM	A Bayesian State-space Modeling Approach to Estimate White-tailed Deer (Odocoileus virginianus) Abundance in Georgia *(page 22)*	*Amanda Van Buskirk
3:20 – 3:40 PM	Assessing the Effect of a Deer Harvest Regulation Change on Relative Abundance: An Experimental Approach *(page 23)*	*Steven Gurney
3:40 – 4:00 PM	Unmanned Aerial Vehicles for Estimating White-tailed Deer Density *(page 24)*	*Kevin Gerena
4:00 – 4:20 PM	Accounting for Animal Density Gradients in Distance Sampling Surveys *(page 25)*	Jacob Trowbridge
4:20 – 4:40 PM	Sika Deer Expansion and Competition with White-tailed Deer on the Delmarva Peninsula, USA *(page 26)*	Matthew McBride
4:40 – 5:00 PM	Legality Trends of Baiting, Feeding, Drone, and Trail Camera use Across the Southeast *(page 27)*	Ben Westfall

Time	TUESDAY, FEBRUARY 13	Speaker
8:00 - 10:00 AM	**TECHNICAL SESSION 4: HEMORRHAGIC DISEASE AND CHRONIC WASTING DISEASE** *Moderator: Ethan Barton, WVDNR*	
8:00 – 8:20 AM	How Many Bites Does it Take? Exploring Transmission of Epizootic Hemorrhagic Disease Virus *(page 28)*	Mark Ruder
8:20 – 8:40 AM	Climate Influenced Disease Expansion of Hemorrhagic Disease *(page 29)*	Sonja Christensen
8:40 – 9:00 AM	Supplemental Feeding, Deer Behavior, and CWD Transmission *(page 30)*	Samantha Courtney
9:00 – 9:20 AM	Risky Business: Are Deer Feeders a CWD Disease Management Concern? *(page 31)*	Steve Demaris
9:20 – 9:40 AM	The Detection and Decontamination of Chronic Wasting Disease Prions During Venison Processing *(page 32)*	Marc D. Schwabenlander
9:40 – 10:00 AM	Changing Our Approach to Chronic Wasting Disease Surveillance Through Mathematical Modeling, Data Science, and Technology *(page 33)*	Nicholas Hollingshead
10:30 - 11:30 AM	**TECHNICAL SESSION 5: RESOURCE SELECTION** *Moderator: Dr. John Edwards, WVU*	
10:30 – 10:50 AM	Resource Selection During Encamped Behavior of Male White-tailed Deer *(page 34)*	*Blaise Newman
10:50 – 11:10 AM	So, You Know Where That Buck Sleeps, Huh? Pulling the Covers Off Buck Bedding Areas *(page 35)*	*Luke Resop
11:10 – 11:30 AM	Movement Behaviors of White-tailed Bucks in Mississippi *(page 36)*	Natasha Ellison
1:10 - 2:50 PM	**TECHNICAL SESSION 6: HUMAN DIMENSIONS** *Moderator: Samantha Courtney, WVDNR*	
1:10 – 1:30 PM	Selecting Urban Deer Management Techniques Through a Support-Effectiveness Analysis: Comparing Suburban and Semi-rural Communities *(page 37)*	*Shane Boehne
1:30 – 1:50 PM	Shotgun vs. Rifle Deer Hunting Safety: A Virginia Case Study *(page 38)*	Peter Acker
1:50 – 2:10 PM	Why West Virginia Hunters Choose Not to Deer Hunt *(page 39)*	Randy Tucker
2:10 – 2:30 PM	Buck to the Future: Wisconsin Deer Hunter Demographics 2005 - 2040 *(page 40)*	Adam Mohr
2:30 – 2:50 PM	Deer Hunter Success Rates in the United States *(page 41)*	Kip Adams
3:20 - 5:00 PM	**TECHNICAL SESSION 7: STATE REPORTS** *Moderator: Brett Skelly, WVDNR*	
3:20 – 3:40 PM	Deer Management in the First State & its Future *(page 42)*	Samuel Millman
3:40 – 4:00 PM	The Effects of Drought on White-tailed Deer in the Second Wettest State *(page 43)*	Johnathan Bordelon
4:00 – 4:20 PM	The Benefits and Growing Pains Associated with the Modernization of Maryland's CWD Surveillance Program *(page 44)*	Jonathan Trudeau
4:20 – 4:40 PM	Using Vehicle Mounted Thermal Cameras to Survey White-tailed Deer *(page 45)*	Kamen Campbell
4:40 – 5:00 PM	Does Increasing Antlerless Harvest Opportunity Increase Antlerless Harvest? The VA Experience *(page 46)*	Justin Folks

PAPER ABSTRACTS

* DENOTES STUDENT PRESENTATION

WILDLIFE RESTORATION FUNDING IN THE UNITED STATES – DECADES OF SPECIES RESTORATION AND MANAGEMENT

Thomas Decker, CWB®,
Communications, Analysis and Partnerships Branch, Manager, US Fish and Wildlife Service

ABSTRACT:

In the United States, since 1937 a federal manufacturer excise tax has been in place to fund wildlife restoration projects at the state level. Today, sporting firearms, handguns, ammunition, and archery equipment are taxed, and revenues are deposited into a federal fish and wildlife trust fund. Wildlife Restoration grants awarded to state fish and wildlife agencies must be matched by the grantee with nonfederal funds. These are most often derived from state hunting or trapping license fees or permit revenue. This system of funding is commonly known as the American System of Conservation Funding and allocates the collected excise taxes to individual state fish and wildlife agencies via an annual "apportionment" and broader and sometimes national in scope, projects under a Multi-State Conservation Grant program. This system of funding is sometimes confused with the North American Wildlife Conservation Model, which has no funding element within it, and applies to Canada and Mexico as well. Eligible activities under the Wildlife Restoration Act of 1937 must adhere to the conservation of wild birds and mammals. These activities include land purchase and management; population research, monitoring, and inventory; disease assessment and amelioration; hunter education, recruitment, retention and reactivation of target shooters and hunters; construction, operations, and maintenance of public target shooting ranges. The federal fish and wildlife trust fund currently receives around $900,000 million annually in these taxes and funds the work of thousands of state employees, as this source of funds may reflect 50% of a state fish and wildlife agencies' budget.

CONTACT:

thomas_decker@fws.gov PartnerwithaPayer.org

NOTES:

GOOD INTENTIONS WITH NEGATIVE CONSEQUENCES: LEGISLATIVE THREATS TO CONSERVATION FUNDING

John Culclasure, Congressional Sportsmen's Foundation

ABSTRACT:

Well-intended, seemingly pro-sportsmen legislation can unintentionally undermine the "user pays – public benefits" American System of Conservation Funding. This session will explore how state legislation to provide free or discounted hunting and fishing licenses, state legislation to reject federal taxes on firearms and ammunition, and federal legislation to repeal Pittman-Robertson excise taxes threaten conservation funding for state fish and wildlife agencies. Policy recommendations to equip sportsmen and women with the tools to protect conservation funding in their state will be discussed.

CONTACT:

Jculclasure@congressionalsportsmen.org

NOTES:

PROTECTING CULTURAL ACCEPTANCE OF HUNTING

Peter Churchbourne, Director, Hunters' Leadership Forum

ABSTRACT:

Hunting participation in the United States has changed in the past 20 years. From where we hunt, who hunts, new hunters and why they hunt. R3 (Recruitment, Retention and Reactivation) has not met the expectations and after our best efforts, we are still left with no net new hunters. With active license buying hunters only representing only 4.5% of the US population, the future of hunting lies in the hands of the non-hunter. This presentation will cover new research on the attitudes of nonhunters and how we can help maintain and improve the cultural acceptance of hunting.

CONTACT:

pchurchbourne@nrahq.org

NOTES:

FIRE SEASONALITY IN UPLAND HARDWOODS INFLUENCES FORAGE AVAILABILITY, COVER, AND DEER USE

***Mark Turner[1], Jacob Bones[1], Spencer Marshall[1], Craig Harper[2]**

1: School of Natural Resources, University of Tennessee
2: University of Tennessee - Knoxville

ABSTRACT:

Prescribed fire commonly is paired with canopy reduction to improve forage and cover for white-tailed deer, and there is increased interest in using fire during various portions of the growing season in upland hardwoods. Burning during the early-growing season (EGS) versus late-growing season (LGS) may result in differences in vegetation response, yet there is limited information on the cumulative effects of multiple fires during different seasons on vegetation and deer use. We paired a shelterwood with reserves harvest with six fires during EGS and LGS in portions of four upland hardwood stands in east Tennessee starting in 2010. Another portion of each stand served as an untreated control. We measured vegetation composition, structure, deer forage availability, and deer detections using camera traps in summer 2023. Canopy reduction and fire during either season increased understory vegetation, with greater coverage of trees and brambles in LGS compared to EGS, which was related to reduced fire intensity in LGS. Visual obstruction for bedding or fawning was greater in LGS than EGS. Deer forage biomass increased more than 500% following canopy reduction and fire during either season, and nutritional carrying capacity with a 14% crude protein constraint increased 8000% following EGS fire. Deer detections were greater in treatment units relative to control with 448% more detections in EGS than LGS in May–June, but similar detections between treatments in July–August. Our results demonstrate both EGS and LGS fire can be used to promote various resources for deer in upland hardwoods.

CONTACT:

mturne69@vols.utk.edu

NOTES:

EFFECTS OF PRESCRIBED FIRE ON DEER FORAGE QUALITY IN SOUTHERN PINE STANDS

***Jacob Bones[1], Mark Turner[1], Spencer Marshall[1], Craig Harper[1]**

1: School of Natural Resources, University of Tennessee

ABSTRACT:

Pine forests throughout the southeastern US are managed primarily for wood products, but deer habitat is a common secondary objective. Pine stands are thinned to provide space for tree growth as well as sufficient sunlight that stimulates increased deer forage. Previous research has examined effects of thinning on deer forage quantity, but information on how plant composition affects deer forage quality is lacking. We compared deer forage availability at nine sites dominated by loblolly or shortleaf pine across TN, SC, AL, and MS following a fire event using a randomized complete block design that included dormant, early growing-, mid-growing-, and late growing-season fire with a control. Fire treatments were applied 2020–2021, and we sampled vegetation response in 2021 and 2022 . Average biomass of deer forage plants did not differ amongst treatments the first or second growing season following fire. Nutritional carrying capacity with a 14% crude protein (CP) constraint averaged 3.3 deer days/acre in 2022. Forb coverage averaged 25% in treatment units providing only 112.3 lbs./ac, which limited nutritional carrying capacity. Treatment units averaged 163.1lbs./ac of semi-woody forage and 185.9 lbs./ac of woody forage. Control units averaged 1.8 deer days/acre, with only 15.7% forb coverage contributing 37.8 lbs./ac. Availability of forbs commonly limits nutrition for deer in pine forests, because forbs generally provide greater nutritional quality than woody or semi-woody plants. Further implementation of prescribed fire, particularly during the growing season, could continue to increase forb coverage and the corresponding nutritional carrying capacity.

CONTACT:

jbones@vols.utk.edu

NOTES:

INTERACTIVE EFFECTS OF DEER HERBIVORY, SOIL CONDITIONS, AND COMPETING VEGETATION INFLUENCE TREE SEEDLING COMMUNITIES

Duane Diefenbach[1], Danielle Begley-Miller[2], Emily Domoto[3], Patrick Drohan[2], Phillip Jones[2], Marc McDill[2], Christopher Rosenberry[4], Autumn Sabo[5], Bret Wallingford[4]

1: U.S. Geological Survey
2: Pennsylvania State University
3: Pennsylvania Department of Conservation and Natural Resources
4: Pennsylvania Game Commission
5: Pennsylvania State - Beaver

ABSTRACT:

Ungulate herbivory, soil conditions, and competing vegetation are three factors with known management actions that influence forest tree regeneration. However, how these factors interact has not been studied and disagreements over which factor is most important remain. We conducted a 7-year experiment in oak-hickory forests of central Pennsylvania, USA to assess the interactive effects of white-tailed deer (Odocoileus virginianus) herbivory, soil acidity, and competing vegetation on tree regeneration by excluding deer, amending soil with dolomitic limestone, and removing competing vegetation via herbicide. Liming and fencing had positive effects on tree seedlings with fencing having the greatest positive effect. However, outcomes depended on initial tree seedling abundance and all three factors had significant interactions. At low levels of initial seedling abundance, fencing resulted in the greatest response. When lime application resulted in soil pH > 4.6, seedling growth and abundance on unfenced controls was similar to fenced-only treatment, especially at higher levels of initial seedling abundance. Fencing and liming benefitted herbicide treatment but herbicide-only treatment did not improve tree growth and abundance, even at higher levels of soil pH. Competing vegetation, assumed to be a symptom of excessive, long-term deer herbivory, does not seem to be the primary factor limiting tree regeneration. Treating soil conditions warrants greater consideration as a management action for increasing tree regeneration because ameliorating acid deposition effects on soils could provide long-lasting benefits to the understory plant community compared to short-term fence installations that only provide temporary reprieve from deer herbivory.

CONTACT:

drd11@psu.edu

NOTES:

SURVIVAL AND RECRUITMENT OF WHITE-TAILED DEER FAWNS IN SOUTH TEXAS

***Kevin Lovasik[1],Miranda Hopper[1], Bryan Spencer[2], Randy DeYoung[1], Aaron Foley[1], Alfonso Ortega-Santos[1], David Hewitt[1], Landon Schofield[3], Tyler Campbell[3], Michael Cherry[1]**

1: Caesar Kleberg Wildlife Research Institute
2: Department of Fish and Wildlife Sciences, University of Idaho
3: East Foundation

ABSTRACT:

In large mammals, recruitment is a significant determinant of population growth and influenced by environmental stochasticity, yet the drivers are poorly understood. In white-tailed deer (Odocoileus virginianus), fawn survival is typically the most dynamic parameter influencing variation in recruitment and understanding drivers of survival is important for managing populations. We studied survival and cause-specific mortality of fawns in a deer population not exposed to predator control, supplemental feed, or harvest on the East Foundation's San Antonio Viejo Ranch in South Texas, USA. We captured and radio-collared white-tailed deer fawns at birth by monitoring pregnant adult females equipped with vaginal implant transmitters, and at approximately four-months and eight-months-old via aerial net-gunning during 2020-2023. We captured 222 fawns and monitored individuals until death or loss of collar. We determined cause of death using molecular and observational field evidence. Kaplan-Meier estimates of 12-week survival across the 4 years ranged from 30-35%, and one-year survival ranged from 12-24%. Coyotes (Canis latrans) were the primary cause of mortality, accounting for almost half of the documented mortalities, but bobcats (Lynx rufus) and wild pigs (Sus scrofa) also killed fawns. In southern Texas, coyotes are suggested as the most dominant predator of fawns. Most mortality events occurred during the first five weeks of life and during late winter (February-March). The high winter mortality was unexpected but coincided with poor range conditions and extreme temperatures. Our low fawn survival estimates suggest annual survival of adult female deer must be high to sustain populations on southern Texas rangelands.

CONTACT:

kevin.lovasik@students.tamuk.edu

NOTES:

WHITE-TAILED DEER FAWN SURVIVAL IN A CHRONIC WASTING DISEASE ENDEMIC AREA IN NORTHWESTERN ARKANSAS

***Marcelo Jorge[1], Lisa Jorge[1], Richard Chandler[1], Michael Chamberlain[1], Mark Ruder[2], Gino D'Angelo[1]**

1: University of Georgia
2: Southeastern Cooperative Wildlife Disease Study, University of Georgia

ABSTRACT:

Chronic wasting disease (CWD) is a fatal infectious prion disease that may affect the long-term viability of cervid populations. One mechanism by which CWD could affect cervid populations is through reduced fawn survival resulting from impaired parental care by infected attending does. We investigated survival of fawns born to CWD positive (n=15) and presumed negative (n=28) white-tailed deer within Arkansas' CWD management zone. We captured adult does and affixed them with GPS collars and vaginal transmitters (VIT) and collected rectoanal mucosa-associated lymphoid tissue biopsies for CWD testing. We monitored fawns using VHF collars and monitored them every 8 hours for the first 6 weeks, daily for the next 12 weeks, and once per week thereafter. We used parametric survival models to investigate how individual characteristics and environmental variables impacted survival. Average survival to 180 days was 39% (CI:30-46%), comparable to estimates from other regions in the Southeast. Doe CWD status did not significantly impact fawn survival. Fawns born to does with CWD had 49% survival (CI:19-72%) compared to 33% (CI:4-67%) for does in which CWD was not detected. Doe health index (weight/age), fawn weight, twin presence, and distance to field were positively associated with survival. Although we found no effect of doe CWD status on fawn survival, our results are conditional on does being healthy enough to give birth. Future studies should assess total CWD impacts on fecundity by assessing effects on pregnancy and parturition rates. CWD could also reduce lifetime reproductive output by reducing longevity, even if there are no impacts on fawn survival or fecundity.

CONTACT:

marcelo.jorge@uga.edu

NOTES:

COMPARISON OF BAM AND NALMED-A IN WHITE-TAILED DEER IN A HIGH-PREVALENCE CWD AREA

***Justin Kosiewska[1],Mark Wilber[1], Dan Grove[1], Dailee Metts[1], Gino D'Angelo[2], Mark Ruder[3], David Osborn[2], Lisa Muller[1]**

1: University of Tennessee
2: University of Georgia
3: Southeastern Cooperative Wildlife Disease Study, University of Georgia

ABSTRACT:

Chemical immobilization is often required for safe capture, handling, and transport of white-tailed deer (Odocoileus virginianus). Drug combinations, such as butorphanol-azaperone-medetomidine (BAM), are potent, reversible, and provide efficient immobilization. Nalbuphine-medetomidine-azaperone (NalMed-A) is a potential alternative to BAM and is not controlled by the DEA. However, studies using NalMed-A to immobilize free-ranging white-tailed deer are limited. Our objectives included comparing the response of deer immobilized with BAM and NalMed-A with different capture techniques in a high-prevalence CWD area. Deer were captured and drugged from January - March 2023 using drop nets (n=6), Clover traps (n=3), and helicopter-deployed nets with transport to workup area (n=20). All deer were given supplemental oxygen during the time of drugging. Deer were fitted with GPS collars programmed to record 30-minute locations. Time to complete immobilization was similar for BAM (10.1 min, SE=1.6, n=9) and Nalmed-A (8.7 min, SE=1.1, n=7) for all capture methods. Time until the deer was able to leave the area was the same regardless of the drug used (31.8 min, SE=9.4, n=9 for BAM; 21.4 min, SE=8.0, n=10 for NalMed-A) but affected by the capture method. Of the helicopter-captured deer, two had leg fractures and four had capture myopathy. Five of the six mortalities were CWD-positive. Blood gas analysis only occurred on helicopter capture and showed metabolic acidosis and high lactate, regardless of the drug used. BAM and NalMed-A were effective with ground capture techniques but may not help reduce capture-related stress when used with helicopter-deployed nets and transport.

CONTACT:

jkosiews@vols.utk.edu

NOTES:

ANTLER ALLOMETRY: EVALUATING ANTLER SIZE IN TERMS OF INVESTMENT POTENTIAL

***Monet Gomes[1], Robert Gitzen[1], Stephen Ditchkoff[1]**

1: Auburn University College of Forestry, Wildlife and Environment

ABSTRACT:

Many factors, such as antler size, body size, and age, contribute to reproductive success in male white-tailed deer. Antlers play a role in intrasexual combat and dominance establishment, and also serve as a signal of quality to potential mates and rivals. Antlers are described by some as the fastest growing tissue in the animal kingdom, and as such, deer incur incredible nutritional demands during antlerogenesis. As a result, nutritional demands for antler growth can exceed what forage intake alone can provide, and thus resources are often mobilized from the body to complete antler development. Despite this, antlers, like many other sexually selected traits, exhibit allometric growth patterns. Allometry is a common characteristic of sexually selected traits and describes the phenomenon where traits increase at rates disproportionate to organismal growth. Our research quantifies antler allometry and describes antler investment relative to individual body size and age class by utilizing 13 years of antler and body measurements from known-age deer darted within the Auburn University Captive Deer Facility. We found that in young deer, body size was positively associated with antler size. However, as age increased, this positive relationship diminished. Using this modeled relationship, we evaluate the degree of antler allometry for individuals, relative to their age class. As opposed to measuring gross antler score alone, we suggest that evaluating allometry contextualizes the way individuals of all ages and sizes invest in antlers, providing a more detailed understanding of sexual selection and reproductive strategy.

CONTACT:

magoo86@auburn.edu

NOTES:

A BAYESIAN STATE-SPACE MODELING APPROACH TO ESTIMATE WHITE-TAILED DEER (ODOCOILEUS VIRGINIANUS) ABUNDANCE IN GEORGIA

***Amanda Van Buskirk[1], Clinton Moore[1], Charlie Killmaster[2], Kristina Johannsen[2], Gino D'Angelo[1]**

1: University of Georgia
2: Georgia Department of Natural Resources

ABSTRACT:

Natural resource management agencies are often interested in estimating the size, composition, and demography of animal populations. Accurate estimates are needed for hunted populations because managers must set regulations that allow for adequate hunting opportunities while protecting populations from overharvest. However, reliable estimates are difficult to obtain over large spatial scales, and consequently, managers frequently rely on population trends inferred from age and sex structured harvest data when making regulatory decisions. We developed a Bayesian state-space model for white-tailed deer using age-at-harvest data to estimate deer abundance at the scale of a wildlife management area (WMA). We tested our proposed modeling approach on a set of simulated datasets, assessed the sensitivity of model output to different scenarios, and applied the model to data from deer harvested during controlled hunts on 10 WMAs in Georgia, USA. Our model successfully followed the trend in simulated abundance and recovered true parameter values, except for reporting rate. Population estimates using age-at-harvest data from WMAs indicated an increasing trend in abundance for 5 WMAs, a decreasing trend for 2 WMAs, and a stationary trend for 3 WMAs. Our modeling approach potentially improves on previous models by allowing for a more realistic representation of the stochastic nature of population dynamics and sampling processes. Our strategy is valuable for population estimation because it only requires readily available harvest data, but other sources of data can be integrated into the model to further improve the precision of parameter estimates.

CONTACT:

av94646@uga.edu

NOTES:

ASSESSING THE EFFECT OF A DEER HARVEST REGULATION CHANGE ON RELATIVE ABUNDANCE: AN EXPERIMENTAL APPROACH

***Steven Gurney[1], Sonja Christensen[1], Melissa Nichols[2], Sarah Mayhew[2], Neil Gilbert[3], Dwayne Etter[2]**

1: The Christensen Lab for Wildlife Population Health, Michigan State University
2: Michigan Department of Natural Resources
3: Zipkin Quantitative Ecology Lab, Michigan State University

ABSTRACT:

Assessing changes in population abundance is important when evaluating the effectiveness of conservation and management for wildlife. In free-ranging wildlife populations, evaluating a single regulation change on a population is considerably challenging. Antler point restrictions (APRs) have become an increasingly popular regulatory action to limit harvest of younger male deer. Our study was designed to evaluate population-level effects of an APR regulation on white-tailed deer using a before-after-control-impact design. Our objectives were to estimate relative abundance and evaluate trends over three consecutive years post regulation change. We conducted camera surveys of unmarked deer to monitor the effect of the APR implementation. During summer months 2019–2022, we deployed ~144 camera traps within selected townships across a designated 5-county area in the Lower Peninsula of Michigan that included a known chronic wasting disease hotspot. We collected 2.6 million photographs and characterized photos of deer based on number of individuals, sex, age, and number of antler points. Using an N-mixture model to account for imperfect detection, we estimated annual relative abundance by sex-and-age class. We found weak evidence for APRs affecting the relative abundance by sex-and-age classes. In both treatment and control areas, we consistently observed increasing trends in legal and sub-legal male deer relative abundance over time and found no evidence supporting change in female and fawn relative abundance. Our results highlight potential limitations of APRs achieving desired effects for population reduction goals and the importance of developing harvest regulations specific to the targeted deer population, area, and management goals.

CONTACT:

gurneyst@msu.edu

NOTES:

UNMANNED AERIAL VEHICLES FOR ESTIMATING WHITE-TAILED DEER DENSITY

***Kevin Gerena[1], Chad Newbolt[1], Robert Gitzen[1], Stephen Ditchkoff[1]**

1: Auburn University

ABSTRACT:

Advances in unmanned aerial vehicle (UAV) technology have enabled scientists and managers to collect data on wildlife species that were unimaginable until recently. One use of UAVs that has received considerable attention is density estimation of white-tailed deer (Odocoileus virginianus). However, the precision of density estimates using UAVs remains poorly understood. We evaluated the precision of white-tailed deer density estimates collected using UAVs and the effect of transect width on variability of these estimates. We flew a quadcopter equipped with a 640 x 512 thermal sensor at 18mph and 300ft above-ground-level with a 225-ft viewing window over a 430-acre high-fenced property from January-March, 2023 using pre-programmed flight paths along transects spaced 250 and 500ft apart. The known deer density of this site was 0.212 deer/acre; mean nightly deer density estimates using UAVs were 0.213 and 0.210 deer/acre along transects spaced 250 and 500ft apart, respectively. However, standardized coefficients of variation for nightly density estimates of this site were 8.373 at 250ft and 17.999 at 500ft, suggesting that 250-ft-wide flight paths offer superior precision at the cost of additional flight time. Our study demonstrates that UAV-mounted thermal cameras are a precise, effective tool for estimating deer density. Scientists utilizing UAVs for estimating deer density should minimize transect widths to maximize precision.

CONTACT:

krg0045@Auburn.edu

NOTES:

ACCOUNTING FOR ANIMAL DENSITY GRADIENTS IN DISTANCE SAMPLING SURVEYS

Jacob Trowbridge[1], Duane Diefenbach[2], Tiago Marques[3], Tess McConnell[2], Amanda Van Buskirk[4], Christopher Rosenberry[5], W. David Walter[2], Kevin Lamp[1]

1: Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University
2: U.S. Geological Survey
3: University of St. Andrews
4: University of Georgia
5: Pennsylvania Game Commission

ABSTRACT:

Monitoring the abundance of large ungulates via distance sampling has often used roads as transects because these species can avoid observers on foot and dense vegetation rules out aerial surveys. When roads are used as transects the distance sampling estimator likely will be biased because (1) deer are not distributed uniformly with respect to distance from a road and (2) roads are not distributed randomly on the landscape. We use auxiliary data on the density gradient of deer relative to transects and a generalized form of the distance sampling estimator to eliminate the assumption that objects must be uniformly distributed relative to the transect. However, the generalized estimator is unbiased only for the area surveyed. To account for roads not being representative of the study area, we further modified the estimator to incorporate data on the proportion of the population encountered in the surveyed region. We illustrate our approach using data from white-tailed deer populations in Pennsylvania, USA where both detection and distribution is affected by using roads as transects. We used locations from a sample of deer fitted with GPS satellite radio-collars as auxiliary data to model the distribution of deer. We show that violation of assumptions when using roads as transects results in unpredictable bias in the standard distance sampling estimator.

CONTACT:

jxt5689@psu.edu

NOTES:

SIKA DEER EXPANSION AND COMPETITION WITH WHITE-TAILED DEER ON THE DELMARVA PENINSULA, USA

Matthew McBride[1], Angela Holland[1], Kyle McCarthy[1], Gregory Shriver[1], Johnathan Trudeau[2], Jacob Bowman[1]

1: University of Delaware
2: Maryland Department of Natural Resources

ABSTRACT:

Non-native sika deer (Cervus nippon) on Maryland's eastern shore are managed with the goal of preventing range expansion but sika deer range continues to expand. Implementing effective management requires understanding the factors influencing sika deer distribution and occurrence, but these remain uninvestigated. Understanding how sika deer relate to landscape variation is the first step in anticipating and addressing their impacts on native communities and their role as a potential competitor with white-tailed deer. We surveyed 61 sites from 10 January – 30 March 2022 and 37 sites from 4 February – 29 March 2023 in Dorchester, Wicomico, and Somerset counties in Maryland with camera traps. We selected sites through a stratified random sampling scheme focused on capturing variation in forest cover, marsh cover, and sika deer density across the study area. Each site was surveyed for a mean of 15 days with one camera trap baited with corn, yielding over 400,000 photos. We evaluated single-season occupancy models to identify landscape-level covariates that predict sika deer occurrence, estimate sika deer occupancy within current range, and project potential sika deer distribution across the Delmarva Peninsula. We used a relative abundance index of sika deer to investigate the effect of sika deer on white-tailed deer relative abundance, daily detection probability, and site occupancy probability.

CONTACT:

mmcbride@udel.edu

NOTES:

LEGALITY TRENDS OF BAITING, FEEDING, DRONE AND TRAIL CAMERA USE ACROSS THE SOUTHEAST

Ben Westfall[1], Kip Adams[1], Nick Pinizzotto[1], Matt Ross[1]

1: National Deer Association

ABSTRACT:

Baiting and supplemental feeding regulations vary due to population and disease management objectives and other environmental and cultural factors. We surveyed state wildlife agencies to determine the legality of baiting and feeding in 2011, 2016 and 2022. We also asked if they are currently permitted in disease zones. Eleven states in the Southeastern Association of Fish and Wildlife Agencies (SEAFWA) allow baiting, and all 15 allow feeding in some capacity today. Since 2016, three states in the SEAFWA region have made baiting more accessible to hunters while one state expanded feeding privileges. In addition, technologies such as trail cameras (standard and cellular) and drones may challenge ethical boundaries as their capabilities improve, so we also asked state wildlife agencies if they allow the use of either technology during deer season in 2017 and 2022. We further analyzed that by private vs. public land for cameras (2022), as well as permitted drone activities including scouting, game recovery and/or use of thermal imagery. All 15 SEAFWA states allow standard and cellular trail cameras on private land during deer season, with 14 states allowing the use of both on public land. The general use of drones is currently allowed in 12 states, with varying regulations relative to the aforementioned activities. Since 2016, one state has legalized drone use while one other state has implemented restrictions. Our results help illustrate the expanding landscape of baiting and feeding in the Southeast, and the liberal use of trail cameras and drones on private and public lands.

CONTACT:

Ben@DeerAssociation.com

NOTES:

HOW MANY BITES DOES IT TAKE? EXPLORING TRANSMISSION OF EPIZOOTIC HEMORRHAGIC DISEASE VIRUS

Mark Ruder[1], Mary Mills[2], Elin Maki[3], Dane Jasperson[3], Jonathan Brietenbach[3], Lee Cohnstaedt[4], Barbara Drolet[3], William Wilson, Scott McVey[5]

1: Southeastern Cooperative Wildlife Disease Study, University of Georgia
2: University of South Carolina - Aiken
3: Arthropod-Borne Animal Diseases Research Unit, United States Department of Agriculture
4: Foreign Arthropod-Borne Animal Diseases Research Unit, United States Department of Agriculture
5: School of Veterinary Medicine and Biomedical Sciences, University of Nebraska - Lincoln

ABSTRACT:

Epizootic hemorrhagic disease (EHD) virus (EHDV) is transmitted to white-tailed deer (WTD) by Culicoides species biting midges. As one of the most important diseases of WTD, EHD occurs cyclically and is an emerging disease threat in some regions of the United States. Here, we review the transmission of EHDV and report results of a study to investigate the transmission efficiency of EHDV-2. Our objective was to determine if the bite from as few as five EHDV-infected C. sonorensis is sufficient to infect WTD. Colonized C. sonorensis were intrathoracically inoculated with EHDV-2, held for 10 days at 79 °F to allow for virus replication, and were then given the opportunity to feed on susceptible WTD (n=2): deer A, 10 midges; deer B, 5 midges. After feeding on deer, Culicoides were processed to quantify virus in each midge. Inoculation failed in one midge that fed on deer B. After Culicoides feeding, deer were monitored clinically and sampled for virus over a 14-day period. Culicoides feeding varied: deer A, 1/10 midges partially blood-fed but eight bite wounds were observed on the skin (evidenced by focal red areas); deer B, 5/5 midges blood fed (one partial, four to repletion). Both deer became infected with EHDV-2 and developed mild clinical disease. This study demonstrates WTD become infected with EHDV-2 with as few as 4 bites from infected C. sonorensis and calls into question whether successful blood feeding is essential for transmission. This high observed efficiency likely contributes to the explosive potential of EHD outbreaks.

CONTACT:

mgruder@uga.edu

NOTES:

CLIMATE INFLUENCED DISEASE EXPANSION OF HEMORRHAGIC DISEASE

Sonja Christensen[1],Brett Skelly[2], Mark Ruder[3], James Crum[2], David Stallknecht[3]

1: The Christensen Lab for Wildlife Population Health, Michigan State University
2: West Virginia Division of Natural Resources
3: Southeastern Cooperative Wildlife Disease Study, University of Georgia

ABSTRACT:

Hemorrhagic disease (HD) of deer is a vector-borne disease caused by either epizootic hemorrhagic disease virus (EHDV) or bluetongue virus (BTV) and can result in high mortality in white-tailed deer. Outbreaks of HD have been increasing in distribution, frequency, and intensity across the United States in the last 20 years. Climate change has been implicated in the emergence of BTV and EHDV in Europe and may be contributing to emergence in North America. Our objectives were to test whether climatic variation in seasonal precipitation and temperature, predicted landscape-level vector habitat, or host attributes explained the probability of mortality of HD in white-tailed deer in West Virginia from 1981 – 2019. We used historic HD occurrence data and quantified predictor variables on a county-level. We used generalized linear mixed models to evaluate the presence of HD in West Virginia. We documented 181 HD occurrences across the state of West Virginia, with 94 corresponding virus isolations. The majority of HD outbreaks were from EHDV-2, but EHDV-1, 6, and BTV-3 were also isolated. We found evidence that HD occurrence was driven by precipitation and temperature. Specifically, increased July precipitation followed by decreased August precipitation were significant predictors of HD occurrence. Increased spring temperature saw a significant increase in the probability of HD occurrence. Deer density and wetland cover did not explain observed HD presence in our study. Our research provides a clear relationship between climate factors and emerging wildlife disease and may inform risk communication for wildlife managers to their stakeholders.

CONTACT:

chris625@msu.edu

NOTES:

SUPPLEMENTAL FEEDING, DEER BEHAVIOR, AND CWD TRANSMISSION

Samantha Courtney[1], Dwayne Etter[2], David Williams[1], Sonja Christensen[3]

1: Michigan State University
2: Michigan Department of Natural Resources
3: The Christensen Lab for Wildlife Population Health, Michigan State University

ABSTRACT:

Previous studies made assumptions of how frequently deer come into direct contact based on proximity of radio-collared individuals, but this information is not precise. I created three behavioral categories (i.e., direct, self, and environmental contacts) to portray a broader range of behaviors potentially linked to prion transmission. I used camera trapping on private lands and road-based transect surveys during the post-breeding period (January-April 2021 and 2022) to quantify behaviors among various sex and age classes at congregation areas including baited sites, food plots, and naturally occurring forage. I compiled 395 observations of known sex-age deer during road surveys and conducted 2,047 observations from video surveys (bait sites = 1,631, food plots = 416). For deer observed, I detected fewer direct contacts at food plots (Food plot = -1.45 [95% CI = -2.00 - -0.90]) and transects (Transects = -1.12 [95% CI = -1.64 – 0.59]) compared to bait sites. I found a lower number of self-contacts at food plots compared to bait sites (Food plot = -1.14 (95% CI = -1.64 - -0.64). I observed fewer environmental contacts at food plots (Food plot = -0.68 (95% CI = -0.90 - -0.47)) and transects (Transects = -0.65 (95% CI =-0.87 - -0.43)) compared to bait sites. My results indicate that the likelihood of direct and environmental contacts at bait sites exceeds contacts at food plots and naturally occurring forage. In areas of CWD concern, food plots and natural forage offer a less risky food source for deer.

CONTACT:

samantha.e.courtney@wv.gov

NOTES:

RISKY BUSINESS: ARE DEER FEEDERS A CWD DISEASE MANAGEMENT CONCERN?

Miranda Huang[1],Steve Demarais[1], Marc D. Schwabenlander[2], Bronson Strickland[1], Corina Valencia[2], Sarah C. Gresch[2], Stuart Lichtenberg[2], Tiffany M. Wolf[2], Peter Larsen[3]

1: Mississippi State University
2: Minnesota Center for Prion Research and Outreach
3: University of Minnesota

ABSTRACT:

For chronic wasting disease (CWD), indirect transmission due to environmental contamination is of increasing interest, and eliminating feeding is a common regulatory action. Previous research demonstrated detection of prions on surfaces in CWD-positive deer captive facilities. In this study, we established and maintained 12 gravity feeders from September 2022 to March 2023 in Mississippi's northern CWD zone (prevalence ~30%). Feeders were set up in 3 ways: no exclusion (deer feeders, n=6), exclusion of deer through fencing with holes cut at the ground-level to permit smaller wildlife to enter (raccoon feeders, n=3), and environmental control feeders which were fully fenced and not filled with feed (control feeders, n=3). Feeder spouts were swabbed at set up and four more times approximately 6 weeks apart to test for prion detection via RT-QuIC. All deer and raccoon feeders showed statistically significant prion detection by 4 months post set-up. We compared relative transmission risk using camera traps at these feeders, 6 food plots, and 7 mast trees. Weekly visitation rate by white-tailed deer was greater (p=0.002) at deer feeders (median=24.5, range=15.6-65.7), than food plots (12.7, 3.8-24.7) and mast trees (2.0, 0.4-5.1). Further, individual WTD touched other individual WTD more often at deer feeders (weekly rate: median=4.1, range=0.6-10.1), than food plots (0.1, 0-4.0) and mast trees (0, 0-0.3). This study demonstrates that deer feeders in free-ranging populations with high CWD prevalence become contaminated with CWD prions quickly and are at higher risk for potential indirect and direct disease transmission than planted and natural food sources.

CONTACT:

mhh257@msstate.edu

NOTES:

THE DETECTION AND DECONTAMINATION OF CHRONIC WASTING DISEASE PRIONS DURING VENISON PROCESSING

Marc D. Schwabenlander[1], Marissa Milstein[2], Sarah C. Gresch[1], Stuart Lichtenberg[1], Damani Bryant[2], Laramie Lindsey[2], Rachel Shoemaker[2], Gage Rowden[2], Jason Bartz[3], Tiffany M. Wolf[1], Peter Larsen[4]

1: Minnesota Center for Prion Research and Outreach
2: Veterinary and Biomedical Sciences Dept., College of Veterinary Medicine, University of Minnesota
3: Department of Medical Microbiology and Immunology, School of Medicine, Creighton University
4: University of Minnesota

ABSTRACT:

The USDA and FDA consider CWD-positive venison unfit for human and animal consumption. CWD prions accumulate in infected deer tissues that enter the human food chain. Yet, the degree to which prion contamination occurs during venison processing is unknown. Here, we: a) experimentally tested meat processing equipment (stainless steel knives, polyethylene cutting boards) after processing CWD-positive venison, and b) tested the efficacy of disinfectants (Dawn dish soap, Virkon-S, Briotech, 10% and 40% bleach) for prion decontamination. We detected CWD prions on equipment used in processing CWD-positive venison, by means of surface swabbing coupled with RT-QuIC. After drying and washing surfaces with Dawn and a sponge, we detected CWD on the cutting board and sponge, but not on the knife. Similar patterns occurred with Briotech. We did not detect CWD on equipment after disinfecting with Virkon-S, 10% and 40% bleach. Repeated decontamination cycles led to structural defects in 40% bleach and Briotech treated steel. Scanning electron microscopy visualized structural changes, and corresponding energy dispersive x-ray analysis showed depletion of carbon. These results suggest Dawn and Biotech do not reliably decontaminate CWD prions from surfaces. Virkon-S and bleach are more effective in reducing prion contamination; however, surface type likely influences prion binding, which may prevent complete decontamination. Briotech and 40% bleach led to structural compromise of stainless steel tools and surfaces, which could alter the binding properties of prions on surfaces. Our results will directly inform best practices to prevent the introduction of CWD prions into the human food chain.

CONTACT:

schwa239@umn.edu

NOTES:

CHANGING OUR APPROACH TO CHRONIC WASTING DISEASE SURVEILLANCE THROUGH MATHEMATICAL MODELING, DATA SCIENCE, AND TECHNOLOGY

Nicholas Hollingshead[1], Cara Them[1], Rachel Abbott[1], Paul Adams[2], Brenda Hanley[1], Krysten Schuler[1]

1: Cornell Wildlife Health Lab, Cornell University
2: DJ Case & Associates

ABSTRACT:

Chronic Wasting Disease (CWD) continues to spread throughout North America and has now been detected in free-ranging cervid populations in 31 US states and four Canadian provinces. Wildlife agencies commit significant resources to CWD surveillance, outbreak response, and disease management efforts. These efforts come with costs that further strain overburdened agency staff. We initiated the Surveillance Optimization Project for Chronic Wasting Disease (SOP4CWD) in 2020 to help wildlife agencies develop economical, effective, and efficient CWD surveillance and response programs. This long-term, multi-agency project aims to provide wildlife agencies with the latest data and quantitative tools to address the challenges of CWD surveillance and response. Today, more than 25 state and provincial wildlife agencies participate in the project, and all wildlife management agencies in North America, including indigenous nations, are welcome to join. In the Fall 2022, project collaborators developed the CWD Data Warehouse, a secure, shared online platform, free to all wildlife agencies, that integrates CWD data management, modeling, analysis, and visualization. In this presentation, we will provide an overview of the system, introduce the latest mathematical models and tools added to the Warehouse, and describe the technologies that wildlife agencies are using to integrate the Warehouse into their annual CWD surveillance planning. As a data and information sharing platform, the Warehouse can reshape our approach to CWD surveillance, rendering more efficient wildlife health management and scientific discovery across the continent.

CONTACT:

nah88@cornell.edu

NOTES:

RESOURCE SELECTION DURING ENCAMPED BEHAVIOR OF MALE WHITE-TAILED DEER

***Blaise Newman[1], Jordan Dyal[1], Karl Miller[1], Michael Cherry[2], Gino D'Angelo[1]**

1: University of Georgia
2: Caesar Kleberg Wildlife Research Institute

ABSTRACT:

Space use associated with behaviors has implications for survival and fitness. Ruminants require refuge for rumination, but the abiotic attributes of these sites are largely unknown. We evaluated where white-tailed deer (Odocoileus virginianus) encamped (e.g., bedded) to identify drivers of space use. From August-September 2019, we recorded 10-min locations from 15 GPS collared adult male deer in Central Florida. We identified behavioral states of deer using Hidden-Markov models and analyzed the encamped data. We calculated an activity center for each encamped period and used discrete-choice models to compare used and available encampments for day and night. Deer on average moved <7 meters per hour while encamped, remained encamped for 2.4 hours between movements, and spent approximately 70% of the time encamped. During the day, deer selected wetlands during potential foraging behaviors, selected closed canopy environments and shrublands during potential bedded behaviors, and avoided wetlands during potential bedded behaviors. At night, deer selected wetlands, shrublands, development, and closed canopy environments during potential foraging behaviors, selected closed canopy environments during potential bedded behaviors, and avoided wetlands and development during potential bedded behaviors. Our results suggest closed canopy environments provide crucial thermal refuge for deer during heat generating rumination behavior in warmer climates. Understanding habitat requirements during functional behaviors will help identify life history aspects that are currently unknown and not detectable from stand resource selection approaches alone.

CONTACT:

blaise.newman@uga.edu

NOTES:

SO, YOU KNOW WHERE THAT BUCK SLEEPS, HUH? PULLING THE COVERS OFF BUCK BEDDING AREAS

*** Luke Resop[1], Natasha Ellison[1], Bronson Strickland[1], Steve Demarais[1], William McKinley[2]**

1: Mississippi State University
2: Mississippi Department of Wildlife, Fisheries, and Parks

ABSTRACT:

Few topics are of greater interest to deer biologists, managers, and hunters alike than buck movement habits. Among these, bedding habits may be the most widely discussed yet most poorly understood. Although studies have documented general bed site characteristics using visual observation or snow tracks, to our knowledge, none have used GPS collar data to investigate the topic. We used GPS data from 60 bucks ?2.5 years old collected 2017-2019 in central Mississippi to quantify bedding characteristics during the hunting season (October 1 – January 31). To qualify as a bed site, ≥4 consecutive GPS points (≥ 1 hour) had to be within a 20-yard radius. We also identified bedding areas, defined by individual bed sites separated from all other sites by a distance of >100 yards. On average, bucks bedded 4 times per day and used 23 distinct bedding areas across the hunting season. Bucks used 52% of their bedding areas a single time, 30% between two and five times, 14% between six and 200 times, and 4% >200 times. The average return interval to bedding areas used more than once was 6.1 days across the entire hunting season, but bucks returned at a significantly longer interval during the latter portions of the rut than during the weeks preceding the rut. These data suggest bucks choose numerous bedding locations when bedding cover is ubiquitous, bedding areas reflect reproductive status of the deer herd, and bucks have far more bedding areas than previously thought.

CONTACT:

lr1177@msstate.edu

NOTES:

MOVEMENT BEHAVIORS OF WHITE-TAILED BUCKS IN MISSISSIPPI

Natasha Ellison[1], Luke Resop[1], Bronson Strickland[1], Steve Demarais[1], William McKinley[2]

1: Mississippi State University
2: Mississippi Department of Wildlife, Fisheries, and Parks

ABSTRACT:

Predicting the most likely locations of bucks within the hunting season can be greatly improved by understanding the life history behaviors of the entire population. Buck movements are driven by a complex network of reactions to local stimuli and decisions based on their memory, making their exact locations difficult to predict, but finding common patterns within movement data can reveal invaluable insight into their likely locations. We investigated the movements of 40 bucks in Mississippi throughout the 2017 and 2018 hunting seasons by recording their GPS locations every 15 minutes. Our comprehensive data has revealed a great amount of insight into buck responses to environmental features, bedding sites, alongside deer-hunter and conspecific interactions. We present key findings from our analyses on the revisit dynamics to food plots and journeys from bedding sites at different stages of the rut. Additionally, we show the results of step-selection analyses that quantify the buck's selection for relocations relative to wind direction, feeders, food plots and hunting stands.

CONTACT:

natasha.ecology@gmail.com

NOTES:

SELECTING URBAN DEER MANAGEMENT TECHNIQUES THROUGH A SUPPORT–EFFECTIVENESS ANALYSIS: COMPARING SUBURBAN AND SEMI-RURAL COMMUNITIES

***Shane Boehne[1],Gino D'Angelo[1], Bynum Boley[1], Amanda Van Buskirk[1], Kaitlin Goode[2], Charlie Killmaster[2], Kristina Johannsen[2]**

1: University of Georgia
2: Georgia Department of Natural Resources

ABSTRACT:

Managers commonly consider lethal and non-lethal techniques to manage deer-human conflicts in urbanized areas. However, it is difficult for managers to utilize traditional lethal techniques in ever-growing urban areas where citizens commonly hold non-consumptive views toward deer management. Our study aims to help managers select deer management techniques by identifying which are supported and viewed as effective by residents in suburban and semi-rural communities. Our process creates a streamlined methodology to rank techniques and identify if communities need additional education on the efficacy of certain methods. Our research focuses on one suburban and one semi-rural community in Georgia which were selected based on human population density and existing deer-human conflicts. We used two survey methods: door-to-door surveys in the suburban community and mail-based surveys in the semi-rural community. We used a support–effectiveness framework based on an Importance Performance Analysis and found that habitat modification, hazing, and doing nothing were considered non-viable techniques in both communities. Conversely, habitat improvement, eliminating supplemental feeding, and education were acceptable techniques in both communities. Sharpshooting and controlled hunts were more supported in the semi-rural community than in the suburban community. We identified that the support–effectiveness framework is a fast and economical method for ranking the acceptability of management techniques. This method also helps managers identify if stakeholders need additional education on the efficacy of certain methods. This methodology will improve how managers gather stakeholder input when selecting acceptable techniques to manage deer-human conflicts in residential communities.

CONTACT:

sb16426@uga.edu

NOTES:

SHOTGUN VS. RIFLE DEER HUNTING SAFETY: A VIRGINIA CASE STUDY

Peter Acker[1]

1: Virginia Department of Wildlife Resources

ABSTRACT:

Throughout Eastern Virginia, many localities prohibit hunting deer with rifles, ostensibly due to safety concerns with greater projectile range over flat lands. In these counties, the widely accepted method of hunting deer is via coursing hounds, which push the deer to standers, who use shotguns loaded with buckshot to attempt to take the deer as they flee from the hounds. In recent years, more interest in hunting with rifles has emerged, and localities are asking the question: is it safe? To address this, the author compiled 20 years of applicable hunting incident reports from Virginia (2002-2021) and found that hunting deer with rifles appears to result in far fewer injuries than does hunting them with buckshot and shotguns. Applicable rifle incidents resulted in 6 fatalities and 19 nonfatal injuries, while buckshot resulted in 10 fatalities and 195 nonfatal injuries during the studied span, even while buckshot hunting is only popular in approximately half of the state and accounts for ~28% of the deer kill. More factors are discussed which may skew the injury rate of deer hunting with rifles as compared to shotguns to be even less than expressed in the data.

CONTACT:

peter.acker@gmail.com

NOTES:

WHY WEST VIRGINIA HUNTERS CHOOSE NOT TO DEER HUNT

Randy Tucker[1], James Crum[1], Brett Skelly[1], Jessica Perkins[1]

1: West Virginia Division of Natural Resources

ABSTRACT:

Understanding hunter participation is a key factor in harvest management of white-tailed deer. Studies investigating reasons why hunters hunt are well documented. Reasons why hunters do not participate during the hunting season can provide valuable considerations when recommending management objectives and regulations. Nine-thousand potential white-tailed deer hunters were randomly surveyed by mail each year inquiring their hunting participation during one or more of West Virginia's deer seasons from 2017 through 2022. A total of 2,642 respondents recorded why they did not hunt. Responses were assigned to one of 19 categories and tabulated. Categories were further organized into groups; namely, "Physical", "Personal", "Sustenance", and "Management". Physical (31.7%) and Personal (31.0%) reasons accounted for over 60% of reasons why respondents did not deer hunt. As expected, 'Physical' related reasons such as 'Health/Medical' (22%) and 'Sustenance' related 'Job/Work Schedule' (20%) were high; however, over 10% were directly related to deer management. 'No place to hunt' (4.4%) and concerns over 'deer population/disease' (3.4%) where primary management-related reasons. Additionally, during the pandemic (2020 - 2021), hunters indicated a heightened concern over contracting Covid in addition to other reasons. Understanding why hunters do not participate can influence focus of management decisions. We concentrate on respondent reasons where management strategies are most likely to be implemented and create change. Management and societal implications will be discussed.

CONTACT:

Randy.L.Tucker@wv.gov

NOTES:

BUCK TO THE FUTURE: WISCONSIN DEER HUNTER DEMOGRAPHICS 2005-2040

Adam Mohr[1], Daniel Storm[1], Beth Wojcik[1], Christine Anhalt-Depies[1], Meghan Henry[1]

1: Wisconsin Department of Natural Resources

ABSTRACT:

The number of deer hunters in the USA has been declining since the 1990s, threatening the viability of recreational hunting as a method to manage deer populations and fund conservation and management activities. In 2013, a study of Wisconsin male gun deer hunters used demographic models to examine the relative effects of time-period, age, and birth-cohort on deer hunting participation rates and calculate projections of the number of deer hunters out to 2030. For this study, we compared these previous projections with subsequent license sales and used a similar modelling approach to create updated projections of future deer hunters out to 2040 under a variety of hypothetical scenarios. We found that the previous projections were largely accurate, but slightly overestimated the number of hunters in 2020, likely due to youth participation declining faster than anticipated. Our analysis showed that participation rates for male hunters declined steadily through time across all ages, except 60+ year olds which has remained relatively stable. In each projection scenario we examined, the number of male deer hunters declined continually; between 100,000 and 190,000 fewer hunters by 2040, depending on the projection scenario. While we found the decline rate will accelerate in coming years as baby boomers age out of the hunting population, most of the projected decline of male deer hunters was caused by time-period and birth-cohort effects, meaning hunting participation was declining across most ages and each subsequent cohort had lower hunting participation than the preceding ones. For female deer hunters, projections were inconsistent about whether there would be more or fewer female hunters in 2040 compared to current levels. The future growth or decline of the female hunter population will largely depend on the youth participation rate – if youth participation continues to decline below current levels, female hunter numbers will decline. Our results demonstrate that deer population management through recreational harvest will become less and less viable in the face markedly fewer hunters.

CONTACT:

adam.mohr@wisconsin.gov

NOTES:

DEER HUNTER SUCCESS RATES IN THE UNITED STATES

Kip Adams[1], Matt Ross[1], Ben Westfall[1], Nick Pinizzotto[1]

1: National Deer Association

ABSTRACT:

Deer populations are managed primarily by hunter harvest. Harvest is regulated by hunter numbers and opportunity provided by bag limits, season lengths and timing. To determine hunter success rates, we surveyed state wildlife agencies and asked for the percentage of hunters that harvested one deer and the percentage that harvested two or more during the 2022-23 hunting season. We have comparable data from 2011, 2017 and 2019 hunting seasons. Nationally, only 41% of hunters harvested a deer in 2022. Fifty-four percent of hunters in the Southeast Region harvested a deer, while only 40% in the Midwest and 35% in the Northeast and West were successful. South Carolina led all states with 71% of its hunters harvesting a deer. Connecticut's hunters were least successful at 19%. The three-region average for hunters shooting two or more deer was 17%, and this ranged from 12% in the Midwest and Northeast to 26% in the Southeast. South Carolina led all states with 45% of hunters shooting at least two deer, followed by Tennessee (33%) and Georgia (31%). Some western states have a one-deer bag limit so that region was excluded from analysis of hunters harvesting two or more deer. Nationally, the percentage of successful hunters declined from 48% in 2011 to 41% in 2022. Multiple deer bag limits are the norm today, and some hunters and non-hunters perceive this as overharvesting deer herds. However, the reality is less than half of hunters harvest a deer annually, and only a small percentage fill multiple tags.

CONTACT:

Kip@DeerAssociation.com

NOTES:

STATE REPORT ABSTRACTS

DEER MANAGEMENT IN THE FIRST STATE & ITS FUTURE

Samuel Millman, Delaware DNREC, Division of Fish and Wildlife

ABSTRACT:

The Delaware Department Natural Resources & Environmental Control (DNREC), Division of Fish and Wildlife (DFW) manages the deer population in a balance of crop damage control for farmers, providing recreational opportunities for hunters, and providing viewing opportunities for wildlife watchers. The deer management paradigm in Delaware is a blend of traditional and quality deer management, with emphasis on harvesting female deer for population control. Situated in the mid-Atlantic, Delaware shares many deer management issues and factors with both the northeast and southeast states. While small compared to many states in the Southeast, Delaware annually ranks high among states in terms of deer harvest per square mile, and quality buck harvest per square mile along having one of the highest female and antlerless deer harvest rates in the country. Mild winters, an abundance of agriculture, and a mosaic of woodlots and marshes make Delaware a prime place for deer and deer hunters.

CONTACT:

samuel.millman@delaware.gov

NOTES:

THE EFFECTS OF DROUGHT ON WHITE-TAILED DEER IN THE SECOND WETTEST STATE

Johnathan Bordelon, Louisiana Department of Wildlife and Fisheries

ABSTRACT:

Environmental challenges in Louisiana are often associated with an overabundance of water in the form of river floods and coastal flooding from tropical systems. Extreme drought, while less frequent, does occur in Louisiana. The correlation between drought and impacts to forage and subsequent deer condition and productivity are well documented across parts of the whitetail's range. However, how do those observations compare to data collected in Louisiana during droughts classified as extreme over the past few decades? Harvest data, with assigned ages from properties enrolled in DMAP and LDWF Wildlife Management Areas, was assessed for correlations between extreme drought and measured changes in deer condition. Data was reviewed at the state, regional, habitat type, and WMA level to determine what, if any, changes were evident. Age specific data included body weights, lactation rates, and antler measurements. In addition to the evaluation of current year harvest data, deer body condition during the following year was also considered. Recognizing the potential for a change in the relationship between deer and available resources over time was an added challenge. Evaluations of larger Wildlife Management Areas consisting of more than 50,000 acres were included. The Wildlife Management Areas include habitat indices and harvest strategies aimed at keeping deer within desired conditions as spelled out by prescribed management plans for each. The goal was to reduce the influence of density dependent changes in body condition over time when making the evaluation. Results from both DMAP and WMA data will be presented. While local impacts may be observed, statewide WMA and DMAP numbers in recent decades did not reveal an association between extreme drought in Louisiana and diminished deer condition. In the case of Louisiana, continued monitoring of deer and environmental conditions is needed to better understand the effects of extreme environmental conditions on an ever changing deer herd. Timing, duration, and pulses associated with extreme drought may reveal changes not previously measured.

CONTACT:

jbordelon@wlf.la.gov

NOTES:

THE BENEFITS AND GROWING PAINS ASSOCIATED WITH THE MODERNIZATION OF MARYLAND'S CWD SURVEILLANCE PROGRAM

Jonathan Trudeau, George Timko, and Lindsey O'Brien

Across the board, Chronic Wasting Disease has change the way we look at and conduct disease surveillance. Like many agencies, The Maryland Department of Natural Resources (MDDNR) has monitored CWD for close to 20 years. Over those 20 years many aspects of CWD surveillance has changed. With new statistical models, software, and information available, adapting and modernizing MDDNR's CWD surveillance program was necessary. To accomplish this, MDDNR identified three main areas needing improvement: 1) statewide sampling distribution, 2) data collection workflow, and 3) data transfer and dissemination. Starting in 2022, MDDNR started to address these needs. Despite staff increased sampling by over 200% , data preparation and processing time was cut in half by collecting data electronically and automating many aspects of the program. However, MDDNR staff experienced multiple unforeseen challenges that required further consideration. These challenges included equipment failures leading to data quality issues, an exponential increase in the need for deer processor certification to ensure proper carcass disposal, and even public misunderstanding of regulations. Knowing change does not occur instantaneously and adaptive management is key to success, MDDNR staff continue to evaluate and modify the CWD surveillance program to ensure the most efficient and effective CWD surveillance possible in the state.

CONTACT:

jonathank.trudeau@maryland.gov

NOTES:

USING VEHICLE MOUNTED THERMAL CAMERAS TO SURVEY WHITE-TAILED DEER

Kamen Campbell, Mississippi Department of Wildlife, Fisheries, and Parks

The Mississippi Department of Wildlife Fisheries and Parks conducted thermal surveys using vehicle-mounted units to index relative deer abundance across Mississippi. 900 miles of thermal surveys for white-tailed were completed along the Natchez Trace Parkway as well as surveys on multiple National Forest Service properties and Wildlife Management Areas. The surveys resulted in similar or increased detections relative to historical spotlight survey data and significantly reduced the man-power requirements. The agency plans to utilize thermal surveys moving forward to monitor deer population abundance statewide including CWD management areas.

CONTACT:

kamen.campbell@wfp.ms.gov

NOTES:

DOES INCREASING ANTLERLESS HARVEST OPPORTUNITY INCREASE ANTLERLESS HARVEST? THE VA EXPERIENCE.

Justin Folks, Katie Martin

ABSTRACT:

Virginia struggles to meet objectives of reducing deer populations in many management units (counties) across the state, despite liberal season lengths, bag limits, and site-specific deer management options to increase antlerless harvest opportunities. As Virginia becomes more urbanized and hunter numbers continue to decline, this issue will likely only get worse. In this talk, we present the response of harvest and population index trends following changes in antlerless harvest opportunity (e.g., increasing season length, increasing the number of "doe days," implementing Earn-a-Buck, and more). We also discuss management implications if these trends continue.

CONTACT:

justin.folks@dwr.virginia.gov

NOTES:

LANDOWNER PERSPECTIVES: INSIGHTS FOR MARYLAND'S DEER MANAGEMENT

Luke Macaulay[1], Ashley Knoch[2]

1: Wye Research and Education Center (coop extension)
2: University of Maryland

ABSTRACT:

Understanding the perspectives of private landowners in Maryland is essential for the development of effective educational tools and programs for deer management across the state. We conducted a comprehensive wildlife management survey targeting Maryland landowners with properties greater than 5 acres.

We surveyed landowners about several key areas involving deer management on their property. We assessed their knowledge, interest, and implementation regarding various deer and habitat management practices, and requested their perspectives on controversial policies for deer management, including developing markets forselling harvested venison and the use of night hunting as tools to reduce high density deer populations. In this first phase of the study, we sent an email survey to 44,000 landowners, with a response rate of 7%, a completion rate of 89%, yielding 2,794 completed surveys. Forthcoming postcard and mail surveys will seek to enhance response rates and reduce potential bias in responses.

We found large differences between knowledge, interest, and implementation of deer and habitat management practices between landowners with hunting versus those without. Of the respondents, approximately half allow hunting on their property. Of those with hunting, approximately half hunt white-tailed deer. The vast majority of respondents with hunting allow hunting for free for family and friends, with less than 5% leasing to hunters for a fee, and less than 1% providing guided hunts. Survey responses provide insight into the current deer management practices and how organizations can develop educational programs to meet the needs of private landowners in Maryland.

CONTACT:

lukemac@umd.edu

NOTES:

COMPARISON OF REGENERATIVE AND CONVENTIONAL TECHNIQUES FOR FOOD PLOT AND OLD-FIELD MANAGEMENT

***Luke Resop[1], Bronson Strickland[1], Steve Demarais[1], Craig Harper[2], William McKinley[3], Kevyn Wiskirchen[4], Jason Isabelle[4], Charlie Rewa[5]**

1: Mississippi State University
2: School of Natural Resources, University of Tennessee
3: Mississippi Department of Wildlfe, Fisheries & Parks
4: Missouri Department of Conservation
5: USDA - NRCS

ABSTRACT:

Wildlife managers and hunters are incorporating regenerative agriculture practices into food plot management plans with increasing frequency. Many claim these practices increase soil health, plant nutrient density, and deer selection compared to the same metrics in more traditional, conventionally managed food plot systems. The literature supports some claims regarding soil health and indicates regenerative practices can reduce tractor time and fuel consumption by >66%, decrease annual weeds by 80%, and equal or exceed yields in conventional systems. However, claims regarding nutrient density have little scientific foundation and references to deer selection and overall wildlife value lack empirical verification. We launched a multi-year, multi-state project to evaluate regenerative and conventional management practices in food plots where conventional treatments include annual tillage, traditional synthetic soil amendments, and herbicide applications. Regenerative treatments exclude tillage, soil amendments, and most herbicide applications, and include high-diversity species blends to rejuvenate soil biology. Our objectives include evaluating how these management practices influence soil health, plant quantity and quality, deer and turkey selectivity, and economic expenditures. We are also evaluating how prescribed fire, disking, and herbicide applications influence similar metrics in adjacent old-field settings. We have implemented these treatments (warm- and cool-season food plots and old-field management) for one year on nine study sites in Mississippi, Missouri, and Tennessee. If claims about the efficacy of regenerative techniques for wildlife management prove true, wildlife managers and hunters could adopt these practices to improve habitat for a diversity of species, save time and money, and promote soil health.

CONTACT:

lr1177@msstate.edu

NOTES:

EVALUATION OF TECHNIQUES TO PROMOTE CRIMSON CLOVER RESEEDING IN COOL-SEASON FOOD PLOTS

***Thomas Rovery[1], Mark Turner[1], Jacob Bones[1], Spencer Marshall[1], Craig Harper[1]**

1: School of Natural Resources, University of Tennessee

ABSTRACT:

Crimson clover (Trifolium incarnatum) is a reseeding annual cool-season forage commonly planted for white-tailed deer. Crimson clover may reseed successfully following mowing or burning in late summer or early fall, and additional seed may be sown if necessary. No-till top-sowing is cost-effective and works well in a regenerative food plot system by eliminating soil disturbance. However, there is limited information on whether mowing or burning results in better establishment. We established three crimson clover food plots in August 2022; two in Tennessee and one in North Carolina. We sprayed each plot with glyphosate prior to reseeding in early August 2023. We then burned or mowed half of each plot. We counted crimson clover seedlings in four randomly placed one-ft2 frames in November 2023 to evaluate establishment success. In North Carolina, the burned treatment averaged 157 plants/ft2, and the mowed treatment averaged 107 plants/ft2. In Tennessee, the burn treatment averaged 113 plants/ft2, and the mowed plots averaged 155 plants/ft2. Analysis showed 19% greater seedling counts following burning versus mowing in North Carolina and 15% lower seedling counts in Tennessee ($p<0.001$). We suspect mowing performed better than burning in the Tennessee replicates because the organic material in the mowed treatments retained moisture and allowed better seedling survival during the drought conditions experienced in Tennessee. Either mowing or burning may be successfully used to reseed crimson clover plantings, but mowing may be more effective in severe droughts.

CONTACT:

trovery@vols.utk.edu

NOTES:

USING VAGINAL IMPLANT TRANSMITTERS TO STUDY REPRODUCTIVE ECOLOGY OF SIKA DEER (CERVUS NIPPON) IN MARYLAND

Erika Schwoyer[1], Matthew McBridge[1], Angela Holland[1], Johnathan Trudeau[2], Brian Eyler[2], Jacob Bowman[1]

1: University of Delaware
2: Maryland Department of Natural Resources

ABSTRACT:

Sika deer (Cervus nippon) are native to east Asia and have introduced populations in several countries. In 1916, 5 sika were released in Maryland producing today's population of approximately 12,000 individuals. Hunter harvest records suggest sika are expanding their abundance and range which causes concerns about their effects on native flora and fauna. Managing deer species requires thorough knowledge of their reproductive ecology, of which little is known in Maryland. Using vaginal implant transmitters (VITs), we studied parturition in Maryland sika deer. VITs provide us with a possible avenue for collecting vital, fine scale data about sika deer reproduction. We provide preliminary data about timing of parturition, size and weight of neonate calves, and successes and failures of using VITs in sika deer. Of the five VITs implanted in 2022, three expulsions were not associated with parturition, and two resulted in parturition events. Of the 8 VITs implanted in 2023, one was a premature expulsion, one was a stillbirth, and 6 resulted in parturition events. VIT issues that we encountered included premature expulsions and failure of collars to send VIT expulsion notifications. We have since increased the wingspan of the VITs and shortened the length of the antennae to combat premature expulsions and are exploring methods to combat expulsion notification issues. Evaluating success of VIT use in sika deer will determine viability of this technique for long-term sika deer research on reproductive ecology.

CONTACT:

eschwo@udel.edu

NOTES:

IMPACTS OF A SEVERE HAILSTORM ON A WHITE-TAILED DEER POPULATION IN EAST-CENTRAL ALABAMA

***Tristan Swartout[1], Matthew McDonough[1], Stephen Ditchkoff[1]**

1: Auburn University

ABSTRACT:

Our understanding of how extreme weather events can impact the survival of white-tailed deer (Odocoileus virginianus) is still limited, largely due to the inability to document cases of mortality directly attributed to the event. We had a unique case study, when a hailstorm on 26 March 2023 produced hailstones up to 2.75 inches in diameter in the area surrounding the Auburn Captive Deer Facility (ACF). Due to ACF being completely enclosed by a high fence, we were able to conduct extensive transect surveys looking for cases of deer mortality within several days after the storm event. We walked a total of 51.5 miles of transects and calculated sightability to be over 70% for 98.67% of the total area within the facility. However, we detected no cases of mortality of deer attributed to the storm. While overstory was not directly measured, we speculate that adequate overstory provided structural cover for deer from hailstone strikes, resulting in us not documenting any cases of mortality. After examining the literature for hailstorms that caused wildlife mortality in North America, we found that the majority of events only documented mortality of avian species and only two events documented deer mortality. Furthermore, a large proportion of these events occurred in agricultural areas, wetlands, and grasslands where there was limited to no canopy cover. These results may suggest that deer inhabiting forested regions of the USA are at less risk of mortality from hailstorms compared to conspecifics inhabiting more open habitats.

CONTACT:

tristanswartout@hotmail.com

NOTES:

TABLE 1. SOUTHEASTERN STATE DEER HARVEST SUMMARIES FOR THE 2022-2023 FY OR MOST RECENT AVAILABLE SEASON.

STATE	LAND AREA (SQ. MILE)	DEER HABITAT		PERCENT FORESTED	% LAND AREA PUBLIC HUNTING	HARVEST		
		(SQ. MILE)	(% TOTAL)			MALE	FEMALE	TOTAL
AL	51,628	46,981	91	69	5	141,749	160,313	308,729[1]
AR	52,068	38,607	74	56	12	100,666	84,913	185,579
DE	1,954	1,592	81	15	10	7,059	9,789	16,848
FL	53,632	27,573	51	48	17	64,981	28,503	93,485
GA	57,800	38,674	67	67	6	109,008	162,203	271,211
KY	40,406	39,092	97	59	9	79,159	65,334	144,493
LA	41,406	26,562	64	52	9.5	120,824	96,876	217,700
MD	9,837	8,766	89	39	6	29,682	42,872	76,687
MO	69,561	63,910	92	31	4	167,763	131,956	299,719
MS	47,296	31,250	66	66	6	123,843	138,987	273,694
NC	52,660	36,154	67	57	6	93,037	70,794	163,831
OK	69,919	37,425	54	19	3	73,128	61,030	134,158
SC	30,207	21,920	73	63	7.5	98,539	80,875	179,414
TN	41,152	36,628	87	50	7	95,119	68,019	163,154
TX	261,914	177,272	58	40	<2	377,394	303,277	680,671
VA	39,925	37,295	93	61	9	103,721	83,050	186,771
WV	24,078	22,972	95	79	11	77,097	41,402	118,499
Avg or Total	945,443	682,459	75.06	51.18	7.88	1,862,769	1,630,193	3,492,962

Footnote

[1] Total harvest includes deer of unknown gender

TABLE 1. CONTINUED

STATE	HARVEST / SQ. MILE DEER HABITAT	METHOD OF DATA COLLECTION[2]	ESTIMATED PRESEASON POPULATION	LENGTH OF SEASON (DAYS)[3]			METHOD OF SETTING SEASONS[4]	% LAND AREA OPEN TO DOG HUNTING
				ARCHERY	BLACK POWDER	FIREARMS		
AL	5.8	A, B, C, E, F	1,250,000	134 (C)	5 (A)	99 (A,C)	A, B	67
AR	4.9	A, C, F, G	750,000	160 (C)	12 (C)	50 (C)	A, B	70
DE	10.7	B, F, G	46,000	155 (C)	17 (A,B)	43 (A,B)	A, B, C	0
FL	3.4	E, F	-	35-38	14	74-79	A, B	20
GA	7.0	A, C, D, F, G	1,000,000	128-145 (C)	92 (A,C)	85 (C)	A, B, C	23
KY	3.7	A, C, D, F, G	994,356	136 (C)	2(A), 9(B)	16 (C) + 4 Jr	A, B, C	0
LA		A, B, C	650,000	119-138 (C)	14(A,B)	64-79	A, B, C	80
MD	8.7	B, C, D, F	231,000	112 (C)	3(A), 15 (B)	15(A), 3 (B), + 2 Jr day	A, B, C	0
MO	4.7	B, C, D, F, G	1,500,000	112	11	11-28 + 5 Jr	A, B	0
MS	8.6	C, E	1,500,000	123 (C)	12 (A)	74	B, C	90
NC	4.5	A, B, C, D, F, G	1,111,000	21-117	14	20-78	A, B, C	50
OK	2.4	A, C, E, online	750,000	107 (C)	9	16	A, B	0
SC	8.5	A, B, C	700,000	16 (A)	10 (A)	70-140	C	60
TN	4.5	A, B, C, D, G, I	-	40 (C)	14 (C)	60 (C)	A, B	0
TX	3.8	B	5,402,000[5]	35	14	72-86 (B, C)	A, B	0
VA	5.0	A, B, C, D, F	-	42-77	14-36	15-50	A, B	55
WV	5.2	F	520,000	103 (C)	11 (C)	26 (C)	A, B, C	0
Avg or Total	5.7		16,404,356					30.29

Footnotes

[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.

TABLE 1. CONTINUED

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	233,450	Stable	$32.55	$64.30-$377.25	Hunter Log / Electronic Reporting	Mandatory	DMAP
AR	270,000	Stable	$10.50 – 25	$100 – 410	License Tag	Mandatory if not checked immediately upon harvest	DMAP & CWD Private Lands Program
DE	24,153	Up	$22	$199.50	Hunter Log	Mandatory	2 Antlered, Unlimited Antlerless
FL	136,355	Stable	$22	$156.50	Electronic Reporting	Mandatory	Private Lands Program
GA	200,325	Stable	$40	$325	License Tag	Mandatory	DMAP, WMAs
KY	312,000	Up	$62	$335	License Tag / Hunter Log / Carcass Tag	Mandatory	Yes, select zones
LA	227,500	Stable	$35	$300	Physical or Electronic Tag	Mandatory	DMAP
MD	53,300	Down	$36.50	$130	Physical Tag or Electronic Proof of Registration	Mandatory	Antlered only
MO	474,519	Down	$17	$265	License Tag	Mandatory	DMAP
MS	170,832	Up	$25-$55	$400-$475	None	None	DMAP, FMAP, CMA
NC	234,494	Up	$39	$200	License Tag	Mandatory	DMAP & CDMAP
OK	362,938	Stable	$25	$300	License Tag	Mandatory	DMAP
SC	136,356	Stable	$25	$235-375	Physical Tag	Mandatory	Yes & DMAP
TN	196,404	Stable	$68-166	$306	Electronic Proof of Registration	Mandatory	Select WMAs and Unit CWD
TX	753,418	Stable	$25	$315	License Tag	Mandatory	MLDP tags
VA	186,698	Stable	$46-82	$197-259	License Tag	Mandatory	Unlimited on private lands, antlerless only
WV	162,740	Down	$35	$196	Physical Tag	Mandatory	Yes
Total	4,135,482						

Footnote

[6] (Not applicable this year) Asterisk if estimate includes landowner exempted hunters.

TABLE 1. CONTINUED

STATE	MANDATORY ORANGE	CROSSBOW PERMITTED	DEER RELATED ACCIDENTS						HIGHWAY KILL[7]
			FIREARMS		STANDS		OTHER		
			INJURIES	FATALITIES	INJURIES	FATALITIES	INJURIES	FATALITIES	
AL	Yes	Yes	4	0	15	0	0	0	34,470 (C)
AR	Yes	Yes	0	1	10	1	1	0	20,735 (C)
DE	Yes	Yes	0	0	0	0	0	0	4,558 (C)
FL	WMAs only	Season & Handicap	2	0	4	1	0	0	33,124 (C)
GA	Yes	Yes	NA	NA	NA	NA	NA	NA	65,000 (C)
KY	Yes	Season & Handicap	NA	NA	NA	NA	NA	NA	3,084 (A)
LA	Yes	Yes	1	0	2	2	0	0	14,064 (C)
MD	Yes	Yes	6	1	9	1	0	3	30,400 (C)
MO	Yes	Yes	0	0	NA	NA	NA	NA	42,030 (C)
MS	Yes	Yes	8	1	9	2	0	0	31,731 (C)
NC	Yes	Yes	NA	NA	NA	NA	NA	NA	77,906 (C)
OK	Yes	Yes	3	0	3	0	0	0	12,605 (C)
SC	WMAs only	Yes	9	1	5	0	0	0	6,114 (A)
TN	Yes	Yes	0	0	11	1	1	0	37,049 (C)
TX	WMAs only	Yes	3	1	2	0	0	0	75,840 (C)
VA	Yes	Yes	6	0	9	0	3	0	60,026 (C)
WV	Yes	Yes	5	1	0	0	4	3	23,534 (C)
Total									572,270

Footnote

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

TABLE 1. CONTINUED

STATE	LIMITS[8]			ANTLER RESTRICTIONS[9]	%HUNTING SUCCESS[10]			AVG. LEASING FEES/ACRE
	SEASON	ANTLERLESS	ANTLERED		ARCHERY	MUZZLELOADER	FIREARMS	
AL	3/None[8]	1 per day	3	A (one buck must have 4-points on 1 side), B (one county all bucks must have 3-points on 1 side), C (24 WMAs and SOAs)	~15	~20	~45	$6-20+
AR	6	3-6	2	A,B,C No antler restrictions within CWD Management Zone counties	?	?	?	$8-12
DE	None	4+	2	One buck must have a spread ≥15"	?	?	?	$5-20
FL	5	Up to 2	Up to 5	A	--------	39.5% Combined	---------	$10-25
GA	12	10	2	A (One buck must be 4-points on 1 side or 15" outside spread B (9 counties are more restricted)	13.4	3.3	49.3	$5-25
KY	None	Varies	1	None	--------	35% Combined	---------	$5-40
LA	6 statewide/3 in 2 of 10 deer areas	3, 1either-sex	2, 1 either-sex	No	19	21	51	$5-40
MD	Varies	Varies	2 only 1 with firearm	3-pt restriction on two bucks	34	23	38	$5-35
MO	Varies	Varies	2; only 1 with firearm	B (50 counties) Doesn't apply to Jr.	21	-	42	?
MS	14	10/5/2	4/3	C	36	34	57	?
NC	6[8]	4[8]	2	NA	-------	48% Combined	----------	?
OK	6	Up to 6	2	No	33	22	43	$10-30
SC	8+	3+	5	A (on 2 of buck bag limit) C (16 WMAs)	27	25	70	$8–20
TN	None	Varies	2 statewide/ 3 in Unit CWD	C (on select WMAs)	?	?	?	?
TX	5	Up to 5	Up to 3	Yes, 117 counties	--------	63.9% Combined	----------	$7-30
VA	6 (east) & 5 (west)	6	3 (east)& 2 (west)	On 1 WMA + 4 counties	30	33	44	UNK
WV	11	Up to 8	Up to 3	5 WMAs & 2 State Forests	40	17	50	$3-10
Total					26.84	22.03	48.93	

Footnotes

[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 firearms antlerless deer seasons.
MD – In Region B: 10 antlerless deer limit in firearms, 10 antlerless deer limit in muzzleloader, 15 antlerless deer limit in archery.
In Region A: 2 antlerless deer limit, no more than one per weapon season. Statewide Antlered Deer Limit: Two antlered deer, no more than one in a weapon season. One bonus antlered deer may be harvested in Region B during any weapon season.
MO – No daily or annual limit of antlerless deer but number that can be harvested in each county varies.
NC – Unlimited bonus antlerless tags are available during the Urban Archery Season in participating municipalities.
[9] A–Statewide Antler Restrictions; B–County Antler Restrictions; C–Region or Area Antler Restrictions.
[10] Averages do not include combined reports.

TABLE 1. CONTINUED

STATE	PRIVATE LANDS PROGRAM				TRAILING WOUNDED DEER WITH DOGS LEGAL?	SUPPLEMENTAL FEEDING LEGAL?	BAITING LEGAL?
	TYPE[11]	MIN. ACREAGE REQUIREMENTS	FEE	NO. OF COOPERATORS			
AL	A	None	None	120	Yes	Yes	Yes[12]
AR	A	500	None	648	Yes	Yes (except in CWD Zone where bait may only be used from Sept. 1-Dec. 31)	Yes, Private
DE	3 levels DDAP	None	None	73,347,12	No	Yes	Yes, Private
FL	A, C	640; 5000	None	904; 33	Yes	Yes	Yes, Private
GA	DMAP	250-1500	$200-1,000	169	Yes	Yes	Yes, Private
KY	B	None	None	991	Yes	Yes (except March – May, CWD Zones)	Yes, Private (Except CWD Zones)
LA	A	40/500/1,000	$100-$1500	687	Yes	Yes (Except CWD CA)	Yes, Private (Except CWD CA)
MD	None				Yes	Yes	Yes, Private Only.
MO	A,B	20 landowner tags; 500 DMAP (40 municipalities)	None	251 DMAP landowners	Yes	Yes (except CWD zone)	No
MS	A,D	Variable	None	534	Yes	Yes (except CWD zone)	Private land only
NC	A	Regional; 1,000/500	None	54	Yes	Yes (except CWD zone)	Yes, Private
OK	A	1,000	$200-400	150	Yes	Yes	Yes, Private
SC	A	None	$50	1,366-2.9 mil ac	Yes	Yes, Private	Yes, Private
TN	None				With officer approval	Yes (except in CWD positive or high risk counties)	No
TX	A	None	$0-300		Yes	Yes	Yes
VA	DCAP, DMAP, DPOP	None	None	725, 644, 12	Yes (weapon allowed)	No (Sept 1 – first Sat in Jan) statewide. Illegal year round in 36 of 95 counties.	No
WV	None				Yes	Yes[13]	Yes[13]

Footnotes

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

[12] Must possess Baiting Privilege License ($15.25 resident, $51.85 non-resident) to hunt deer with bait on private lands; hunting deer with bait is illegal on public lands

[13] Hunting deer with bait is illegal on all public lands and on private and public lands in CWD disease management area.

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

TABLE 2. SOUTHEASTERN STATE SUMMARIES OF CHRONIC WASTING DISEASE (CWD) SURVEILLANCE AND MANAGEMENT INFORMATION FOR CAPTIVE AND WILD CERVIDS, SOUTHEAST DEER STUDY GROUP ANUAL MEETING, 2024.

STATE	YEAR OF FIRST DETECTION	PREVIOUS YEAR CERVID TESTING SEASON				TOTAL CERVID TESTING (ALL YEARS)				NUMBER OF POSITIVE CASES	SAMPLING METHODS	SURVEILLANCE AND MANAGEMENT PRACTICES
		CAPTIVE		FREE RANGE		CAPTIVE		FREE RANGE				
		# S	# P	# S	# P	# S	# P	# S	# P			
AL[1, C]	2022	303*	0	3,629	1	2,367*	0	18,244	3	1	A, B, D	A, B, D, E, F, H, I 4
AR[1, C]	2016	>75	0	8,804	217	>1000	0	57,510	1,545	19	A, B, C, D	A, B, C, D, E, F, G, H, I, J
DE[1, A]	NA	0	0	527	0	0	0	11,558	0	0	A, B	A B, E, F, I
FL[1, B]	2023	1	0	1,098	1	112	0	18,856	1	1	A, B, D	A, B, C, E, F, G, I
GA[1, B]	NA	0	0	1,494	0	0	0	15,898	0	0	A, B, D	A, B, C, D, E, F, I
KY[2, B, 4]	2023	781	0	5,357	0	2,751	0	48,195	1	1	A, B, D	A, B, C, D, E, F, G, I
LA[1, A]	2022	UNK	0	2,370	11	UNK	0	16,141	12	1	A, B, D	A, B, C, E, F, G, H, I
MD[1, C]	2010	0	0	1,722	38	0	0	13,222	171	4	A, B, D	A, B, C, D, E, F, I
MO[1, C]	2010	972	0	33,328	118	2,930	11	247,904	410	31	A, B, C, D	A, B, C, D, E, F, G, I, J
MS[1, B]	2018	436	0	7,452	73	3,779	0	47,732	210	10	A, B	A, B, C, D, E, F, G, H, I
NC[1, A]	2022	UNK	0	16,744	9	>2,000	0	39,360	10	4	A, B, D	A, B, C, D, E, F, G, H, I
OK[1, A]	1998	UNK	0	120	2	UNK	3	>12,000	2	5	B, C	A, B, E, I
SC[1, B]	N/A	0	0	6	0	0	0	4,794	0	0	A, B, D	A, B, E, F, H, I
TN[1, A]	2018	UNK	0	20,817	808	UNK	0	87,603	2,764	16	A, B, C, D	A, B, C, E, F, G,H, I, J
TX[3, C]	2012	33,458	167	17,500	16	190,417	479	138,576	103	25	A, B, D	A, B, C, D, E, F, I
VA[1, A]	2009	16	0	5,658	47	736	0	39,745	181	13	A, B, D	A, B, C, D, E, F, G, H, I
WV[1, A]	2005	A	A	702	69	A	A	>21,000	611	5	A, B, C, D	A, B, C, F, G, I
	Total	36,042	167	127,328	1,410	206,092	493	838,338	6,024	136		

NOTE: Captive refers to pen facilities or release sites (high-fenced pastures/enclosures). Those states that have not tested captive sites may not have the authority to do so.

Legend

S - Number Samples
P - Number Positive
UNK - Unknown
* For Herd Certification Program Herds only.

Sampling Period

[1] July 1 – June 30
[2] March 1 – February 28
[3] September 1 – August 31
[4] Included positive found post sampling period

Sampling Methods Key

A. Hunter Harvested (taxidermist, meat processor, veterinarian, drop-off freezer/container, and/or CWD sampling station)
B. Select Sampling (roadkill, sick deer, and/ or found dead)
C. Targeted Sharpshooting
D. Risk Based

Survelliance and Management Practices Key

A. CWD Surveillance and/or Management Plan
B. Statewide and/or targeted CWD sampling
C. Establish CWD Management Zones
D. Require captive cervid testing
E. Live cervid importation restriction
F. Dead cervid transportation restriction
G. Baiting restriction
H. Lures or other body fluid use restriction
I. Outreach / Education campaigns regarding CWD
J. Targeted removals

Captive Cervid Authority

[A] State Fish and Wildlife Agency does not have captive cervid authority
[B] State Fish and Wildlife Agency has shared captive cervid authority
[C] State Fish and Wildlife Agency has full captive cervid authority
[D] No captive cervid industry

NOTES

NOTES

NOTES

THANK YOU TO OUR SPONSORS!

Priogen

NATIONAL DEER ASSOCIATION

ATS
ADVANCED TELEMETRY SYSTEMS

Westervelt
Wildlife Services

Lotek
advancing wildlife science

StewardGreen™
Wildlife Habitat Solutions

RESPONSIVE MANAGEMENT

VECTRONIC Aerospace

THANK YOU TO OUR CONFERENCE CONTRIBUTORS AND DONORS!

- VORTEX
- HARDY CUSTOM CALLS