

# Outdoor Oklahoma

SEPTEMBER / OCTOBER 2022 — ONLY \$10 A YEAR

'21-'22 Big Game Report:

## Archers Notch Another Record Deer Season

INSIDE

Environmental Damage  
Fines Help Habitat

Interns Invaluable In  
Paddlefish Research Efforts

A PUBLICATION OF THE DEPARTMENT OF WILDLIFE CONSERVATION





# PANORAMAS



Dallas Barber

**HITTING A GOAL** is an awesome feeling. Doesn't matter if it's a small goal or a major, complex goal. That feeling is always one of accomplishment. A job well-done.

Oklahoma's deer hunters should collectively share in this feeling of a job well-done. Last year, we asked them to help us reach a goal — and that's just what they did. For the second consecutive year, deer hunters managed an antlerless deer harvest of more than 40 percent.

We cannot overstate the impact this statistic can actually make in assuring the overall good health of Oklahoma's wild deer herd.

Congratulations hunters! You nailed it! Our goal was to realize an antlerless harvest of between 40 and 45 percent. We did our best to let you know what was needed in the way of deer management, and you responded.

## "Hunters in the Know ... Take a Doe!"

Well, now is no time to take our foot off the accelerator, so to speak. The need to continue that rate of harvest for antlerless deer isn't going to fade. It all boils down to creating a more even buck to doe ratio across the state.

One of the best things about hitting our antlerless harvest goal last year — and the year before — is that **our hunters did it voluntarily**. And that's the way we want to see it.

What we saw was that when we clearly explained why antlerless harvest is important, our hunters came through and served as our boots-on-the-ground deer managers. We hope that will continue this year and in the years ahead.

Some of you might be wondering about the "why" behind our antlerless harvest goal. And many are probably skeptical because they've grown up with the mind-set that "you just don't shoot does."

But antlerless harvest actually can have opposite effects of what the average hunter might think. It can allow the bucks that you see to have more impressive antlers. And having fewer does can actually increase the deer population!

Here are the **biological facts** supporting robust antlerless harvest:

- A skewed buck-to-doe ratio where more does are present is detrimental to herd health.
- A more even buck-to-doe ratio means a more

intense condensed rut, or breeding season, which allows bucks to conserve energy and which can improve antler quality.

- A deer herd with an excess of does depletes the nutrition available in an area, which contributes to poor body condition and poor herd health for all deer.
- A balanced herd results in more fawns being born in a shorter period, actually increasing the odds that more deer survive predation.
- A more concise rut means fewer late-born fawns, which are often undersized and undernourished as they enter their first winter.

As a deer hunter, the best thing is you get to decide, within the seasonal limits, what animal you want to take. It's just fine if you want to target a buck. But as a hunter, **you are making a deer management decision** each time you pull the trigger. If your primary goal is to put meat on the table, antlerless deer is a great way to go about that.

To encourage antlerless harvest, we have **liberalized several seasonal limits and open areas**. We only ask that our hunters consider antlerless harvest as an investment that you can make this year and every year for even better deer hunting in Oklahoma. 🍷

A handwritten signature in dark ink that reads "Dallas Barber".

Dallas Barber, Big Game Biologist  
Oklahoma Department of Wildlife Conservation

# Outdoor Oklahoma

SEPTEMBER/OCTOBER • VOLUME 78 •  
NUMBER 5

Published by the Oklahoma Department of Wildlife Conservation  
1801 N. Lincoln Blvd, Oklahoma City, OK 73105  
P.O. Box 53465, Oklahoma City, OK 73152

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Art direction by Stroud Design, Inc.  
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 Printed on recycled, recyclable paper.

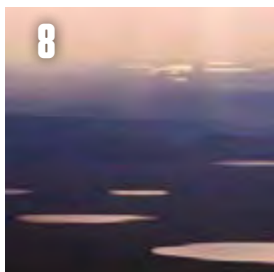
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**ON THE COVER:**  
Oklahoma hunters again responded to the Wildlife Department's deer herd management slogan "Hunters in the Know ... Take a Doe!" as antlerless harvest accounted for 41 percent of all deer taken during the 2021-22 seasons. One of those antlerless harvests, accomplished by new deer hunter Smokey Solis of Edmond, is memorialized in this image. Learn more about this past year's big game hunting seasons starting on Page 26. (Photo by Blake Podhajsky/ODWC)

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OKLAHOMA



# OFF THE BEATEN PATH

NOTES ON WILDLIFE • OUTDOOR TIPS • READERS' LETTERS • ENVIRONMENTAL NEWS  
COMPILED BY DON P. BROWN

## KINGFISHER COUNTY GAME WARDEN TOPS FOR '21-'22



Blake Pearson

**Blake Pearson**, a 15-year Game Warden based in Kingfisher County, was selected by his peers as Oklahoma's 2021-22 Game Warden of the Year.

Pearson was born and raised in Watonga. "I grew up in the outdoors, and I got to know some of the Game Wardens." That is what influenced him to pursue a career in wildlife law enforcement.

He was hired by the Oklahoma Wildlife Department in 2007, after graduating from Southeastern Oklahoma State University with a degree in wildlife management and conservation.

He first served in Canadian and Oklahoma Counties for about a year before he transferred to Kingfisher County.

"It's an honor; very humbling," he said about his selection as the year's top wildlife officer in the state.

"There are so many great applicants." He praised his colleagues as being some of the best people he would ever hope to work alongside.

He will be recognized at the Southeastern Association of Fish and Wildlife Agencies conference in October in West Virginia, where he will be in the running for the SEAFWA Wildlife Officer of the Year Award.

Pearson enjoys hunting and fishing and almost any outdoor activity. "It's a big bonus working outdoors," he said. "It's a lot of fun being able to interact with the public, teach right from wrong, and protect our resources."

Another passion for Pearson is wrestling, and he often volunteers to coach local wrestling teams.

Pearson and his wife, Amy, have been married 14 years and have two sons, ages 10 and 6. ♥

## HUNTER EDUCATION CLASSES SCHEDULED STATEWIDE

Anyone between 10 and 30 years old who wants to have a regular hunting license in Oklahoma is required to complete a free hunter education course. This can be done online at the student's own pace, or by taking an in-person class.

Those wanting to attend a class must pre-register for "Events" at [license.gooutdoorsoklahoma.com](https://license.gooutdoorsoklahoma.com). Students must be age 10 or older to sign up. If an in-person class must be postponed or canceled, registrants will be notified by email.

Here is a list of in-person classes scheduled when this issue went to press; additional classes may be added to this list:

### NORTHEAST REGION

- Fort Gibson, Sept. 3, 2022.
- Skiatook, Sept. 10, 2022.
- Sallisaw, Sept. 10, 2022.
- Tahlequah, Sept. 17, 2022.
- Okmulgee, Sept. 17, 2022.
- Jenks, Oct. 8 and Nov. 12, 2022.
- Edmond, Oct. 13 and Nov. 12, 2022.

### NORTHWEST REGION

- Guymon, Sept. 10, 2022.
- Woodward, Sept. 10, 2022.

- Enid, Sept. 17, 2022.
- Omega, Nov. 12, 2022.

### SOUTHEAST REGION

- Sulphur, Sept. 4 and 11, 2022.
- Antlers, Sept. 10, 2022.
- McAlester, Sept. 17, 2022.
- Shawnee, Sept. 24, 2022.
- Wayne, Oct. 1, 2022.

### SOUTHWEST REGION

- Elk City, Sept. 17, 2022.
- Granite, Sept. 17, 2022.
- Norman, Sept. 17, 2022.
- Foss, Oct. 1, 2022.

Students unable to attend a scheduled class or who prefer to complete hunter education certification online you can take the course for free. Go to [wildlifedepartment.com](https://wildlifedepartment.com), click on "Hunter Education" under the "Hunting" tab. For more information about hunter education, scan the code. ♥



*Those wanting to attend a class must pre-register.*



# WELCOME TO THE DOCK!

## ARE THE FISH BITING? YOU BET!

Are the fish biting? You bet! Step onto The Dock and take a gander at some remarkable catches made recently by Oklahoma anglers. Here's a few we thought you would enjoy! To see more or submit a photo of your catch, go to [www.wildlifedepartment.com/fishing/the\\_dock](http://www.wildlifedepartment.com/fishing/the_dock) or scan the code:



Owen Moon, sunfish,  
Pontotoc County,  
June 4, 2022.



Brailynn Blevins, striped bass, Grand Lake,  
July 3, 2022.



Jody C., walleye,  
Lake Altus-Lugert,  
May 11, 2022.



Pierce Pettit, paddlefish,  
Keystone Lake,  
June 4, 2022.



Airius Church, catfish, Lake Eufaula,  
May 25, 2022.



Tara Hess, trout, Lower Mountain Fork River,  
April 3, 2022.



# GAME BAG

## A COLLECTION OF LETTERS TO THE WILDLIFE DEPARTMENT

We'd like to hear from you! Send your letters to **Outdoor Oklahoma Letters**, P.O. Box 53465, Oklahoma City, OK 73152, or send e-mail to [donald.brown@odwc.ok.gov](mailto:donald.brown@odwc.ok.gov).



Mark Murray



Chad Strang

**Dear Wildlife Department,**

I am writing this letter to express my appreciation for the outstanding help of Game Warden **Mark Murray**. About four years ago, we created a foundation in Grady County to help foster children and other children in need with both hamburger meat and a yearly fishing day at the Burns Ranch. We call our foundation Karing for Kids.

During our fishing day each year, we invite every foster kid and families in Grady, Caddo, Stephens, and Jefferson counties to come fish in our ponds. This year we also invited kids living in our local children's shelter. Our local judges help sponsor the event by cooking lunch for everybody. The Department of Human Services helps advertise and invite the foster families, and we are also supported by Court Appointed Special Advocates. We help the kids and families catch fish, and then we clean them so they can take home dinner.

Murray has been a founding piece of our fishing program for these kids. Every year, he brings fishing tackle and usually brings another Game Warden to help the kids. This year, he brought Game Warden **Chad Strang**. We really appreciated the time and effort they both spent helping these foster kids fish.

We have never advertised this program or acknowledged Murray's contributions, and I thought it was time your Department knew what was going on. Murray has never once backed down from the work, and we absolutely could not make the fishing day possible without his help. He is unbelievable with the children and a great asset for the Wildlife Department.

**Bret Burns**, Karing for Kids Foundation

**Dear Skylar St.Yves,**

Thank you for all the information on wet wade stream fishing. I've put your tips to good use and had outstanding success at Barren Fork Creek, Blue River, and streams in Tennessee and North Carolina so far this summer. I have trips planned to Upper Illinois River and Rock Creek later this summer.

**Kevin Green**



Skylar St.Yves

# OUTDOOR CALENDAR

FOR THE LATEST UPDATES, GO ONLINE TO LICENSE.  
[GOOUTDOORSOKLAHOMA.COM/Event/Events.aspx](http://GOOUTDOORSOKLAHOMA.COM/Event/Events.aspx)

NOTICE: Events listed were scheduled at press time; events are subject to change.

## SEPTEMBER 2022

- 3** Oklahoma City Free Fishing Day, no city permit required.
- 3-4** Oklahoma Free Hunting Days.
- 4** "Outdoor Oklahoma" TV, 8 a.m., OETA.
- 5** Labor Day (state offices closed).
- 6** Oklahoma Wildlife Conservation Commission meeting, 2 p.m., Forest Heritage Center, Broken Bow. Livestream: [YouTube.com/OutdoorOklahoma](https://www.youtube.com/OutdoorOklahoma).
- 11** "Outdoor Oklahoma" TV, 8 a.m., OETA.
- 18** "Outdoor Oklahoma" TV, 8 a.m., OETA.
- 25** "Outdoor Oklahoma" TV, 8 a.m., OETA.
- **ODWC Free Fishing Clinics** set in Midwest City, Sept. 10; Choctaw, Sept. 17. Register: [license.goutdoorsoklahoma.com/Event/EventsHome.aspx](https://license.goutdoorsoklahoma.com/Event/EventsHome.aspx).
- **Ducks Unlimited** events set in Stillwater, Sept. 2; Skiatook, Sept. 8; Edmond, Sept. 15; Claremore, Sept. 22; Muskogee, Sept. 22; Guthrie, Sept. 24. Info: [www.ducks.org/Oklahoma/events](https://www.ducks.org/Oklahoma/events).
- **Friends of NRA** events set in Enid, Sept. 9; El Reno, Sept. 15; Oklahoma City, Sept. 22; Idabel, Sept. 24; Tahlequah, Sept. 29. Info: [www.FriendsOfNRA.org](https://www.FriendsOfNRA.org).
- **National Wild Turkey Federation** events set in Seminole, Sept. 10; Altus, Sept. 15; El Reno, Sept. 23. Info: [www.nwtf.org/events](https://www.nwtf.org/events).

## OCTOBER 2022

- 1** Oklahoma City Free Fishing Day, no city permit required.
- 2** "Outdoor Oklahoma" TV, 8 a.m., OETA.
- 3** Oklahoma Wildlife Conservation Commission meeting, 9 a.m., Oklahoma City. Livestream: [YouTube.com/OutdoorOklahoma](https://www.youtube.com/OutdoorOklahoma).
- 9** "Outdoor Oklahoma" TV, 8 a.m., OETA.
- 16** "Outdoor Oklahoma" TV, 8 a.m., OETA.
- 21-22** Oklahoma Fur Bearers Alliance convention, Okmulgee, [www.oktrapper.com](https://www.oktrapper.com).
- 23** "Outdoor Oklahoma" TV, 8 a.m., OETA.
- 30** "Outdoor Oklahoma" TV, 8 a.m., OETA.
- **ODWC Free Fishing Clinic** set in Coyle, Oct. 8. Register: [license.goutdoorsoklahoma.com/Event/EventsHome.aspx](https://license.goutdoorsoklahoma.com/Event/EventsHome.aspx).
- **Ducks Unlimited** events set in Enid, Oct. 6; Edmond, Oct. 10; Shawnee, Oct. 27. Info: [www.ducks.org/Oklahoma/events](https://www.ducks.org/Oklahoma/events).
- **Friends of NRA** event set in Dewey, Oct. 1; Norman, Oct. 31. Info: [www.FriendsOfNRA.org](https://www.FriendsOfNRA.org).
- **National Wild Turkey Federation** event set in Claremore, Oct. 15. Info: [www.nwtf.org/events](https://www.nwtf.org/events).

\*\* FOR HUNTING SEASON DATES, GO TO  
[www.wildlifedepartment.com/hunting/seasons](https://www.wildlifedepartment.com/hunting/seasons) \*\*

# TEACHERS, STUDENTS INVITED TO SUPPORT FEDERAL JUNIOR DUCK STAMP ART PROGRAM

By Phillip Stephenson

Did you know there's a nationwide waterfowl stamp art contest just for kindergarteners through 12th-graders?

The U.S. Fish and Wildlife Service's Junior Duck Stamp Program began in 1989 as an extension of the Federal Duck Stamp Program, which has raised more than \$800 million dollars and protected more than 5.7 million acres of habitat since its inception in 1934.

The junior program started as an art contest, but it has grown into a dynamic art- and science-based curriculum that teaches wetland and waterfowl conservation. The art competition is the culmination of students' study of these subjects and their artistic portrayal of what they have learned.

The free program provides teachers with four curriculum guides with lesson plans focusing on science, technology, engineering, art, and math (STEAM). These ready-to-use guides provide year-round activities for formal and nonformal education as well as an educator's guide to help teachers lead students in their learning.

Program artwork can be completed anytime during the year, but the deadline for entries is usually in March. Entries can include life-like or abstract images of waterfowl, but they must still accurately show bird features and appropriate habitat types for the depicted species.

Waterfowl works from across Oklahoma are then sent to the state Junior Duck Stamp coordinator,

where they are sorted by age groups. Entries are judged by three to five independent judges, normally including a wildlife biologist, a bird/nature enthusiast, and art professionals. Judges choose the Oklahoma Best of Show entry, which then competes in the national contest.

In 2022, for an unprecedented fourth time, **London Peterson** of Eufaula won the Oklahoma Best of Show honor with her acrylic painting of a male common goldeneye. Her artwork went on to compete in the National Junior Duck Stamp Art Contest, where she placed third overall against the Best of Show works from the 50 states and U.S. territories.



*Did you know there's a nationwide waterfowl stamp art contest just for kindergarteners through 12th-graders?*



Peterson is a self-taught artist and graduated from Indianola High School this spring. Oklahoma contest judges have remarked that they would not be surprised to see Peterson's artwork on the Oklahoma or the Federal Duck Stamp in the future. 🦆

Phillip Stephenson is a U.S. Fish and Wildlife Service wildlife biologist based at the Sequoyah National Wildlife Refuge near Vian.



## HONOR OUR MILITARY HEROES

The Wildlife Department's Stars & Stripes License Project has provided no-cost hunting and fishing licenses to Gold Star Lapel Pin recipients, Next of Kin Lapel Button recipients, and resident military veterans. The project depends on the generosity of public donors who want to join ODWC in honoring these people who give of themselves for their country.

All donations are tax-deductible. Please consider making a donation as small as \$5 to the Stars & Stripes License Project. Just scan the code. For more information on applying for a Stars & Stripes license, go to <https://www.wildlifedepartment.com/licensing/veteran-licensing>. 🦆



## IT'S THE LAW: KEEP SMALLER BASS

Effective Sept. 11, 2022, anglers are allowed to keep six largemouth and/or smallmouth bass, but only one of those keepers can be greater than 16 inches long. This new daily limit applies to public waters statewide where largemouth and smallmouth harvest is legal, but does not apply to rivers and streams, Lake Texoma, Doc Hollis Lake, or as stated in Special Area Regulations or local regulations. ODWC Fisheries Biologists said the new limit is meant to encourage anglers to catch and keep smaller bass to improve the overall health of these populations. A companion rule allows bass fishing tournaments to apply for an exemption to the new daily harvest restriction, which will allow tournament anglers to keep more than one bass over 16 inches as long as the fish are kept alive and released after weigh-in. Scan the code for more information. 🦆



# WILD ABOUT COOKING

## BAKING DISH DEER SLIDERS

The seasons are right around the corner — deer and football seasons, that is! These **Baking Dish Deer Sliders** are the perfect addition to any family gathering or tailgate.



### INGREDIENTS

- 2 lbs. ground venison
- 2 cups shredded cheese
- 1 yellow onion, chopped
- 1 packet ranch seasoning powder
- 1 pkg. Hawaiian rolls, 12 count
- Half-stick butter, melted
- Salt and pepper to taste

### DIRECTIONS

- Preheat oven to 400 degrees.
- Cover bottom of skillet with 4 Tbsp vegetable oil and heat to medium high. Sauté chopped onion until it becomes translucent.
- Add ground venison and stir until browned. Add Ranch powder, salt, and pepper. Stir until thoroughly combined. There should be little to no liquid in the skillet. Remove from heat.
- Allow meat mixture to cool for 5 minutes. Add cheese and mix until thoroughly combined.
- Remove rolls from package, keeping them connected in one large rectangle. With a large serrated knife, cut across horizontally from side to side, creating top and bottom buns for sliders.
- Place bottom half of connected rolls into a baking dish. Spread meat mixture evenly across the bottom layer of buns. Add top layer of buns.
- Brush top of buns with melted butter. Bake in oven for 15 minutes or until buns are browned.

Remove from the oven and enjoy with your favorite dipping sauce! ♥

## TWO PROGRAMS HELP THE HUNGRY

### Hunters Against Hunger and Oklahoma Deer Share.

These two programs sponsored by the Wildlife Department give hunters the chance to have a positive impact in fighting hunger in the Sooner State.

The upcoming deer hunting seasons give hunters many excellent opportunities to help fellow Oklahomans who face food security challenges. Liberal bag limits allow each hunter to take up to eight deer across all 2022-23 deer hunting seasons.

Deer Share gives hunters a way to connect with people who want to take donated venison.

Hunters Against Hunger allows hunters to drop off any legally harvested deer at a participating meat processor along with a \$10 donation to help with processing costs. The venison will be earmarked for local food pantries.

For details, go to <https://www.wildlifedepartment.com/hunting/processors/hah> or [www.wildlifedepartment.com/hunting/species/deer/deer-share](https://www.wildlifedepartment.com/hunting/species/deer/deer-share). ♥





# OKLAHOMA

DEPARTMENT OF WILDLIFE CONSERVATION

## Fall 2022 - Spring 2023 HUNTING SEASONS

<b>BIG GAME</b>	<b>DEER &amp; ELK*</b>	<b>BEAR*</b>	<b>ANTELOPE</b>
<b>ARCHERY</b>	OCT. 1 - JAN. 15	OCT. 1 - 16	OCT. 1 - 14
<b>YOUTH GUN</b>	OCT. 14 - 16		
<b>MUZZLELOADER</b>	OCT. 22 - 30	OCT. 22 - 30	
<b>GUN</b>	NOV. 19 - DEC. 4		DRAWING ONLY
<b>HOLIDAY ANTLERLESS</b>	DEC. 18 - 31		

<b>DUCKS</b>	<b>PANHANDLE</b>	<b>ZONE 1 &amp; 2</b>
(REGULAR SEASON)	OCT. 8 - JAN. 4	NOV. 12 - 27 & DEC. 3 - JAN. 29
(YOUTH, VETERAN, ACTIVE MILITARY)	OCT. 1 & FEB. 4	NOV. 5 & FEB. 4

<b>TURKEY</b>	<b>YOUTH SPRING</b>	<b>SPRING</b>
	APRIL 8 - 9	APRIL 15 - MAY 16
	<b>FALL ARCHERY</b>	<b>FALL GUN</b>
	OCT. 1 - JAN. 15	OCT. 29 - NOV. 18

**QUAIL** NOV. 12 - FEB. 15

**PHEASANT** DEC. 1 - JAN. 31

**DOVE** SEPT. 1 - OCT. 31  
&  
DEC. 1 - 29

**SQUIRREL** MAY 15 - JAN. 31

**RABBIT** OCT. 1 - MARCH 15

**COUPON HUNTER** DEC. 1 - FEB. 28

\* Deer & Elk tags are available for hunters who are 18 years of age or older and have a valid Oklahoma hunting license. The tags are available for sale at the Oklahoma Department of Wildlife Conservation's Wildlife Conservation Store. The tags are available for sale at the Wildlife Conservation Store. The tags are available for sale at the Wildlife Conservation Store.

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Photos by: Jeremiah Zerada, Barry Holton, Stephen Bickner

# PLAYAS ARE PLAYERS IN PLAINS ECOSYSTEM

COURTESY BRIAN SLOBE



By Miruh Hamend  
Playa Lakes Joint Venture



**OCCASIONAL WETLANDS  
RECHARGE GROUNDWATER,  
BOOST BIODIVERSITY**



As Great Plains communities struggle with drought and declining aquifers, playas — a relatively unknown natural resource — fill an important role in replenishing and improving the quality of the region's water supply.

Playas, also called lagoons, buffalo wallows and mud holes by locals, are relatively small, round, shallow depressions that collect and hold water from rainfall and runoff, creating temporary wetlands. Some dry up within days. Others contain water for weeks or months.

With more than 80,000 scattered across the western Great Plains — including throughout Oklahoma's Panhandle — these seasonal wetlands provide water for wildlife and people.

University of Kansas geologist Bill Johnson has been investigating playas for more than 30 years. He says scientists have evidence playas are a primary source of recharging the Ogallala aquifer, that vast but diminishing source of groundwater so vital to life on the semi-arid plains.

Playas contribute as much as 95 percent of water that flows into the Ogallala, recharging the underground reservoir.

According to a U.S. Geological Survey literature review (Gurdak and Roe, 2009) and a recent Kansas Geological Survey study (Johnson et al, 2019), recharge rates in playa basins are 10 to 1,000 times higher than in other areas. Unaltered playas may contribute more than 3 inches of water per year in the form of groundwater recharge.

**Playas contribute as much as 95 percent of water that flows into the Ogallala, recharging the underground reservoir.**

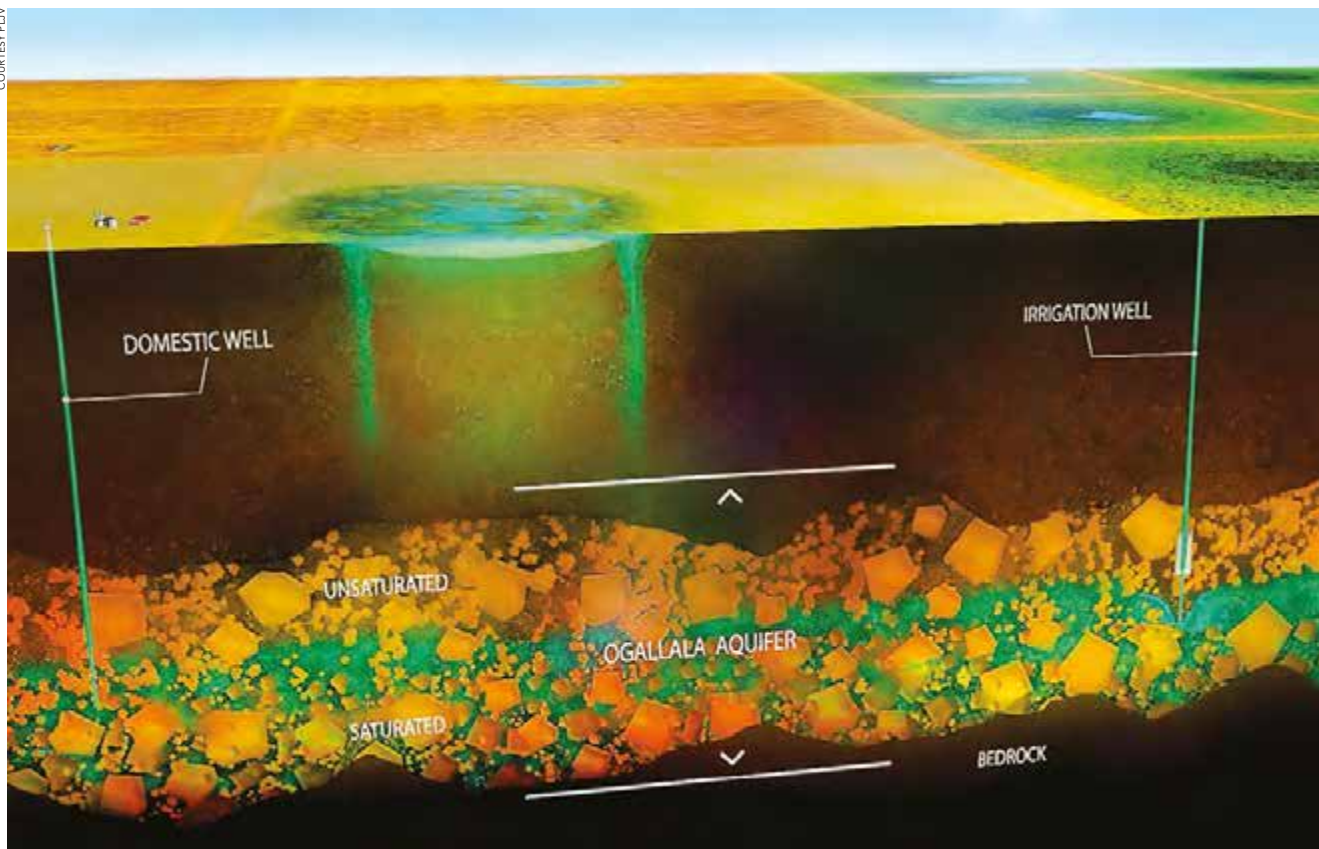


JENA DONNELLI/ODWC

*A dry playa in the Oklahoma Panhandle.*

## HOW THEY FUNCTION

Aquifer recharge occurs through playa basins and along the perimeter of playas. Ken Rainwater, a professor in the Civil, Environmental, and Construction Engineering Department at Texas Tech, said, "Even though soils in the playa bottoms are clay, they dry out and desiccate with big cracks between rainfall events. So, when you have your first flush of water coming into the playa, it's real easy for water to go down



This illustration shows how a playa helps recharge the groundwater in the Ogallala aquifer, which then provides water for domestic and agricultural use.



In healthy playas, the basin's clay soil will crack when dry. When water runs into the playa, it will descend through the cracks and recharge the aquifer below.



through those cracks and head down through the clay toward the aquifer below.”

As the clay absorbs water, it expands and seals the cracks, and the basin then fills with water from rainfall and runoff. Recharge continues to occur along the playa’s perimeters as long as it is submerged in water, much like water running over a bowl’s lip.

Playas that are healthy and unaltered also improve water quality compared to water that goes going through other pathways.

This happens in two ways. First, as rainfall and runoff travel toward the playa, the surrounding grasses trap sediments, which can carry contaminants into the playa. Then, as water moves through the playa’s clay floor, a second cleaning process occurs as the soils beneath the playa remove nitrates and other dissolved contaminants.

## BIODIVERSITY BOOSTERS

Playas also serve as the center of biodiversity on the plains, supporting about 185 bird species, 450 plant species, 13 amphibian species, and 37 mammal species. These ephemeral lakes are almost magical, said Tom Flowers, a retired district conservationist with the U.S. Department of Agriculture in Meade, Kan.

“They can be dry for 15 or 20 years, have a rainfall event, and immediately within days, perennial plants show up. They’ve lain dormant beneath the ground for all these years, but as soon as that soil becomes moist, they shoot up and produce bulrush, cattails, mud plantain, spikerush, and a host of plants.”

That surge of plant life is just part of the process. Flowers is fascinated by the small creatures that wake up, too.

“They fall down in the cracks when it’s dry, and they just lay there as eggs. As soon as it gets wet, within just a few days, the eggs hatch, they grow, and they become small invertebrates such as fairy shrimp, tadpole shrimp, clam shrimp, and snails.”

This flush of plant and animal life is irresistible to local and migrating birds, providing a veritable feast in short order.

A diverse assortment of migrating birds use wetlands, including playas, as rest stops. “You’ll see a lot of the shorebirds that are making very long-distance migrations: white-rumped sandpiper, semipalmated sandpiper, Baird’s sandpiper, and American golden-plover, said Susan Skagen, a retired research wildlife biologist with the USGS. “They go right through the heart of the plains. It’s the shortest distance from Tierra del Fuego, which is how far some of them actually fly from, all the way up to the arctic.

“Many of these birds eat the small little animals in playas,” Flowers said. “So, even though playas don’t hold water very long, they’re absolutely critically important for migratory birds, and also our summer and resident birds for nesting and feeding.”

It’s as if playas are the town square for wildlife, she said. “Not only birds, but bison, raccoons, coyotes, deer, everything comes to have a drink.”

**As water moves through the playa’s clay floor, a second cleaning process occurs as the soils beneath the playa remove nitrates and other dissolved contaminants.**



WESTON STOREY/DOW

*Playas holding water, like this one in Oklahoma’s Panhandle, provide important stopover locations for migrating birds.*



CHRISTOPHER RUSTAY/COURTESY PLV

*Playas provide critical wetland habitat for Northern pintails and other migrating birds.*



A marker designates the Lunceford Playa, dedicated in 1992 as the first joint project in the Playa Lakes Joint Venture in Oklahoma.



## PLAYAS IN THE PANHANDLE

To see playas in Oklahoma, you'll need to visit the Panhandle counties of Beaver, Cimarron, and Texas. Those three counties have an estimated 2,800 playas that lie atop the Ogallala aquifer.

While healthy playas provide critical wetland habitat for wildlife, they also provide a sustainable water source for families, communities, and rain-fed operations as well as water filtration, flood control, livestock forage, and recreation.

Playas recharge at an average annual rate of about 3 inches per year — that's 3 inches of water over the size of the playa descending to the aquifer each year when there is adequate rainfall. So, a four-acre playa (a small one) will send about an acre-foot of water toward the aquifer every year. That's roughly 325,850 gallons of water, or enough to supply three average families for a year. ♡



## UNDER STRESS

Playas work best when surrounded by a native grass buffer that filters out soil and agricultural contaminants and when there are no pits or other modifications to the playa.

Filling in pits is one of the easiest ways to restore a playa. In most cases, the spoil pile from the original excavation is present and used to refill the pit. Once pits are refilled, rainwater and runoff can reach the large cracks in a dry playa — which is essential for recharge to occur — rather than collecting in the pit. The shallow water that collects in the playa also supports the biodiversity function of the playa.

Johnson says many playas have lost capacity to recharge groundwater and clean the water going down into the aquifer because they're clogged with sediment carried from cultivated fields by runoff.


He recently studied sediment accumulation rates in several Kansas playas, from pre-agricultural times to now, and the research (Bowen and Johnson, 2019) showed that "conversion of watersheds to cropland has greatly accelerated sediment accumulation within playas, which is generally resulting in a decline in critical playa ecosystem functions."

Because playas are usually small and often dry, many producers till through playas to plant crops. However, even if a playa is large enough to be avoided, the surrounding upland is often farmed to the edge of the playa, resulting in increased sediment accumulation in those playas.

In one study of Kansas playas, those in cropland had about 4 to 6 inches of accumulated sediment compared to about an inch in grassland playas. On average, playas within cropland watersheds that had no buffer zones lost about 30 percent of their water storage capacity, while those with grass buffers lost about 7 percent of storage capacity. The study concludes that without grass buffers, accelerated sediment accumulation in playas will continue, greatly reducing ecosystem functions, "and ultimately, many playas will disappear from the landscape."

Johnson, who co-authored the study, said establishing native grass buffers around a playa is highly effective at reducing sediment accumulation and protecting playa functions.

Rainwater said, "We're just trying to understand how these complex processes on our planet work so that maybe we can have a better future."

What is known is that healthy (unaltered or restored) playas filter and clean the water going into the Ogallala aquifer. And it's a continuous process. Water reaching the aquifer today began its journey during our parents' and grandparents' lifetimes. And the water filling playas now will be available from the aquifer for today's children and future generations. 

*For more information about playas, the benefits playas provide, and programs to help conserve and restore playas, scan the code.*



**Johnson says many playas have lost capacity to recharge groundwater and clean the water going down into the aquifer because they're clogged with sediment carried from cultivated fields by runoff.**

**Water reaching the aquifer today began its journey during our parents' and grandparents' lifetimes. And the water filling playas now will be available from the aquifer for today's children and future generations.**



DARRIN HILL/ODWC

Wildlife Biologist Marcus Thibodeau used Natural Resources Damage Assessment funding to conduct habitat-improving mastication (grinding) of invasive eastern redcedars at Packsaddle Wildlife Management Area.

# A **NRDA** WAY OF THINKING

By using that limited pot for required matching funds to secure additional federal grant dollars, we can enlarge the total pot of money by three, seven, sometimes nine times its original amount!

## FINES FOR POLLUTING CIRCLE BACK TO FUND CONSERVATION PROJECTS

**Editor's Note:** Most people have heard the old adage, "You've got to have money to make money." This is very much the case with the Oklahoma Department of Wildlife Conservation — at least when the agency wants to maximize the amount of money it can use to fund its fish and wildlife conservation and habitat management activities. This is normally how it works: The Department receives a smaller pot of money every year from fishing and hunting license sales and federal excise taxes. If we only used that limited pot of money to manage wildlife and habitat, we would be greatly limited in what we could get done. But by using that limited pot as required matching funds to secure various federal grant dollars, we can enlarge the total pot of money by three, seven, sometimes nine times our original matching amount!

This report is about how some innovative thinking in the past few years at ODWC and the Oklahoma Secretary of Energy and Environment's Office has enabled ODWC to fund projects that benefit wildlife and outdoor enthusiasts by tapping into state funds that normally would not have been a traditional source of revenue.



**By Kristen Gillman, Lands and Minerals Coordinator**

In 2018, the Oklahoma Department of Wildlife Conservation submitted its first project proposals for **Natural Resources Damage Assessment** (NRDA) funding. NRDA is the legal process that federal, state and tribal governments cooperatively use to evaluate the impacts of oil spills, and hazardous waste sites. This process also studies the impacts to the environment, assessing and restoring the public's lost use of injured natural resources.

In Oklahoma, eight sites have resulted in contamination of terrestrial and stream environments because of sewage releases, mining waste, refinery waste, hazardous substances (solvents, insecticides, pesticides, sludge and industrial waste). Fines levied due to the damage to the environment were put into a fund administered by the Oklahoma Secretary of Energy and Environment (SOEE).

The State of Oklahoma, acting through the SOEE, in cooperation with state agencies, developed the **Statewide Comprehensive Restoration Plan** that provides an outline and process to select restoration alternatives and increase restoration of injured or lost natural resources and services. The Plan has provided the Wildlife Department with a unique opportunity to complete large-scale habitat improvement projects, buy equipment, acquire land and improve the state's fisheries.

NRDA's goal is to plan and implement actions to restore, replace, or rehabilitate natural resources that were injured or lost due to the release of a hazardous substance, or to acquire the equivalent of the resources or the services they provide.

ODWC's Wildlife Division took this opportunity to use funding from the federal **Wildlife Restoration Program** to yield millions of extra dollars for fish and wildlife restoration.

In Oklahoma, eight sites have resulted in contamination of terrestrial and stream environments because of sewage releases, mining waste, refinery waste, hazardous substances (solvents, insecticides, pesticides, sludge and industrial waste).



*This area at Cooper WMA was overgrown with brush and invasive vegetation, and was selected for habitat improvement efforts using NRDA funds.*



*After daylighting the area at Cooper WMA, the habitat is now very useful for many species of wildlife.*





The Elm Grove entrance at McClellan-Kerr Wildlife Management Area is shown here before a daylighting project partly paid for by using NRDA funds.



After daylighting, Elm Grove entrance at McClellan-Kerr WMA.



The federal wildlife restoration program receives revenues from excise taxes on sporting arms and ammunition, then returns this revenue to the states based on a formula using the number of hunting and fishing license holders and the state's land/water area.

ODWC applies for grants to manage wildlife and their habitats, monitor populations, conduct research, collect and analyze data, maintain facilities, perform outreach, and other activities designed to promote wildlife restoration and wildlife-based recreation. Now, ODWC is leveraging this 3-to-1 ratio offered by the Wildlife Restoration Program with the additional nonfederal NRDA funds to accomplish a number of projects that greatly enhance the agency's management of **Wildlife Management Areas** (WMAs) across Oklahoma.

ODWC received approval for various projects under the Statewide Comprehensive Restoration Plan and went to work.

Among the larger projects is statewide habitat restoration and improvement. These projects included wildlife habitat improvement and equipment purchases to support maintenance and enhancement of habitat.

Specific projects to improve wildlife habitat on numerous WMAs ranged from direct **vegetation control**, to **wetland improvements**, to **improving infrastructure** such as fireguards and fencing that allows ODWC to further manage wildlife habitat using prescribed fire and grazing. These large-scale habitat improvement projects were completed through third-party contracts.

One type of habitat improvement is the removal of vegetation and selected trees. The average observer might think that these projects are only removing good habitat from the landscape. But this activity is actually a wildlife management technique called **daylighting**. This cutting and removal within forested habitat allows



Work is underway to repair and upgrade the dam at Watonga Lake as part of a NRDA-funded project.



A NRDA-funded project at Watonga Lake is allowing repairs and upgrades to be made to the dam.

Daylighting is cutting and removal within forested habitat allows increased sunlight to reach the ground, encouraging growth of shrubs and herbaceous vegetation that various species can use.





Oologah WMA: before improvement.



Oologah WMA: after improvement.



increased sunlight to reach the ground, encouraging growth of shrubs and herbaceous vegetation that various species can use.

Daylighting also opens up the edges of roads and fields. The edges can be richer in wildlife than the adjoining plant communities because they provide more of the needs required by wildlife than a single vegetative community. These created openings provide increased food sources, like seeds and insects, for wildlife. Wildlife also use edges as travel lanes.

Vegetation management to benefit wildlife is an ongoing annual activity and requires the use of **agricultural equipment**. Using the NRDA process, the Wildlife Division was able to acquire skid steers and attachments, tractors and attachments, all-terrain vehicles, and prescribed burning equipment.

The Fisheries Division is using NRDA funds to rehabilitate existing water supply reservoirs, roadways and fencing at **Durant State Fish Hatchery** and dam repair and improvements at **Lake Watonga**. NRDA funds are also being used to replace the antiquated main water pipeline to the hatchery and pump station at **J.A. Manning State Fish Hatchery** in Medicine Park.

All of that was accomplished in the two years of this NRDA initiative. In 2020, ODWC was able to submit a second round of project proposals.

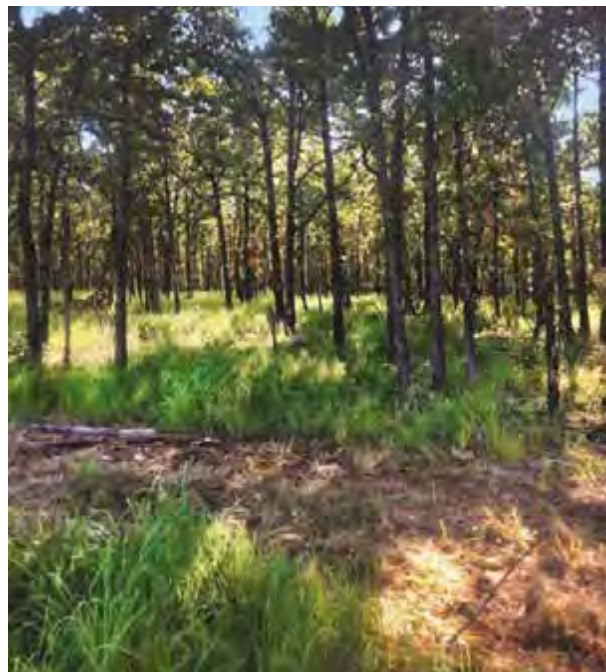
In the Wildlife Division, the second round of projects continued habitat restoration on WMAs, mechanical and chemical control of invasive species, reclaiming overgrown fireguards to increase prescribed burning opportunities, replacing water-control structures to enhance wetland management, and creating wildlife watering holes.

Fisheries Division projects include building a water supply reservoir at the Manning Hatchery, and repair and upgrade the **Jap Beaver Lake** dam.

Most notably, NRDA funds were leveraged to acquire 7,602 acres in Haskell County, resulting in the new **Sans Bois WMA**; to acquire 497 acres in Adair County, resulting in the new **Barren Fork WMA**; to add 239 acres at **Atoka WMA**; to add 557 acres in McCurtain County to **Grassy Slough WMA**; and to add 124 acres for **Drummond Flat WMA**.

These properties represent critical habitat for fish and wildlife, and will be perpetually open to the public for hunting and fishing. 🍷

These created openings provide increased food sources, like seeds and insects, for wildlife. Wildlife also use edges as travel lanes.



*A site at James Collins WMA as it appeared before habitat improvement work.*



*The same area at James Collins WMA after clearing and mastication to create a forest opening.*





Sharing a proud moment with young Walker Lovell is his grandfather Gerald Lovell after Walker shot a heavy doe on the morning of youth deer season.



# AN UNFORGETTABLE DAY AFIELD

## DEER SEASON EXPERIENCE FUELS BOY'S PASSION FOR HUNTING

**EDITOR'S NOTE:** Follow along as the author shares the special story of a boy's youth deer season hunting adventure during the 2021 season.

**By David Falconer**

Hunting seasons are upon us. And youth deer season, held the third weekend of October, has resulted in a lot of new hunters venturing afield, in hopes of taking deer for the first time in their lives.

Walker Lovell, 7, has taken deer before. He has taken wild hogs before, but nothing except for his dad's advice and his practice at the range prepared him for what happened during the 2021 Oklahoma youth deer season in Haskell County.

Walker is the son of Weston and Kristan Lovell. Weston's hunting values are the values of a hunter who loves and respects the animal he chases and the manner in which they are taken. He is a steward of wildlife, not just someone who is there for the kill. He is teaching his sons those values, just as he was taught by his dad.

October 16 started at 5:50 a.m. as Weston and Walker awoke and donned their carefully laid-out clothes. Weston decided to take Walker to hunt from his dad's blind on San Bois Creek. Walker was excited; the boy's demeanor reminded Weston of those sleepless nights he had before deer season started when he was Walker's age.

The temperature had cooled off for the night. But as cool as it was at home, San Bois bottom is always 10 degrees colder than that. Think of the coldest place in Alaska at the same time of year, and that's how it feels in San Bois bottom! Parking high above the blind, father and son walked in to the hunting site and settled in.

The day before, Walker and his little brother, had been playing a child's game of "This

*Walker Lovell, 7, with the remarkable buck he took the evening of Oct. 16, 2021.*



PROVIDED



Walker Lovell, 7, with the big doe he took shortly after youth deer season opened in 2021. It was just the start of a remarkable day.

is my deer.” Weston chuckled when Walker made the very honest comment that he would most likely shoot the first deer that came in, regardless of what they were seeing on game cameras.

Walker had taken part in preparing the blind and the area they were hunting. The morning was just starting to come alive as they got into the blind. Walker was fully prepared to take a feral hog or a deer, whichever showed up first.

A young forked buck showed up first, and Walker wanted to take a shot. But his dad encouraged him to wait and see what else might come through; after all, this was only the first 10 minutes of the season. Walker had been true to his words the day before and wanted to take the first deer to arrive, but Weston told him to hold out for a bigger buck.

Shortly, six does came in. Two smallish bucks were dogging them in the distance, but they didn’t get close enough for Walker to shoot. Walker was focused on the biggest doe of the group, and when it presented a good shot, the rifle roared and that big doe hit the ground after a short run into the woods.

Excited, Walker and Weston walked to the mature doe, and Weston stood out of kicking distance and pushed on the doe with a long stick.

The doe was dead!

Walker helped his dad get the deer loaded, and he wanted to take it by his Pa’s house to show it to him! His grandfather Gerald Lovell is also one of my mentors, and I consider him an uncle even though there is no DNA that connects us. The photo of Walker and his Pa says it all!

This story could end here: a conservation kill of a mature doe by a young hunter. But it doesn’t end here. It continues into that evening.

Walker suggested they hunt his blind behind the house and try to take a nice eight point they had been seeing on the game camera. Weston agreed, even though the wind wasn’t ideal. It was Walker’s blind and his hunt.



That evening, father and son made their way to the blind, hoping to ambush a nice young eight point that had been a regular on the game camera. Parking the four-wheeler among the cows, they were in the blind by 5 p.m. Walker was set up, and Weston was helping him watch outside. They talked about hunts in the past, and father shared stories with his son about much how hunting has changed since he took his first deer many years ago.

The cool evening air was relaxing. Then they saw a big buck moving through around 6:20 p.m. It was more than 125 yards away and never presented a shot that was reasonable for a 7-year-old. Walker has killed deer and hogs before, putting every shot behind the shoulder out to 80 yards. But Weston felt his son's range needed to be limited to under 100 yards, and Dad held to it as they let the buck walk out of sight.

Walker was disappointed. But less than 15 minutes later a young five-point came out and gave him a broadside shot within his range. Weston assumed Walker would shoot it, but his son turned toward him and asked, "Do you think the big one will come back?"

"Maybe," Weston told his son. The young protégé watched the little buck graze through the opening in the blind.

After watching it for 10 minutes or so, Walker decided to shoot. For the first time in his life, he missed a deer! Somehow he slipped in his chair and bumped the tripod rest just as he squeezed the trigger. But the deer just ran a short distance into the woods, and Walker made a nice scope-ring bruise above his eye! Bruised or not, Weston got his son out of the blind to go check for hair and blood. They didn't see the small buck until they got close to where it had been standing, and the little buck trotted off unharmed.

Double checking to make sure there was no blood, Weston told Walker they had about 15 minutes of legal shooting light left. They headed for the blind. Weston got in with him and started texting his wife to tell her about the hunting trip's results.



Right then Walker said he sees a deer coming in fast, and it was the big one! It came within 50 yards! Unable to see the deer himself because his view was blocked, Weston knew he wasn't able to say much for certain as he coached Walker to take his time, pick a spot behind the shoulder, and squeeze the trigger. Weston said it seemed like a really long wait, but Walker took the shot!

The buck dropped in its tracks! Walker went super happy, almost tearing the blind down to get out and race to the buck. The Thompson Contender in 300 Blackout had done its job. Weston said he walked up to the largest white-tailed buck he'd ever seen on the hoof. That buck green-scored 183 7/8ths, and easily topped the whitetails Weston himself had taken.

Walker stayed up until 2 the next morning, helping his dad with every aspect of harvesting both deer. The boy is learning how to do it all — and how to do it right!

Needless to say, the young man is a hunter. And chances are he will be a hunter for life! ❤️

*Walker Lovell's big buck green-scored 183 7/8ths.*

# Conservation

## Get Outdoors!

Get your family together for an autumn picnic at a local lake or park. Enjoy some outdoor games like cornhole, horseshoes, or football. Take a walk to look at the turning leaves. Build a campfire if permitted, and make s'mores. Enjoy family time together!

## for Kids!

### Word Search: Let's Go Hunting!

#### Hunting Tip

Have you ever been dove hunting and noticed mourning doves perched on power lines along country roads? Of course, it's not legal to shoot at those birds on power lines. But seeing doves on the line indicates that the birds are feeding in fields in the area. If you watch closely, you might be able to tell which fields or watering spots are attracting the doves, and you'll have a good idea where you might have a successful dove hunt.

#### Fishing Tip

Since fish are cold-blooded, their body metabolism slows as the temperature of the water drops. That means the fish, and the prey they are chasing, are slowing down. Keep this in mind when fishing with artificial lures. You want to mimic the prey that game fish are hunting, so don't make fast and erratic retrieves. Instead, reel in your lure in a slow and steady fashion. This will usually be more effective as the weather gets cooler.

N	B	B	R	V	N	H	K	U	E	U	P	K	H	D	A
A	O	N	W	W	X	U	F	L	N	J	J	J	C	V	V
W	G	Q	F	H	A	M	M	U	N	I	T	I	O	N	G
V	E	M	C	A	C	H	R	B	S	G	L	S	Z	U	R
M	M	L	V	T	B	M	E	C	R	K	L	D	F	G	X
B	Z	Z	F	K	L	U	Z	L	A	S	V	I	J	T	N
C	M	E	C	I	Z	A	I	E	L	E	R	W	Q	O	P
C	W	A	D	E	R	S	O	G	U	V	K	G	P	H	J
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J	N	K	L	O	Y	R	W	A	M	W	L	K	T	Z	Q
E	M	B	B	G	U	Z	B	C	E	C	O	V	R	P	S

Find and circle these words related to a hunting trip in Oklahoma!

Ammunition

Binoculars

Boots

Bow

Camouflage

Crossbow

Gloves

Hat

Knife

Rifle

Shotgun

Waders

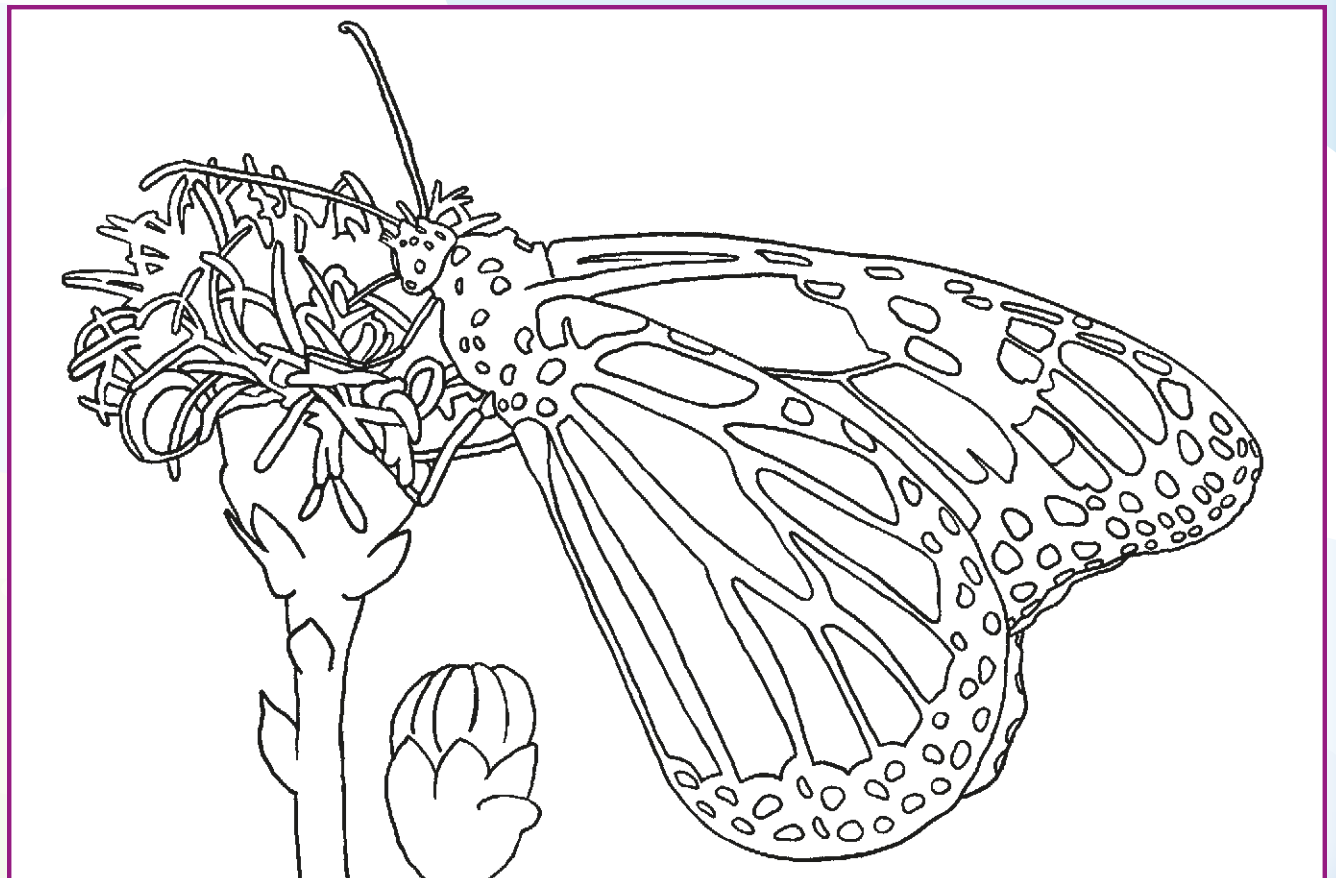


## Some COOL FACTS About Monarchs:

- After emerging, monarch butterflies live two to six weeks.
- Monarch caterpillars can grow up to 2,700 times their original weight.
- One tracked monarch flew 265 miles in one day.
- Male monarchs have a black dot on their hindwings; females do not.
- Monarchs cluster together for warmth.
- Monarchs use their antennae to smell.
- A female monarch can lay up to 500 eggs.
- A monarch's brain is the size of a pinhead.



## Color a Critter: Monarch Butterfly





# 2021-22 BIG GAME HARVEST REPORT

ANDY PENNEVEREADERS' PHOTO SHOWCASE 2019

## OPPORTUNITY NOCKS:

Archers Set Deer Harvest  
Record for 3rd Straight Year

BY DALLAS BARBER, BIG GAME BIOLOGIST, AND EMILY CLARK, BIG GAME TECHNICIAN



Impressive harvest statistics from the 2021-22 hunting seasons again prove that now is a great time to be an Oklahoma big game hunter. Healthy herds and good conditions led to 117,629 deer being taken, making it the third-highest harvest total on record. Antlerless deer harvest accounted for 41 percent of the total, which falls right in line with the statewide annual goal of between 40 and 45 percent. **Figure 1** shows total deer harvest numbers from 2004 to this past year.

Gun seasons led the way with 68,879 deer harvested. These seasons are the traditional 16-day modern firearms season, the youth gun season, and the holiday antlerless deer gun season. Muzzleloader harvest decreased slightly from the previous year, with 12,228 deer taken during the nine-day season. But for the third year in a row, archery hunters set a record with 36,522 deer taken. **Figure 2** represents success rates among the various hunting methods. **Figure 3** shows individual seasons and the respective makeup of total harvest.

Oklahoma deer hunters are challenged with the wide diversity and various habitat types the state has to offer. With those variations comes different levels of quality deer habitat. Some counties enjoy the luxury of large expanses of public land, while others do not.

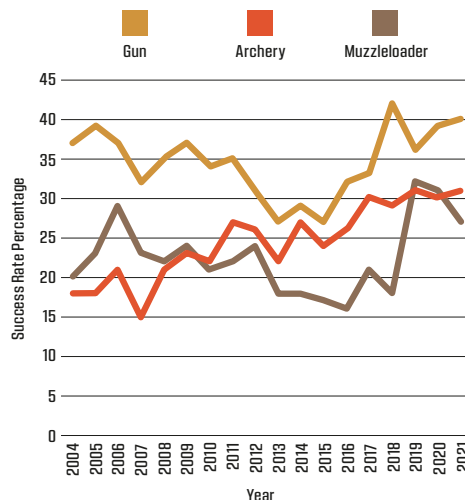
To represent each county fairly, **Table 1** shows deer harvest by county with Wildlife

Management Areas (WMAs) and other public lands removed. In terms of deer taken, the top three counties last year were Pittsburg with 4,071 deer harvested; Osage County with 4,055; and McCurtain County with 2,842.

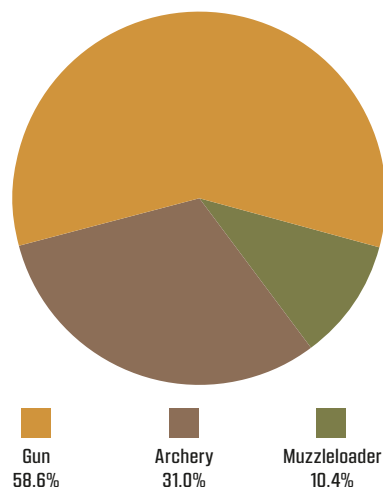
WMAs and other Wildlife Department-managed public lands make up for a very small percentage of the state's land area — about 3 percent. But the public lands accounted for 7.6 percent of the total harvest. With Oklahoma being the second most ecologically diverse state, second to only California, there is a style and type of hunt for everyone. Public land deer harvest statistics can be seen in **Table 2**.

Oklahoma also offers opportunities to harvest mule deer, which are found in

**Figure 2: Success Rates by Method from 2004-Current**



**Figure 3: 2021-22 Percent Harvest by Method**



**Figure 1: Total Harvest from 2004 to Current**

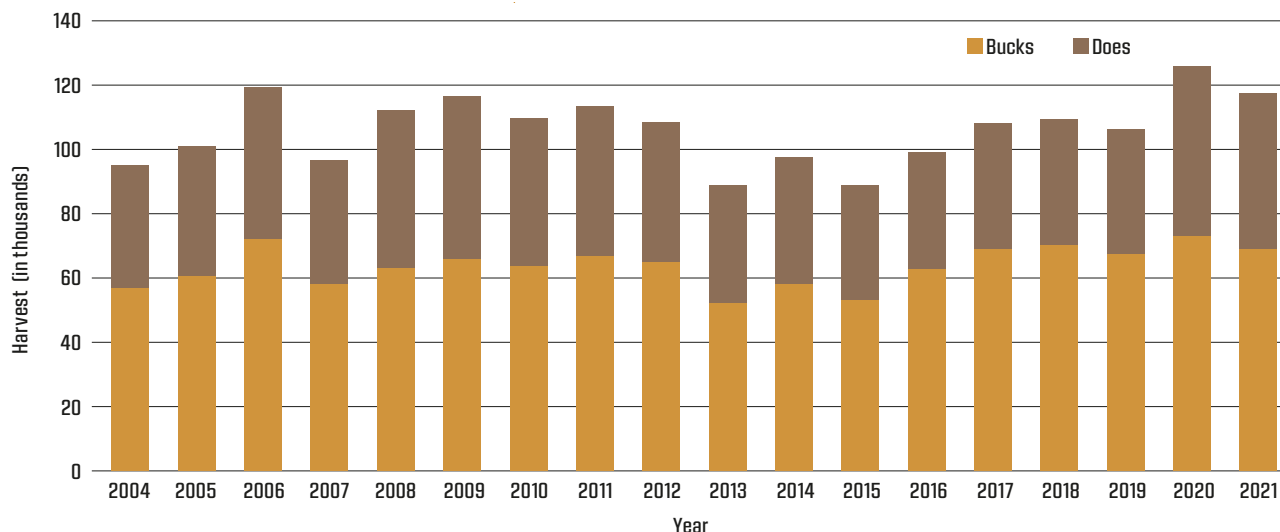


Table 1: Harvest by County, Sex, and Method

County	Archery		Gun		Muzzleloader		Total
	Antlered	Antlerless	Antlered	Antlerless	Antlered	Antlerless	
Adair	230	159	461	367	148	80	1,445
Alfalfa	146	100	394	315	38	33	1,026
Atoka	536	442	890	572	257	131	2,828
Beaver	37	5	262	70	19	10	403
Beckham	148	127	563	485	57	46	1,426
Blaine	77	48	318	194	24	9	670
Bryan	346	309	619	377	88	52	1,791
Caddo	247	122	729	419	79	30	1,626
Canadian	162	129	304	235	28	15	873
Carter	290	179	616	316	61	23	1,485
Cherokee	399	349	736	528	218	97	2,327
Choctaw	329	306	629	323	131	71	1,789
Cimarron	7	4	93	5	9	0	118
Cleveland	338	275	410	317	89	51	1,480
Coal	348	247	584	421	103	55	1,758
Comanche	137	90	296	154	38	20	735
Cotton	77	65	199	168	14	18	541
Craig	233	144	620	406	101	46	1,550
Creek	487	384	928	692	165	96	2,752
Custer	72	46	321	189	24	16	668
Delaware	351	275	512	426	121	76	1,761
Dewey	87	65	505	235	27	27	946
Ellis	65	55	392	248	47	17	824
Garfield	99	101	373	251	39	24	887
Garvin	254	175	556	299	87	49	1,420
Grady	255	161	667	432	78	41	1,634
Grant	162	129	546	493	61	57	1,448
Greer	77	51	276	210	19	16	649
Harmon	73	61	211	201	15	16	577
Harper	48	16	265	72	32	6	439
Haskell	272	200	471	360	173	71	1,547
Hughes	360	223	787	449	153	65	2,037
Jackson	127	121	273	232	23	13	789
Jefferson	192	132	395	269	40	8	1,036
Johnston	241	135	493	381	73	38	1,361
Kay	132	83	430	317	54	50	1,066
Kingfisher	129	72	363	239	42	19	864
Kiowa	89	53	291	172	30	17	652
Latimer	285	200	374	219	189	74	1,341
Le Flore	398	375	571	509	282	163	2,298
Lincoln	379	281	957	640	125	79	2,461
Logan	340	214	642	460	104	64	1,824
Love	189	140	300	161	29	17	836
Major	114	75	517	315	34	22	1,077
Marshall	58	56	156	96	22	13	401
Mayes	225	169	426	308	129	76	1,333
McClain	182	97	351	215	37	36	918
McCurtain	438	438	862	669	244	191	2,842
McIntosh	197	151	401	261	103	52	1,165
Murray	157	64	284	117	40	14	676
Muskogee	261	193	446	283	105	45	1,333
Noble	131	114	431	328	63	44	1,111
Nowata	177	146	516	334	62	22	1,257
Okfuskee	223	151	533	282	110	57	1,356
Oklahoma	421	320	388	249	48	44	1,470
Okmulgee	260	180	491	239	91	53	1,314
Osage	566	443	1,661	1,047	209	129	4,055
Ottawa	228	196	416	354	107	52	1,353
Pawnee	224	190	663	469	95	63	1,704
Payne	319	217	708	550	99	69	1,962
Pittsburg	873	710	1,242	650	468	128	4,071
Pontotoc	382	241	677	499	117	54	1,970
Pottawatomie	481	355	871	576	173	96	2,552
Pushmataha	531	506	778	516	280	133	2,744
Roger Mills	107	68	609	406	52	28	1,270
Rogers	470	368	686	521	109	86	2,240
Seminole	279	187	625	387	122	78	1,678
Sequoyah	359	303	603	529	272	119	2,185
Stephens	318	194	602	350	77	40	1,581
Texas	12	7	92	14	17	1	143
Tillman	115	118	234	221	18	16	722
Tulsa	249	176	234	195	34	24	912
Wagoner	247	248	393	335	90	68	1,381
Washington	184	124	484	283	37	22	1,134
Washita	35	25	273	153	15	15	516
Woods	179	73	516	237	51	18	1,074
Woodward	134	110	536	331	48	22	1,181
<b>County Total</b>	<b>18,386</b>	<b>13,861</b>	<b>39,327</b>	<b>26,147</b>	<b>7,112</b>	<b>3,836</b>	<b>108,669</b>
<b>WMA Total</b>	<b>1,410</b>	<b>1,496</b>	<b>1,874</b>	<b>1,531</b>	<b>570</b>	<b>710</b>	<b>7,591</b>
<b>OLAP Total</b>	<b>629</b>	<b>740</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,369</b>
<b>Grand Total</b>	<b>20,425</b>	<b>16,097</b>	<b>41,201</b>	<b>27,678</b>	<b>7,682</b>	<b>4,546</b>	<b>117,629</b>



Table 2: WMA Harvest by County, Sex, and Method

WMA Name	Archery		Gun		Muzzleloader		Total
	Antlered	Antlerless	Antlered	Antlerless	Antlered	Antlerless	
Arcadia CEA	12	24	0	1	0	0	37
Altus-Lugert WMA	15	19	8	0	2	5	49
American Horse	1	0	0	0	0	0	1
Arbuckle Springs	11	14	8	9	0	0	42
Atoka PHA	5	2	19	9	5	8	48
Atoka WMA	17	17	11	14	1	2	62
Bamberger WMA	1	2	0	2	0	0	5
Barren Fork WMA	0	0	2	5	0	0	7
Beaver River	4	4	8	2	1	0	19
Beaver River WMA	2	4	6	1	14	4	31
Beavers Bend SP (Golf)	0	0	2	0	0	1	3
Beavers Bend SP	0	1	1	0	0	0	2
Black Kettle WMA	15	19	120	107	11	29	301
Blue River PFHA	4	8	5	6	0	0	23
Broken Bow WMA	9	3	7	5	5	1	30
Burtschi PFA	1	1	1	0	0	0	3
Camp Gruber (CGTC)	6	10	48	9	34	36	143
Candy Creek WMA	3	8	4	4	0	1	20
Canton WMA	12	33	37	13	5	13	113
Canton WRP	0	0	0	0	0	0	0
Cherokee WMA	19	17	24	18	1	0	79
Cherokee WMA	24	24	34	2	15	23	122
Chickasaw NRA	16	15	14	22	3	6	76
Cimarron Bluff	2	0	0	1	0	0	3
Cimarron Hills	7	2	0	0	0	0	9
Cookson WMA	24	23	3	6	0	3	59
Cooper WMA	3	1	32	1	2	0	39
Copan COE Parks	3	4	1	4	0	0	12
Copan WMA	20	32	49	20	5	3	129
Cross Timbers WMA	42	56	16	27	0	1	142
Deep Fork NWR	14	9	3	5	5	14	50
Deep Fork WMA	10	7	18	24	6	6	71
Dewey County	0	0	2	0	0	0	2
Drummond Flats	4	3	1	1	0	0	9
Ellis County WMA	5	1	29	7	2	5	49
Eufaula WMA	28	33	44	58	21	18	202
Fobb Bottom	7	9	3	8	1	1	29
Fort Cobb State Park	0	2	2	1	0	4	9
Fort Cobb WMA	8	13	12	10	0	1	44
Fort Gibson	2	3	0	0	11	20	36
Fort Gibson WMA	79	107	66	22	27	43	344
Fort Sill	56	55	55	48	30	39	283
Fort Supply WMA	8	13	31	3	2	6	63
Four Canyon Preserve	0	0	0	0	0	0	0
Ft. Cobb WMA & SP	1	4	0	1	0	3	9
Ft. Gibson WRP	0	1	0	0	0	0	1
Gary Sherrer	1	1	1	0	0	1	4
Gist WMA	1	1	0	0	0	0	2
Grady Co. WMA	2	2	0	1	0	0	5
Grassy Slough	2	1	0	0	0	0	3
Great Salt Plains	0	3	1	6	0	4	14
Hackberry Flat	2	4	0	0	12	4	22
Hall PFA	1	0	0	0	0	0	1
Heyburn COE	1	1	0	3	0	0	5
Heyburn WMA	16	8	27	24	4	7	86
Hickory Creek WMA	5	4	11	5	1	0	26
Honobia WMA	14	18	38	22	15	22	129
Hugo Lake COE	20	23	14	9	7	2	75
Hugo WMA	30	37	58	47	22	14	208
Hulah WMA	28	27	104	43	12	11	225
James Collins WMA	81	64	16	5	0	0	166
Jap Beaver PFA	0	0	0	0	0	0	0
John Dahl	0	0	10	5	0	1	16
Kaw Lake COE	19	13	18	13	1	3	67
Kaw WMA	38	27	80	87	16	50	298
Keystone COE	12	23	9	19	3	1	67
Keystone SP	0	0	0	0	0	1	1
Keystone WMA	40	52	47	66	4	17	226
Lake Thunderbird	30	34	2	3	0	1	70
Lexington WMA	14	26	10	30	15	8	103
Little River NWR	7	7	19	13	1	0	47
Love Valley WMA	8	4	23	25	2	5	67
Lower Illinois	1	0	1	5	2	1	10
Major County	1	1	2	0	0	0	4
McAlester AAP	74	91	0	20	0	0	185
McClellan-Kerr WMA	15	15	11	9	2	7	59
McCurtain Co. WA	6	3	24	16	5	6	60
McGee Creek WMA	13	13	10	3	2	3	44
Mountain Park	4	5	0	0	3	9	21
Nanah Waiya PFA	0	0	0	0	0	0	0
Neosho WMA	14	11	1	0	1	1	28
Oka'Yanahli Preserve	0	0	0	0	0	0	0
Okmulgee WMA	3	2	8	4	0	0	17
Okmulgee WMA	3	3	9	6	2	1	24
Oologah Lake COE	15	18	29	33	7	5	107
Oologah WMA	35	36	66	48	10	18	213
Optima NWR	2	0	0	0	0	0	2
Optima WMA	0	4	14	0	1	0	19
Osage WMA—Rock Creek	5	7	16	6	2	2	38
Osage WMA—Western Wall	44	22	2	2	3	0	73

Table 2: WMA Harvest by County, Sex, and Method (continued)

WMA Name	Archery		Gun		Muzzleloader		Total
	Antlered	Antlerless	Antlered	Antlerless	Antlered	Antlerless	
Ouachita WMA (Cucumber Creek)	0	0	4	5	3	1	13
Ouachita WMA (McCurtain Unit)	11	8	30	29	21	13	112
Ouachita WMA (Le Flore)	21	23	53	58	34	21	210
Ozark Plateau NWR	0	0	0	0	0	0	0
Ozark Plateau	2	2	0	0	1	0	5
Packsaddle WMA	2	1	47	14	1	11	76
Pine Creek COE	3	4	6	3	2	3	21
Pine Creek WMA	5	9	11	5	3	5	38
Pontotoc Ridge	0	0	0	2	0	0	2
Pushmataha WMA	33	16	22	14	6	1	92
Red Slough WMA	15	19	0	0	0	0	34
Rita Blanca WMA	0	0	1	0	0	0	1
Robbers Cave WMA	0	0	2	1	2	0	5
Salt Plains	1	1	22	42	3	6	75
Salt Plains NWR Wild. Area	0	0	1	2	0	0	3
Sandhills WMA	11	4	2	1	5	0	23
Sandy Sanders	10	9	5	2	2	10	38
Sans Bois WMA	3	3	1	0	2	0	9
Schooler PFA	0	0	0	0	0	1	1
Schultz WMA	0	0	1	0	0	0	1
Sequoyah NWR	13	4	0	0	6	33	56
Sequoyah NWR (Refuge Island)	0	2	0	0	0	0	2
Sequoyah Resort Park	0	1	0	0	7	14	22
Shorb WMA	0	0	0	0	1	0	1
Skiatook COE	2	2	3	2	0	1	10
Skiatook WMA	1	5	13	19	3	6	47
Sparrow Hawk	1	3	4	2	1	0	11
Spavinaw WMA	17	12	8	7	3	0	47
Spavinaw WMA	3	2	8	5	1	3	22
Stringtown WMA	0	0	4	0	1	2	7
Tenkiller COE	7	7	9	9	9	3	44
Tenkiller-B-Cabin	0	0	1	3	3	2	9
Texoma COE	8	10	8	6	0	0	32
Texoma COE (Burns)	2	4	1	0	0	0	7
Texoma COE	3	1	0	0	0	0	4
Texoma/Washitaar	4	1	20	14	2	1	42
Three Rivers WMA	51	61	124	125	58	41	460
Tishomingo	3	1	6	24	0	0	34
Tishomingo WMA	2	4	6	2	0	0	14
USDA Grazinglands RL	0	1	2	16	0	0	19
Vanderwork PFA	0	1	0	0	0	0	1
Washita County	1	1	0	0	0	0	2
Washita NWR	0	0	1	14	0	0	15
Waurika Lake COE	0	2	0	1	0	0	3
Waurika WMA	46	40	2	1	7	7	103
Webbers Fall WMA	0	0	4	0	0	0	4
Whitegrass Flats	1	0	0	0	0	0	1
Wichita Mountains WR	2	0	2	0	0	0	5
Wister WMA	12	14	29	44	18	21	138
Wister WRP	5	4	2	2	1	1	15
Yourman WMA	2	0	2	3	0	1	8
<b>WMA Total</b>	<b>1,410</b>	<b>1,496</b>	<b>1,874</b>	<b>1,531</b>	<b>570</b>	<b>710</b>	<b>7,591</b>
<b>County Total</b>	<b>18,386</b>	<b>13,861</b>	<b>39,327</b>	<b>26,147</b>	<b>7,112</b>	<b>3,836</b>	<b>108,669</b>
<b>OLAP Total</b>	<b>629</b>	<b>740</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,369</b>
<b>Grand Total</b>	<b>20,425</b>	<b>16,097</b>	<b>41,201</b>	<b>27,678</b>	<b>7,682</b>	<b>4,546</b>	<b>117,629</b>

the western areas of the state. Oklahoma is on the eastern fringe of the mule deer's natural range, with the same being true for the pronghorn. This results in an inconsistent population across the landscape and fragmentation of those populations. However, hunters managed to take 254 mule deer during the 2021-22 season. Mule deer buck harvest totaled 243, while 11 does were taken. **Table 3** represents mule deer harvest by county, sex, and method.

## Deer Archery Season

Archery hunting continues to grow in popularity, which can be seen in a record-setting harvest for a third year in a row. Archers took 36,522 deer during the 2021-22 season,

accounting for just over 30 percent of the total deer harvest. Antlerless deer made up 44 percent of the archery total. The annual Game Harvest Survey (GHS), a scientific survey conducted by the Wildlife Department, has been tracking hunter metrics for decades. The GHS estimated that 117,216 archers took to the field this past season with a deer license in hand.

Archery regulations were unchanged, with the season running from Oct. 1, 2021, through Jan. 15, 2022. The bag limit was six deer, with no more than two being antlered. A breakdown of harvest by sex and week can be seen in **Figure 4**. Archery hunter participation and harvest from years past is represented in **Figure 5**.



Table 3: Mule Deer Harvest by County, Sex, and Method

County	Archery		Gun		Muzzleloader		Total
	Antlered	Antlerless	Antlered	Antlerless	Antlered	Antlerless	
Alfalfa	0	0	1	1	0	0	2
Beaver	2	8	1	58	0	11	80
Beckham	1	0	0	0	0	0	1
Cimarron	2	6	0	59	0	8	75
Dewey	0	0	0	1	0	0	1
Ellis	1	1	0	6	0	1	9
Grant	0	0	0	1	0	0	1
Harmon	0	1	1	0	0	0	2
Harper	0	0	0	11	0	1	12
Jackson	0	0	1	0	0	0	1
Major	0	0	0	1	0	0	1
Roger Mills	0	0	0	4	0	1	5
Texas	0	5	1	39	0	9	54
Woods	0	1	0	0	0	0	1
Woodward	0	6	0	3	0	0	9
<b>Grand Total</b>	<b>6</b>	<b>28</b>	<b>5</b>	<b>184</b>	<b>0</b>	<b>31</b>	<b>254</b>

## Deer Muzzleloader Season

Muzzleloader hunters were in the field from Oct. 23-31. Seasonal bag limit was four deer, only one of which could be antlered. Additional antlerless harvest was encouraged by the liberalization of antlerless bag limits offered in specific Antlerless Deer Zones as shown in **Figure 10**.

During the nine-day muzzleloader season, 12,228 deer were taken. That was a substantial drop from the previous year, a drop that could be attributed to warm temperatures across much of the state. The GHS estimated 85,248 hunters went afield to harvest 4,546 antlerless deer and 7,682 antlered deer. A breakdown of harvest by day and sex can be seen in **Figure 6**. Harvest and hunter participation from previous years is shown in **Figure 7**.

Figure 4: 2021-22 Archery Harvest by Week

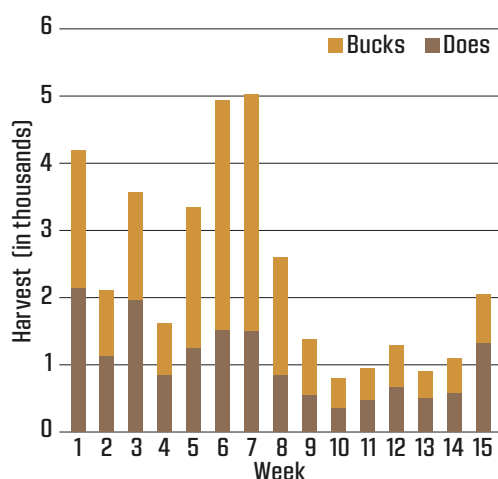


Figure 6: 2021 Muzzleloader Harvest by Day

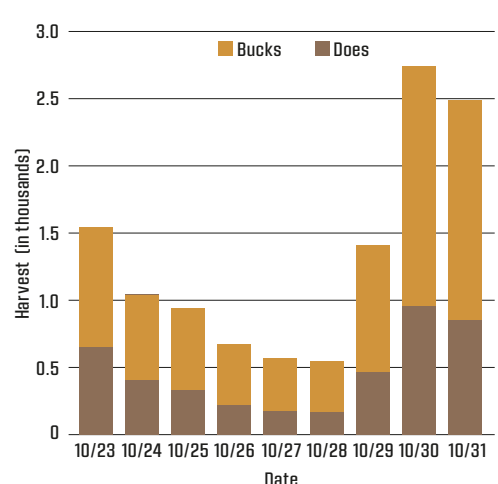


Figure 5: Archery Hunter Numbers and Harvest 2004-Current

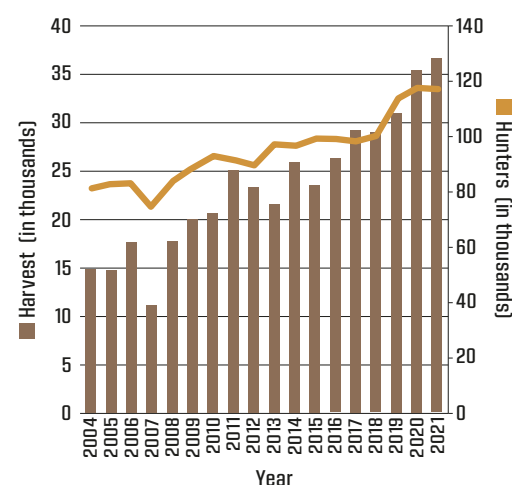


Figure 7: Muzzleloader Season Harvest and Hunter Numbers 2004-Current

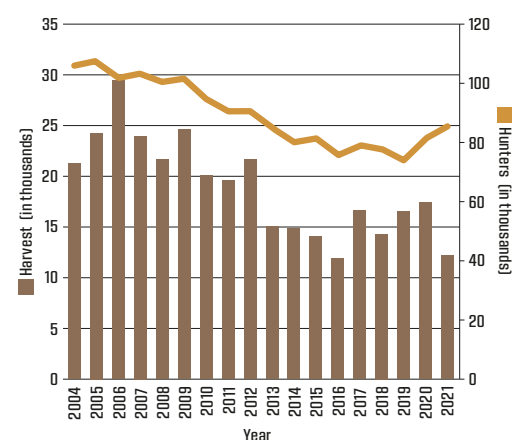
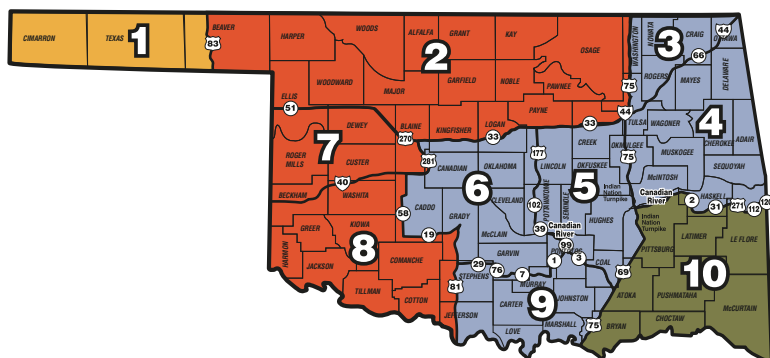




Figure 10: Deer Antlerless Zones



## Deer Gun Seasons

Oklahoma's modern gun season ran from Nov. 20-Dec. 5, 2021. Regulations were unchanged; hunters could take four deer, no more than one being antlered. An estimated 163,903 hunters managed to take 68,879 deer during Oklahoma's various gun seasons, with 40 percent of the harvest being antlerless deer. See **Figures 8 and 9**.

The holiday antlerless gun season occurred Dec. 18-31, 2021, and resulted in 6,362 antlerless

deer being taken.

Youth hunters had the first shot with the youth deer gun season on Oct. 15-17. The youths took 4,809 deer those three days.

Figure 8: 2021 Gun Season Harvest by Day

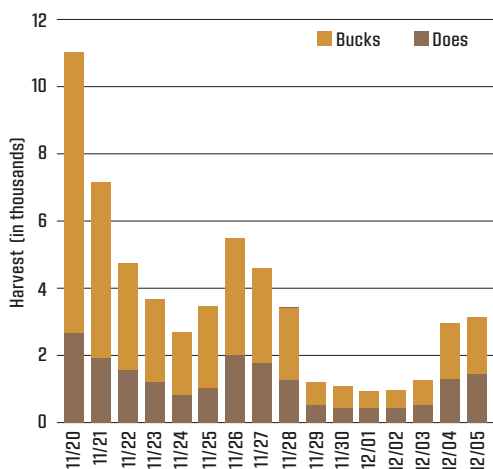
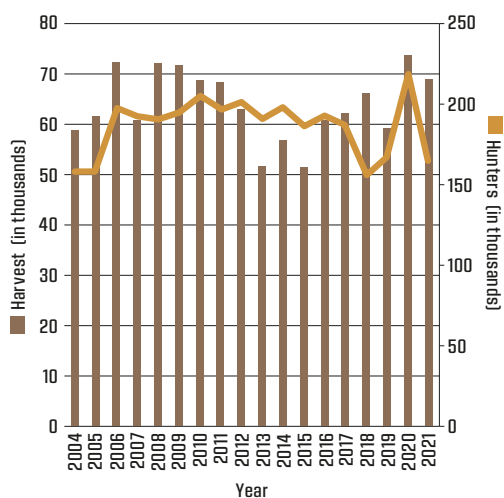


Figure 9: Gun Season Harvest and Hunter Numbers 2004-Current



## Elk

Hunters pursuing elk continue to enjoy growing elk populations across most of the state, with the bulk of the elk pop-



Table 4: Elk Harvest by County, Sex, and Method

County	Archery		Gun		Muzzleloader		Total
	Cow	Bull	Cow	Bull	Cow	Bull	
Adair	0	0	0	1	0	0	1
Beckham	0	0	0	2	0	2	4
Caddo	0	2	6	7	0	0	15
Carter	0	2	0	0	0	0	2
Cherokee	1	1	6	0	0	1	9
Choctaw	0	0	1	0	0	0	1
Cimarron	1	4	11	5	0	4	25
Coal	0	1	0	0	0	0	1
Comanche	23	30	252	159	5	6	475
Dewey	0	3	0	0	0	0	3
Greer	0	0	1	0	0	0	1
Hughes	0	1	0	0	0	0	1
Kiowa	0	5	23	31	0	0	59
Murray	1	0	0	0	0	0	1
Muskogee	0	2	3	0	0	0	5
Okfuskee	0	0	0	1	0	0	1
Texas	0	0	0	2	1	0	3
<b>Grand Total</b>	<b>26</b>	<b>51</b>	<b>303</b>	<b>208</b>	<b>6</b>	<b>13</b>	<b>607</b>

ulation occurring in the Special Southwest Zone of Caddo, Kiowa, and Comanche counties. Private-land hunting with written landowner permission during the state's elk seasons and a draw hunt via ODWC's controlled hunts program were the two main avenues for taking an elk. Hunters took 607 elk during the 2021-22 season, 272 of which were bulls. A breakdown by county, sex, and method is found in **Table 4**.

## Pronghorn

Pronghorn roam the short-grass prairie in the western part of Oklahoma's Panhandle. Pronghorn numbers are relatively small in the state, but populations continue to support limited hunting. Opportunity lies in over-the-counter archery licenses, once-in-a-lifetime controlled hunt permits, and landowner permits. Hunters took 152 pronghorns from the open hunting zone, which includes Cimarron County and that part of Texas County west of State Highway 136.

Those hunting in Cimarron County took 109 pronghorns. Archery hunters took 13 bucks, while gun hunters took 39 bucks and 57 does during the combined gun seasons.



LARRY E. SMITH/FELICK/CC BY2

Texas County yielded a total of 43 pronghorns. Archery hunters bagged eight pronghorns (7 bucks and a doe), while gun hunters took 35 pronghorns (10 bucks and 25 does). **Table 5** shows a breakdown of harvest by county, sex, and method of take.

## Deer Age Structure

Every year, the Wildlife Department enlists various sources to gather data from the state's deer harvest. Those sources include **Deer Management Assistance Program** (DMAP) cooperative landowners, local meat processors, taxidermists, and our online **Age My Deer** program. The age data provide us with key information relating to the structure and health of Oklahoma's deer herd. **Figures 11 and 12** represent the ages at harvest for antlered and antlerless deer this past season. It's apparent how the state hunters have taken



Table 5: Pronghorn Harvest by County, Sex, and Method

County	Archery		Gun		Total
	Buck	Doe	Buck	Doe	
Texas	7	1	10	25	43
Cimarron	13	0	39	57	109
<b>Grand Total</b>	<b>20</b>	<b>1</b>	<b>49</b>	<b>82</b>	<b>152</b>

to heart ODWC's deer management slogan "Hunters in the Know ... Let Young Bucks Grow!" over the past several years.

## Conclusions

After several boosts likely due to COVID-19, the harvest and participation numbers from the 2021-22 big game seasons are back to levels that could be considered on-trend. Hunters continue to have ample opportunities to enjoy **healthy and thriving populations** across the state.

While deer harvest was slightly down compared to last year, hunters did achieve the biol-

ogists' goal of an antlerless deer harvest between 40 and 45 percent. This is imperative to the statewide health of the deer herd.

Quality bucks continue to be harvested from every corner of the state, which is good news regardless of the reason anyone hunts. Continuing to use science-based regulations and partnering with our willing hunters as deer managers has resulted in a **path of positivity**. This path leads us to balanced deer herds in comparison to available habitat, and healthy age structures. With good habitat and healthy age structures come healthy populations and mature bucks. Who can argue with that?

But deer management is fluid and requires an adaptive management approach. The work never stops in pursuit of those goals. **Antlerless harvest** will continue to be emphasized within Oklahoma's deer management goals, and I know our hunters will take that challenge head-on. I've seen them do it before. So remember, every time that you decide to pull the trigger, release an arrow, or pass on a deer, you're making a management decision that

Figure 11: Buck Age at Harvest 2021-22 (in Years)

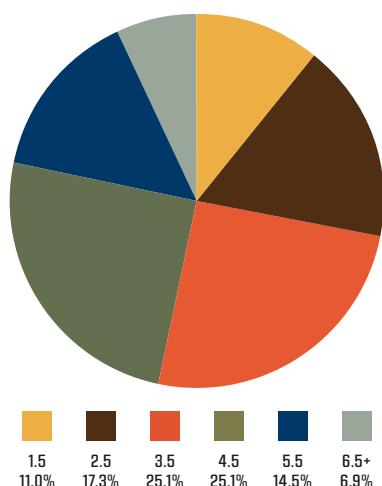
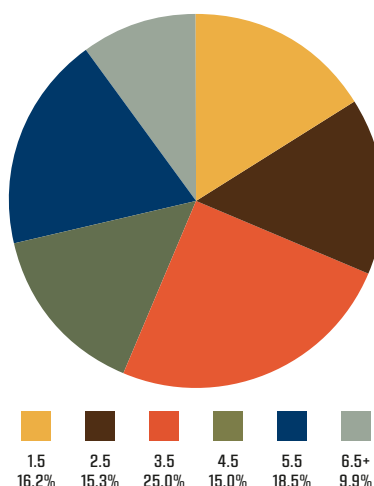


Figure 12: Doe Age at Harvest 2021-22 (in Years)



effects the deer population at your local level, whether that's a 20-acre farm or a 1,000-acre ranch.

So, for even better big game hunting in years to come, keep in mind these simple slogans: **"Hunters in the Know ... Let Young Bucks Grow!"** and **"Hunters in the Know ... Take a Doe!"**



## Black Bear Harvest Totals 70 for 2021

Black bear hunters enjoyed a good season in 2021, taking a total of 70 bears compared with 72 the year before.

Southeast Region Senior Wildlife Biologist Jeff Ford said the weather was warm and dry during the early part of archery season, leading to most of the bear harvest coming in the first 10 days.

Archery hunters took 66 black bears, while muzzleloader hunters could manage only four bears this past year in the open hunting area that includes all or portions of 12 counties in southeastern Oklahoma.

The record black bear harvest for Oklahoma was in 2018, when 85 bears were taken.

"There were some really big bears harvested, with several weighing over 500 pounds," Ford said. "One tipped the scales at 613 pounds."

This summer's hot and dry conditions could make the 2022 black bear hunting more challenging, Ford said. "These conditions may affect the fall mast crop, making it harder to find some good bear sign in the woods. So concentrate on water resources to find sign. Bears will frequent watering holes when the weather is hot."

"I would say the most important thing to help with having a successful bear season is to find an area with fresh bear sign and then just stay with it. Most successful bear hunters start early in the season, and you may have to sit all day." Weather is a big factor during bear season; cold and wet conditions will make the bears less active.

Bears are all about putting on weight without burning calories to do so. They will always return to what is putting the most weight on them.

"If you're going to hunt on public land where baiting for wildlife is not permitted, I would suggest to start scouting for a place to hunt in early September. Look for acorns (preferably



DESIREE BRANSON CLINE/READERS' PHOTO SHOWCASE 2021

2021 Black Bear Harvest

County	Archery		Muzzleloader		Total
	Male	Female	Male	Female	
Le Flore County	18	17	2	0	37
Latimer County	7	2	—	—	9
Pushmataha County	9	4	2	0	15
McCurain County	8	1	—	—	9
<b>Grand Total</b>	<b>42</b>	<b>24</b>	<b>4</b>	<b>0</b>	<b>70</b>

white oak), which is most preferred by bears. The acorns will start falling around the first of October, and bears are going to be searching them out. If you're not up on your tree species, there are some good apps you can download to help identify different trees.

All hunters wanting to pursue a black bear must buy either an archery or muzzleloader bear license before the opening dates of each season.

Archery bear season dates are defined in statute, running from Oct. 1 until the third Sunday in October. In 2022, archery bear season will close Oct. 16. Archery bear season has no harvest quota. Muzzleloader bear season will be Oct. 22-30, but the season will close as soon as a quota of 20 bears has been reached. Before they hunt, muzzleloader hunters must call for the latest bear quota information at (888) 901-3256.

For more on black bear hunting, consult the Oklahoma Fishing and Hunting Regulations at [www.wildlifedepartment.com](http://www.wildlifedepartment.com), in the Go Outdoors Oklahoma mobile app for Apple and Android, or in print free at license dealers statewide. 🍷

# PADDLEFISH RE CENTER INTERN

A LOOK BACK AFTER 100-PLUS INTERNS

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By Jason D. Schooley, Senior Fisheries Biologist



JASON SCHOOLEY/ODWC



# SEARCH SHIP PROGRAM





**U**pon the development of the Paddlefish Research Center in 2008, the Department quickly realized that running the PRC to its full potential required a lot of passion and long hours. Snag anglers from across the United States made the journey to Miami, Oklahoma, the self-proclaimed “Spoonbill Capital of the World”, to participate in an annual tradition of springtime snagging for paddlefish. The Department seized the opportunity to better manage this important species in Oklahoma while providing a fish cleaning service to the anglers, collecting unprecedented amounts of fisheries data for sustainable stock assessment, and salvaging roe to make caviar — the funds from which help support research and conservation programs statewide. Initially, these efforts were made possible only through the selfless assistance of our fellow Department employees, especially Fisheries Division. However, this wasn’t a permanent solution and to effectively staff the PRC required a rethink. The PRC appeared to have massive research and education potential... what if it were staffed by people who would most benefit from this? Thus spawned the PRC Internship program.

## GOALS OF THE PRC INTERNSHIP PROGRAM

From its inaugural year in 2011, the PRC Internship program had two goals in mind. First, was to provide an educational experience for collegiate individuals. The PRC was an ideal location for college students and aspiring natural resource career-seekers to get some hands-on experience.

Thinking back to my days adrift as an undergraduate, an internship truly opened my eyes and set me on a career path to where I am today. The most effective and satisfied employee is one who is consistently inspired and challenged

by work that they enjoy. College student interns fit this dynamic well and serve as the vibrant, passionate, and inquisitive public face of the PRC. Interns learn firsthand from Department employees about fisheries management, regulations, data collection and analyses, and other technical skills – all valuable experiences in their chosen career path of natural resources. Some interns have also opted-in

for college credit for their internship experience and we have encouraged interns to pursue special projects while at the PRC to benefit their college curriculum.

The second goal of the program was to establish relationships with regional universities for future paddlefish research collaborations. The paddlefish specimens

donated by anglers to the PRC provide endless opportunities for research and investigation and we make every effort to utilize these specimens to their full potential. Other state, federal, tribal, and international entities have

reached out to the PRC for assistance in collecting data, which we have always obliged. Essentially, many of these data collections, or mini-research projects, have been performed by PRC interns. Because there is far more than enough data to go around, as it were, the PRC and paddlefish management benefit by inspiring others to collaborate on projects. The list of completed

*“The PRC is a great place to observe anglers and biologists working together to not only preserve a fishery, but also improve our knowledge base on the requirements a species needs to survive.”*

*— Nate Copeland, Geographic Information Systems engineer, Gaia GPS*



and ongoing projects is massive but includes a diverse suite of collaborators from other state wildlife departments, US Fish and Wildlife Service, numerous universities at home and abroad, the Natural History Museum of London, Peoria Tribe, and others. These varied collaborations have resulted in the assembly of massive amounts of research data, numerous published papers on a myriad of paddlefish topics, and even a book on paddlefish management. The PRC interns contributed in some way to all of these endeavors.

## INTERNS AND THEIR ORIGINS

As of 2022, the PRC has hired 104 interns since the program began in 2011. Intern class size has ranged from 9 to 15, depending on the annual applicant pool, budgets, needs, and other factors. More than a third of interns have returned for an additional season or more.

Many interns have moved on to careers in the natural resources. Many have taken the step to pursue graduate level degrees. Eleven former PRC interns are currently employed by the Department in full-time positions, which demonstrates that the PRC internship has served as an effective recruiting and training tool for careers in the Department. An additional three former interns worked for the Department for a time before moving on to other career choices. At the onset of each spring PRC season, I invariably get asked by multiple colleagues, "So, do you have a good batch of interns this year?" I feel very fortunate that I have been able to honestly and emphatically answer "YES!" every time.

Most of the PRC interns have been students of in-state universities. Twenty-nine interns originally came from Oklahoma State University, followed by 20 from Northeastern Oklahoma A&M, 18 from Northeastern State



Only the first intern class of 2011 got to experience the original "temporary" facility at Twin Bridges State Park, as shown in this earliest-known PRC group photo.

*"I interned for two seasons at the PRC in 2011 and 2012 while majoring in fisheries and wildlife management at Northeastern State University. Interning at the PRC allowed me to get my foot in the door with ODWC. Interning at the PRC also gave me the experience of interacting with anglers on the water, which gave me an edge over others. I tell everyone interested in working for ODWC to apply for an internship, it's a great way to learn what we do, and you'll have fun doing it."*

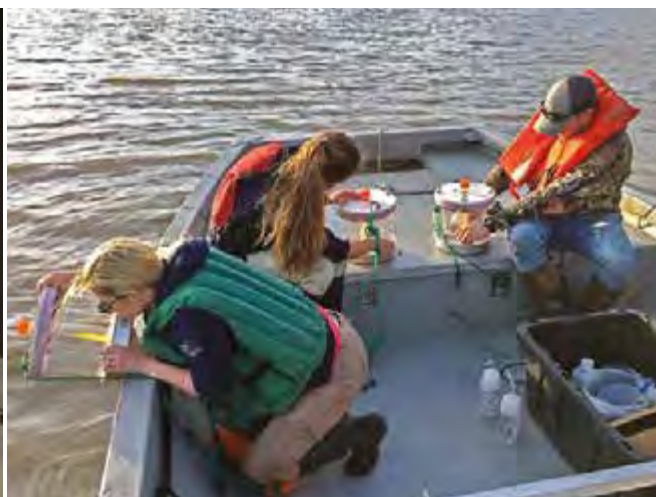
*— J.D. Stauffer, Game Warden  
based in Rogers County, ODWC*



Group photo of the 2013 PRC Intern class including current Department employees Kendall Robbins, Matt Pallett, and Jeremy Duck (2nd, 7th, and 9th from left, respectively).



PRC interns are enthusiastic about the rare chance of getting to work hands-on with charismatic freshwater megafauna.



In the never-ending quest to document paddlefish reproduction, PRC interns participated in a variety of field studies. Here, they deployed light traps for paddlefish larvae in the evenings and retrieved the catch in the mornings.



University, 15 from Rogers State University, 7 from Tulsa Community College, 5 from University of Oklahoma, and 10 from other universities in Oklahoma or from other states. Interns have ranged in classification and experience from college freshmen to graduates with master's degrees. Most have been traditional students; however, some interns have pursued the opportunity in contribution to a second degree or career (i.e. post-retirement or post-military service). Interns have pursued numerous degree programs including fisheries, wildlife, ecology, agronomy, integrative biology, zoology, and other natural resource curriculums. Many of the activities and opportunities provided by the PRC, such as data collection and entry, customer service, communication

with the public, teamwork, and technical skills like equipment operation are easily transferable whether an intern's

passions lie in fisheries, wildlife, or other.

The roster of 104 current and former PRC interns is impressive. Eleven former PRC interns are current full-time ODWC employees in Fisheries Division (nine) and the Law Enforcement Division (two). An additional three former interns were hired by ODWC but have since moved on to other careers.

As a next step in their educational or career development, many PRC interns secured additional internship roles in other Department programs. While we haven't been able to keep track of every former PRC intern in a "where are they now" sort of fashion, many have used their experience as a steppingstone to graduate-level education and worthwhile careers with other natural resource agencies and entities.

*"My time at the PRC was everything a great internship should be: educational, challenging, rewarding, and lots of fun! I left the PRC with a fresh appreciation of the hard work, dedication, and passion that goes into managing our wildlife."*

— Kayleigh Locke,

*Ecologist, Stantec Environmental*



The "weekday team" from the PRC class of 2018.

## LIFE AS A PRC INTERN

The PRC intern team performs two primary functions—customer service and fisheries data collection. By design, they are the bright-eyed and bushy-tailed representatives of the Department who are interacting with the anglers when they check in a paddlefish, seek information, and collect their fillets. For these tasks, customer service is key, and we pride ourselves on the ability to make sure that the anglers take home positive memories from their fishing trip and their interactions with the Department. The



The PRC intern class of 2019, including current ODWC employee Nathanael Hull (third from left).

interns' second responsibility is no less important. They are responsible for handling each paddlefish respectfully while we examine, measure, weigh, and remove age structures from each whole fish in addition to weighing gonads and fat deposits from the viscera. Other related data collections are variable and range from tissue sample collections to examination of microscopic tags to determine origins or movement of the paddlefish. As time allows, interns work independently or in teams on an endless number of small-

er projects such as fisheries equipment maintenance, data entry, facility and grounds maintenance, nighttime larvae collections, and creel surveys.

Working at the PRC can be an intense two months of long weekends. A large majority of interns are enrolled students working weekends at the PRC while maintaining a full course load. Many hours of test prep have been completed between truckloads of fish or at the hotel in Miami. While the internship is a paid position with

*"The PRC is great for students pursuing a career in fisheries management or related fields to get actual field experience that the classroom simply can't offer. It also offers a great opportunity for networking and building connections."*

*— Donnie King, Fisheries Technician, ODWC*



The PRC intern class of 2022.



PRC interns collect tissue samples for a study underway in London on natural sunscreen derivatives in fish.





PRC interns handle many tasks, including going out on the water to collect paddlefish from anglers.



Holdenville Hatchery technician Daniel Simmons, former PRC intern, examines wire tags under a microscope to cross-reference with stocking data.

*"As an intern, you are provided an opportunity to learn from and network with Wildlife Department employees from across the state. The PRC is fast-paced, and each day presents new challenges. This internship helped me build the career that I have today, and I am very thankful for the opportunities."*

*— Brett Adams, Regulatory Specialist, Tulsa District, U.S. Army Corps of Engineers*



PRC interns serve on the front line of the facility, as they check-in every paddlefish, weigh and measure, and remove jaw bones for aging.

a meager hourly wage and lodgings are provided, it's certainly a sacrifice for some interns to "take the job" and must give up their work study positions or other part time jobs, which may yield higher pay. We hope, in the end, that the internship experience has provided a worthwhile and enriching experience that pays dividends far exceeding the wages. Likewise, the value provided by the internship program and received by the PRC is priceless.

## PROGRAM'S FUTURE AND IMPROVEMENT

While the PRC internship has arguably been a great success, every Department program benefits from a bit of self-reflection. Looking back to the early days, we have made a lot of changes and improvements. One of the enhancements that likely had a positive impact on interns and the PRC alike is the performance evaluation. Starting in approximately 2013, all PRC interns underwent a performance evaluation at the culmination of their internship experience and were provided the opportunity to give feedback on the program while receiving feedback on career development. This has evolved into a more substantive and consistent feedback loop of communication, training, and re-evaluation. Intern feedback has been directly implemented in improvements to the program.

A consistent issue challenging state agencies, with ODWC being no exception, is the ability to recruit and hire a diverse workforce- one that accurately represents the hunters and fishers making up our constituency. Often females and racial minorities are under-represented in the ranks of fish and wildlife agency employment. While 60.5% of undergrad-



Interns collect data at the PRC.

uate degrees in the biological sciences are awarded to women nationally (NSF 2019), female representation within state fish and wildlife agency employment is far lower. The PRC internship is by no means a shining example on the topics of diversity and inclusion, however 38% of PRC interns to date have been female, whereas the ODWC Fish and Wildlife divisions are 21.5% and 7.5% female, respectively.

While we haven't officially tracked the racial makeup of PRC interns, it is likely that we have work to do in recruiting interns that better represent the racial makeup of our constituency.

We hope that the future of the PRC Internship Program lies parallel to

that of the PRC itself and will continue to yield success. It's hard to imagine how we could operate the facility without the program. Hopefully the internship program will continue to serve as a recruitment pipeline for future Department employees and we'll do our best to give them some solid training on the fundamentals of customer service, fish and wildlife management, scientific data collection, and other concepts aligned with the Department's mission. ♡

**Literature Cited:** National Science Foundation National Center for Science and Engineering Statistics. (2019). Women, Minorities, and Persons with Disabilities in Science and Engineering: 2019. (Special report NSF 19-304). <https://nces.nsf.gov/pubs/nsf19304/data>

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*"The PRC and its program provide interns with a unique team atmosphere, opportunities to interact with anglers and to collaborate on a large-scale data collection effort. Being a part of something like the PRC, even for just one season, was undoubtedly a steppingstone in my career."*

— Alexis Whiles, Fisheries Technician, ODWC

## INTERESTED IN A PRC INTERNSHIP?

College students or those who have completed a natural resources curriculum may apply for a Paddlefish Research Center internship. Applications are generally available

on the Department's website in November, with a submission deadline in January for a March-April internship. For more, scan the codes.





# Heroic Game Warden Gives Award to Foundation

Oklahoma Game Warden **Riley Willman** was recently honored with the Proud to Serve Award, sponsored by Quail Creek Bank and KFOR-4 in Oklahoma City.

The award honors first responders who go above and beyond in the performance of their duty. Willman selected the Oklahoma Wildlife Conservation Foundation as the recipient of a \$500 donation from the bank on behalf of Willman's outstanding service.

Willman's coincidental visit to a popular swimming area in Delaware County on May 11, 2022, allowed him to be in the right place at the right time to save a man who was in a life-or-death situation.

Willman told KFOR, "On a whim or so I thought, well, I'll pull in here to Flint Creek and see if anybody's fishing," Willman said. "And I wasn't down there less than 30 seconds, and I heard people start screaming, yelling, 'Help, police, call 911.' Someone said, 'He's drowning,' and pointed at the low-water dam.

"And I looked out and I could see an arm come up and then go down. And at that point, I entered the creek and made my way to where they were pointing and swam out to the edge of where I could see he was being sucked under," he said. "Luckily, the way the water swirled, it pushed him up at just the right moment to where me and another



Gathered for a KFOR "Proud to Serve" donation are Erin Batey of award sponsor Quail Creek Bank, Game Warden Riley Willman, and OWCF Director Rick Grundman.


bystander could grab him by his collar and start swimming him back to the bank."

Willman's training, CPR skills, and timely arrival likely saved the Arkansas man from drowning.

"Just one in a million. Right place, right time. I cannot explain that."

Lt. Col. **Wade Farrar**, ODWC's Assistant Chief of Law Enforcement, said, "Warden Willman is just an impeccable officer in all fac-

ets of everything that he does. He's one of the greatest of the great," he said.

**Erin Batey**, chief communications and innovations officer with Quail Creek Bank, told KFOR, "To hear somebody drowning and just to have that instinct to just jump in and save them is well worth recognizing. I'm so glad we have this opportunity to recognize Riley and what he's done." 



**THE OKLAHOMA WILDLIFE CONSERVATION FOUNDATION (OWCF)** is the nonprofit organization formed to work exclusively alongside and provide added financial support to the Oklahoma Department of Wildlife Conservation and its activities in managing the state's fish and wildlife resources and habitats. The Wildlife Department receives no general state tax appropriations; ODWC operates primarily with license sales and federal matching grants. OWCF provides supporters an outlet to show their passion for the outdoors by investing their time and money in projects that will make a difference for generations to come.

All donations are tax-deductible. For more information, scan the code or go to [www.OKwildlifeconservation.org](http://www.OKwildlifeconservation.org) or [www.facebook.com/OKWildlifeFoundation](http://www.facebook.com/OKWildlifeFoundation).



The Oklahoma Wildlife Conservation Foundation is now set up as a charitable organization through AmazonSmile. AmazonSmile is a program that donates 0.5 percent of your eligible purchases on Amazon to a charity of your choice. All you need to do is start your shopping at [smile.amazon.com](http://smile.amazon.com). The donation will be made at no extra cost to you, and you can choose from nearly a million public charitable organizations.

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*\*\*Prices listed on these pages do not include \$3 online ordering convenience fee.*



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## OKLAHOMA HABITAT DONOR WINDOW DECALS

Show your support of the Wildlife Department's Land Acquisition Fund with these striking window decals. All proceeds are earmarked to help provide hunting and fishing access to the public. — \$10 each



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## HABITAT DONOR CAPS

Top-quality, American-made caps display the Habitat Donor Patch of your choice, which designates you as a contributor to the Department's Land Acquisition Fund. Wearing this hat means you care about future generations and the great hunting and fishing tradition. Specify hat style on order form. — \$20



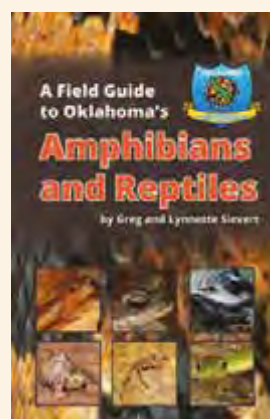
## OKLAHOMA WILDLIFE MANAGEMENT AREA ATLAS

The Wildlife Management Area Atlas presents maps of Oklahoma's WMAs and ODWC-owned fishing lakes. At 109 pages, the atlas features lands purchased before 2018. Each map shows special features such as parking sites, camping areas, and food plots. Your atlas purchase comes with a bonus one-year subscription to the award-winning *Outdoor Oklahoma* magazine. — \$25

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# THE GREEN-WINGED TEAL

WATCHABLE WILDLIFE • BY DANA E DAVENPORT, EDUCATION INTERN

The American green-winged teal (*Anas carolinensis*) is the smallest species of dabbling duck native to North America. Dabbling ducks are characterized by their methods of feeding from the surface of the water rather than diving. They are separated from the nearly identical Eurasian green-winged teal (*Anas crecca*) by their breeding grounds and migration patterns, which are limited to North America.

The American green-winged teal prefers shallow, permanent marshes and other watery places

where aquatic vegetation is near the surface and easily accessible, as opposed to open water systems. They have a large wintering range, having been found as far north as Alaska and Newfoundland and as far south as northern South America.

Their migration takes them through the center of the United States, so they are most abundant through the Mississippi and Central flyways. They mainly feed on seeds, aquatic insects, mollusks, and crustaceans by wading or swimming in shallow water while filtering mud through their bill, up-ending, or picking things up from the surface of shallow water.

The male, or drake, teal has a chestnut-color head with an iridescent green to purple patch extending from the eyes to the nape of the neck. They have a light brownish chest with black speckles and vermiculated (wavy lined) gray sides, back, and flanks. Their wings are a brownish gray with a green patch on the trailing edge, from which they get the name "green-winged."

The females, or hens, are mottled brown with a dark brown line from their bill to their eyes. Both drakes and hens have dark bills and feet. The drakes make a whistling "peep"

noise, while the hens quack. Green-winged teal are recognizable in flight by their small bodies, short necks, and iridescent green wing patches.

Green-winged teal nest from Alaska and Canada to the northern midwestern United States. The hens build nests by filling a shallow depression with grasses, twigs, and leaves, lining it with down. Nesting sites are among tall grasses and weeds of meadows or in open woodland or brush, where they can be well hidden. The nests are usually within 200 feet of water. The hen will lay six to 10 eggs and will incubate them for 20-24 days until they hatch. The drake will leave the hen after incubation. After the eggs hatch, the ducklings will stay with the hen and follow her around, although they find their own food. After about 35 days, the young are fully fledged and can fly off to exist on their own.

Green-winged teal have many predators, including people; these teal are the second-most commonly hunted duck after mallards. Raccoons, skunks, and red foxes are among other predators that prey on nests and the ducklings. Their defense from ground predators is their ability to take off into flight quickly or to run. When on the water, they can either dive for a short time or fly away.

Blue-winged teal are often confused with green-winged teal. Blue-winged teal are roughly the same size as green-winged teal, but the blue-winged has a tell-tale light blue patch covering most of the inner wings. The male green-winged teal can have a white crescent shape in front of its eyes. The female blue-winged teal is a lighter brown than green-winged teal with a similar patterned body.

In Oklahoma, waterfowl hunters are allowed a September teal season, when they can take green-winged, blue-winged, and cinnamon teal several weeks ahead of regular duck hunting seasons. While shooting teal is legal during regular duck seasons, the September season was created because teal are generally among the earliest ducks to migrate south in the fall. ♡

*They have a large wintering range, having been found as far north as Alaska and Newfoundland and as far south as northern South America.*





Male American green-winged teal.  
Inset: female American green-winged teal.

ERIC BROWN/READERS' PHOTO SHOWCASE 2021



Decoys and waders ready? September brings the earliest opportunities for waterfowl hunting in Oklahoma. Early teal season and resident Canada goose season offer statewide options, while the Panhandle is open to duck hunting most of October.

# Outdoor Oklahoma

