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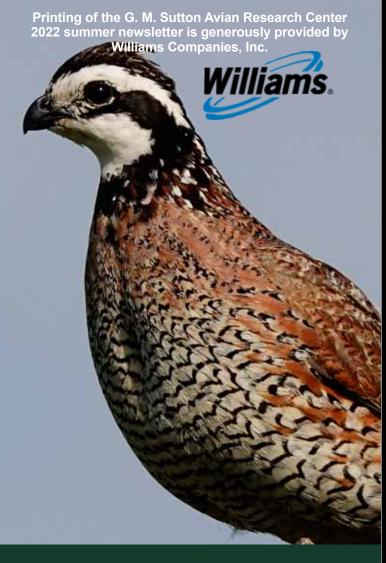
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Northern bobwhite photo by Dan Reinking





Abigail Schooling – Intern Vincent Weber – LPC Surveyor

Your generous donation helps us with our mission of "finding cooperative conservation solutions for birds and the natural world through science and education."

Join us in protecting our natural heritage for the next generation!





THE LESSER PRAIRIE-CHICKEN IN FOCUS VOLUME 58 | SUMMER 2022

"finding cooperative conservation solutions for birds and the natural world through science and education"



TABLE OF CONTENTS:

- 1 A Letter from the Executive Director
- 2 Lesser Prairie-Chicken Saturation Survey
- 4 Bald Eagle Nest Cameras
- 5 APC Spring 2022 Update
- 7 Sutton Award
- 9 Board Welcomes Lisa Riggs
- 10 Wild Brew is Back
- 11 New Arrival to the Education Building
- 12 Education Program Update
- 13 Habitat Selection Sage-Grouse
- 16 Pollinator Garden at Lee Lake
- 17 Photo Ark at the Gathering Place
- 18 Board Welcomes
- 19 Masked Bobwhite Project Updates
- 21 Presentation on George Sutton
- 22 Volunteers

A Letter from the Executive Director

Dear Sutton Center friends,

A wall of green is covering our seasonal view from Sutton Center HQ. A young raccoon hangs out in the trees outside our upstairs conference room, sometimes changing our focus of meetings by climbing branches that seem fit for a squirrel. The woodchuck emerged somewhat thinner, after s/he had spent a lot of time munching away outside our offices last fall. Dan Reinking recently got some beautiful photographs of a bobcat passing by, and then of course – all the birds! Besides the residents, an abundance of migrants pass through or make their nests right here at the Sutton Center. We are sharing some of these experiences on our social media sites, and I especially want to thank Michelle Morgenstern who kept up with posting for us even after she moved to a new position in North Dakota.

Karen Kilbourne retired after 25 years with the Sutton Center in April. We want to thank her for all she accomplished for us and wish her the very best in retirement. Although missing some for a May photo, the Sutton Center staff gathered for a quick get-together at our prairie-chicken facility before rushing back to take care of little chicks. Our new office and communications administrator is Christina King (second from right). There is a lot to learn, but she fearlessly tackles files and new software.

The green "explosion" when deciduous trees leafed out in early April meant that monitoring of bald eagle nests suddenly became much more difficult for our Bald Eagle Survey Team volunteers. Although later than many other bald eagle pairs, we were relieved to confirm eggs mid-February at the Bartlesville nest where our webcam provides an intimate view. The young likely fledged by the time you receive this newsletter, but I hope you had an opportunity to follow their development online.

Continuing talking about green, Don shared about pollinator planting in this issue. I have always thought that "perfect" lawns are not the ones that consist of only grass. Where is the diversity? How much pesticides and herbicides does it take to keep them looking like that? I was encouraged when Tulsa World published an article "America's love affair with lawns fades" May 14. We can help the pollinators by not being such diligent grass cutters. "No Mow May" can be a bit difficult to completely adhere to here in Green Country, but many making small changes can add up to a large impact for pollinators, birds, and other wildlife.

Thank you for supporting the Sutton Center through donations, making changes in your own backyard, and inspiring others. After two years of having our wings clipped, we hope to see you at Wild Brew 27 August. We are excited to flock together with Sutton Center friends for our annual fundraiser to make a difference for birds all year long.

Sendamon

Lena Larsson, Ph.D. Executive Director



2022 Lesser Prairie-Chicken Saturation Survey

by Fumiko Sakoda



Group photo of the lesser prairie-chicken survey crew: Sarah Brey, Fumiko Sakoda, Tess Fonder, and Vincent Weber (left to right).

Early this spring we resumed lesser prairie-chicken saturation surveys for the first time in seven years. As the one who has participated in all of Sutton Center's previous lesser prairie-chicken surveys, I was very much excited. Back in 2010, we started our first survey covering 11 counties in the Oklahoma panhandle and northwestern Oklahoma over two years. Then, we repeated it in 2015 and 2016. This time, we will be covering the same counties in a five-year span, enabling easier logistics with fewer survey routes and surveyors each year. The surveys begin mid-March and last eight weeks during the height of the lesser prairie-chicken breeding season, and ending in early May. We completed Cimarron, Texas, and the western half of Beaver counties this spring. Three new field technicians joined our survey team. I greatly appreciate their hard work and dedication to make this year's survey successful. Here is some of what they have to say after accomplishing their work.

"For the past decade I have been an avian field biologist. The research I have contributed has included breeding habits of Canada warblers in the Appalachians, tracking landscape-scale biodiversity responses to wildfires in the Sierra Nevadas, and trying to solve some of the puzzling aspects of migration through bird banding. I have also kept a daily bird list for over three years running—no plans on ending the streak. My passion for species conservation is the keystone that inspires me to pursue my scientific curiosities and to do my best to develop a wholistic understanding of ecology. Unfortunately, one of the hard truths I've learned is that species of all clades are declining across the globe, the lesser prairie-chicken being one. Working in the Oklahoma panhandle has been stark and blustery at times, but also continually reassuring as more and more of these birds are detected. Little else compares to the "gobbling" and excited clucking sounds emitted from a lek. The lucky observer may even witness them dancing in a fashion fit for a Victorian ballroom; well not quite... they can also be humorously clumsy. It's my hope that sound conservation strategies can be formulated from the work I am doing and that these bizarre creatures continue with their shenanigans." - Vincent Weber

2022 Lesser Prairie-Chicken Saturation Survey

(Continued)

by Fumiko Sakoda

"Hi! My name is Tess. I'm from Champlin, MN and have been working seasonal positions for five years. This is my first time working in Oklahoma and with prairie-chickens. I've had a great time learning about the landscape and land management strategies here, especially at the Beaver River WMA. Hearing and seeing leks of lesser prairiechickens is equally interesting, endearing, and a learning experience. Seeing the landscape of the panhandle has really stressed the importance of conservation and the impact of land management practices on this species. I am optimistic for the population size and range of the lesser prairie-chicken and hope to see more in the future. As spring rolls in the storms and winds have been impressive to experience as well. All in all I have enjoyed this experience surveying for a cool species while working alongside great people." - Tess Fonder

On the very next day after our final survey day, I met journalist Maria Fotopoulos and her husband John Branch to take them to a couple of lek (gobbling ground) sites that we detected during our surveying. She has been researching lesser prairie-chickens as she wants to write about these elusive but iconic feathered Oklahoma residents. We arrived at a good spot on a county road about thirty minutes before sunrise on the first site. Even though it was a breezy morning, we could clearly hear and see birds being busy cackling, gobbling, and jumping in an old wheat pasture a quarter-mile away. I was both happy and relieved that they enjoyed their time out in chicken country.

It will take four more springs to survey the whole potential Oklahoma prairie-chicken range. I hope some of previous and this year's technicians will be able to rejoin our team and I also look forward to counting more prairie-chickens next year.



The team breaking for lunch together after a busy morning surveying for lesser prairie-chickens (left to right – Fumiko Sakoda, Vincent Weber, Tess Fonder, Sarah Brey).



Four-wheel drive pickup trucks are needed to get to and from all survey points as many of the county roads are rough. Sarah Brey gets a better view by climbing up on the back of the pickup.



Vincent Weber and Tess Fonder entering data collected when surveying for lesser prairie-chickens.

Viewers Enjoy New Bartlesville Eagle Camera

by Dan Reinking and Daniel Harris

A pair of bald eagles nesting near Bartlesville are providing education and entertainment for people around the world. After we discovered this nest territory in early 2020, we waited until after the nesting season to install a webcam, hoping to provide a view of the nest online for the 2020-2021 nesting season (the bald eagle nesting season in Oklahoma goes from late fall through spring). As often happens with bald eagles, a pair can build more than one nest within their territory, and then decide which nest to actually use for nesting. The eagles used an alternate nest that year, leaving our camera pointing at a mostly empty nest. Having located the second nest, we once again waited for the nesting season to come to an end and installed a camera above the second nest. Fortunately for all who enjoy webcams, the eagles did use the nest again this year, providing all of us with a bird's-eye-view of their treetop home.

Pairs of eagles can differ from one another in the timing of their breeding season. Many pairs in Oklahoma begin laying eggs in December or January. This pair is a late pair, and their first egg did not come until mid-February. It was followed at several-day intervals with two more eggs. Incubation is typically about 35 days. By late March, the first gray, downy eaglet had hatched, and was later joined by younger siblings. Hatching also occurs at several-day intervals because eagles begin incubation with the first egg rather than waiting for the entire clutch. The youngest chick was much smaller than the other two and ultimately did not survive. The remaining two chicks grew rapidly and soon had brown feathers replacing their down. A varied assortment of prey was delivered to the nest by the male eagle, consisting mostly of fish and turtles.

One interesting event happened in late March. A Canada goose made a close pass above the nest, putting the female eagle into a defensive posture. The long eagle nesting season is full of interesting little moments like this, and is one reason the nest camera is popular with viewers and classrooms. After the young leave the nest in June, activity at the nest will be intermittent through November. If the eagles select the same nest in December or January, viewers will be able to watch them all season from our live nest cam at www.suttoncenter.org.



Eagle eggs are laid during the winter season, as seen here with snow rimming the nest and covering the ground below.



A Canada goose flies closely over the nest, agitating the incubating eagle.



A fuzzy gray mass of downy eagle chicks left alone for a moment while the female eagle stretches her wings is surrounded by several meals of fish.



About a month before fledging, the two growing eaglets rest in the shady portion of the nest on a warm May afternoon.

Another Busy Spring at the Attwater's Prairie-Chicken Breeding Facility

by John Hoolihan, Director of Conservation



In the wild, prairie-chicken chicks hatch synchronously with their siblings so that the whole group can move away from the nest at the same time. Our captive breeding incubation and hatching process conforms to this social aspect of prairie-chicken growth and development.

These are exciting times at Sutton Center's Attwater's prairie-chicken breeding facility! In March we carried out a controlled burn of the surrounding prairie fields with the generous volunteer assistance of the Oglesby Fire Department. The results have shown tremendous growth of the prairie grasses and a proliferation of wildflowers. In the meantime, the prairie-chickens started gearing up and displaying reproductive behavior. Notably, our hens started producing about two weeks earlier this year, with the first egg laid on 23 March. Since then things escalated quickly, with the arrival of about 20% more eggs compared to 2021.

Eggs placed in our artificial incubators started hatching in late April, and it has been pretty crazy with the effort needed to raise these birds in captivity. We engaged four summer interns and one part-time local hire to assist with the husbandry tasks. To alleviate some of the workload, we have been experimenting with foster rearing. We took eggs that were near hatching and placed them under prairie-chicken hens who were incubating fake eggs. The hens vary individually on their care and concern for the hatched chicks, but overall it has proved to work out well.



A recently hatched prairie-chicken nestles under a towel like it would nestle under a hen in the wild.

Feeding the rapidly growing chicks is always challenging. We anticipated the production increase this season and planned accordingly. Insect rearing was ramped up so we now have large colonies of crickets and mealworms. Greenhouse activities have also increased to produce larger quantities of clover, dandelions, and a variety of other greens and flowers. Both the insects and greens are supplemental to our milled dry feed and large volume of store-bought greens.

Our chick buildings and the exterior prairie fields have been prepped to house the larger chicks. We expanded one of the prairie fields enabling it to accommodate a greater number of chicks. We also planted and seeded the prairie fields with suitable forbs and grasses for forage and cover. Everything grew rapidly with the spring rains. Overall, the 2022 breeding season is progressing very well and we look forward to transferring many healthy prairie-chickens for release in Texas later this summer.



Chick diets are supplemented with a variety of plants including dandelions and various other greens.



Chicks hatched by using artificial incubation are fostered with an adult prairie-chicken hen.



Keeping track of work schedules and chick feeding schedules becomes a complicated puzzle to be solved each breeding season. Summer intern Abby Schooling helps organize the chaos.

Abby Schooling Summer Intern

I grew up on a small farm in Leesburg, Virginia and have always loved working with animals. Living next door to the Appalachian Trail and Shenandoah National Park also got me interested in conservation and wildlife from a young age. After graduating from college, I worked in a genetics laboratory in Washington, D.C. for a while, but kept looking for an opportunity to work with wildlife. The Sutton Center internship has been such a great experience for me so far. The prairie-chickens are so interesting, and I love getting to know them and their individual personalities. The people at Sutton Center have been so welcoming too. It is great to see their commitment to the birds and inspiring coming to work every day with people who care so much about what they're doing. I have learned a lot already and am excited to continue learning new skills as we get further into the breeding season!

The Sutton Award Celebrates 17 years of Continuing George Miksch Sutton's Legacy

by Audra Fogle

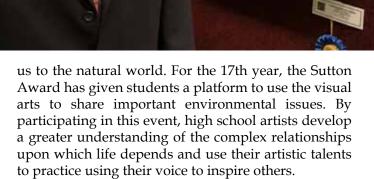
"As AN ARTIST, George Sutton will be ranked with Audubon and Fuertes as one of the great American painters of bird life; as a man, he will be held in even greater esteem by all who came within his orbit. His influence, profound and pivotal, upon generations of aspiring artists resulted in what has been called the "Fuertes Sutton Tradition" in American bird painting. I shall always remember "Doc" with love, not only as a brilliant artist and teacher, but more importantly as a modest, thoughtful, and generous friend and gentleman." -- A1 Gilbert

The George Miksch Sutton Avian Research Center is proud to continue Dr. Sutton's legacy with the support of young artists through the statewide Sutton Award.

The Sutton Center admires and honors the talents of conservationists who capture the beauty of animals and our planet. As our society becomes more urbanized, people have fewer opportunities to interact directly with nature. Television, movies, art, and photography have become crucial links that connect



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The students' presentation pieces convey current wildlife conservation topics. In addition to the artwork, each student submitted an essay that explained how his or her work communicated information about a current conservation issue. Each submission was judged 2/3 on artwork and 1/3 on essay. Congratulations to all of our winners!

The 2022 Sutton Award winners

Place	Student	Artwork title	Teacher	School
Best in Show	Xitlalli Ruelas	The Balance of Coexistence	Julie Thomas	Thomas Edison Preparatory
1st Place	Parker Schovanec	Preserving Nature's Artistry	Lacye Russell	Oklahoma Bible Academy
2nd Place	Quincey Turner	Mantis	Julie Giovannetti	Bartlesville High School
3rd Place	Leah Billingsley	To Change within a Painting	Kelly Persinger	Broken Bow High School



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London Peterson from Indianola, Oklahoma won an honorable mention award with her painting o "The Art of Wetland Conservation" for the Sutton Award. The piece went on to win "Best in Show for the Junior Federal Duck Stamp Art Contest.

Sutton Award Student wins Honorable Mention in the Federal Junior Duck Stamp Art Contest

London Peterson adores painting birds. "Ever since I was a kid, I've dreamed of flying, and in a way painting birds has fulfilled that dream for me. However, I love creating artwork of all animals and nature." The 17-year-old said her proudest achievements involve the federal Junior Duck Stamp art contest. She's entered since age 12, won Best in Show for Oklahoma three years in a row, placed ninth nationally in 2020, and placed fourth nationally in 2021. For two years, she has also donated a painting to the local Ducks Unlimited banquet to raise money for conservation. "I have no formal training; they've never offered art classes at any of the schools I've gone to, and I haven't apprenticed or been instructed by any other artists. So, I've always just taught myself through trial and error." Upon learning of her selection as an honorable mention for the state duck stamp, she "was extremely honored, delighted, and was jumping around like I'd had too much coffee!" She cites countless experiences in nature as inspiration for supporting wildlife conservation. "It makes me think of this quote by my idol, Roger Tory Peterson, which is true of all wildlife: 'The birds could very well live without us, but many — perhaps all — of us would find life incomplete, indeed almost intolerable, without the birds.'

These birds of a feather are BACK TOGETHER!







- With more tastings from Tulsa's best restaurants than ever before and even more beer and spirits than you can possibly sample The Greatest Party Ever Hatched is BACK!
- Drink a Beer, Save a Bird!
- Online and In-Person Auction and Raffles, Wild Brew Merchandise, Local Art and Live Music. Tickets available NOW! (numbers will be limited so don't delay in purchasing yours!)
- Sign up for updates at wildbrew.org
- All proceeds support the wildlife conservation efforts of the Sutton Avian Research Center

The Sutton Avian Research Center welcomes Lisa Riggs to the Board of Directors



We are delighted to announce that Lisa R. Riggs has agreed to serve on Sutton's Board of Directors. Ms. Riggs is a shareholder and director, past president and executive committee member in the Riggs Abney law firm. She has been a civil litigator her entire career, which spans more than 30 years.

Ms. Riggs received the University of Oklahoma's Distinguished Alumni Award and the Oklahoma Association for Justice Rex Travis Listserv Award, both in 2018. She has received an AV Preeminent rating by Martindale-Hubbell in legal ability and ethical standards, and has been highly ranked by Oklahoma Super Lawyers. Additionally, Ms. Riggs was named one of Oklahoma Magazine's Top 25 Women Lawyers in 2012 and 2015 and was recently featured in Tulsa Lawyer Magazine in 2021.

While she has always volunteered in some capacity throughout her life, Lisa's love of nature and passion for outdoor travel motivated her to leave her signature on this planet through wildlife conservation efforts. More than 25 years ago, she began volunteering her time to organize Wild Brew and, over the years, she has seen it grow from a small tasting event at a local hangar to an festival so large that it spans several exhibit halls at the Cox Business Center. She remains a valuable asset to the committee and is hard at work for Wild Brew 2022. Ms. Riggs also served on the Board of Land Legacy whose mission is to conserve, enhance and restore urban and rural land to benefit our environment.

We are proud to work alongside her to conserve wildlife.

Wild Brew

AUGUST 27, 2022

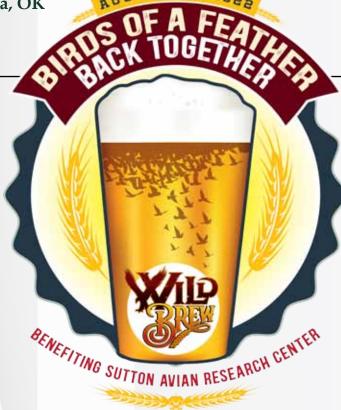
Cox Business Center/Convention Center | Tulsa, OK Benefiting Sutton Avian Research Center Purchase Tickets at wildbrew.org

After two years of having our wings clipped by COVID, the Sutton Center is proud to work alongside outdoor enthusiasts, hunters, corporations trying to make a difference, and everyone who wants to join us to drink beer (or wine, spirits, and non-alcoholic beverages) for the great cause of SAVING BIRDS in a changing world!

Known as "The Greatest Party Tulsa Ever Hatched," WILD BREW 2022 will feature hundreds of unique craft beers for tasting, delicious food to sample from Tulsa's finest restaurants, craft cocktails just for our patrons, and live entertainment from the Fabulous Mid Life Crisis Band. Items in our silent auction (both in person and online this year!) range from exclusive jewelry, artwork from local artists, trips, themed baskets and the highly coveted paintings created by our endangered chicks. Attendees will even get the chance to meet some of the incredible birds from the Sutton Center.

Your support underwrites the following programs:

- Captive breeding and releasing into the wild of two of the most endangered birds in North America, the masked bobwhite and the Attwater's prairie-chicken
- •Monitoring bald eagle nests in Oklahoma and operating the live eagle webcam
- Expansion of the Sutton Award scholarships (focused on supporting high school art programs and raising wildlife conservation awareness in youth)
- •Wildlife education programs with a STEM focus and our local as well as national student internship program



A WILD BREW experience is a perfect way to thank employees or to share an enjoyable evening with friends! If you are unable to attend, please consider a donation to conserve wildlife. Sponsorships are also available. Tickets are limited, RESERVE YOURS TODAY by purchasing tickets online, by check or by calling Christina King at 918-336-7778.

PATRONS SAVE BIRDS!

Patron Packages include tickets, all food and drink, first dibs with early entry, access to the exclusive VIP lounge with comfortable seating, cornhole and other lawn games, a taster cup lanyard and a patrons-only gift.

Details at wildbrew.org

EAGLE - "Bensar's Best"

FALCON - "Speedy Lagers"

HAWK - "IPA Intellectuals"

OWL - "All Eyes for Ale"

SCISSORTAIL - "Kingbird Keggers"

FLOCK OF 4 - "Amber S-QUAD"

PATRON - "Solo Flight"





Photo by Daniel Harris

New arrival to the Education Building!

by Daniel Harris

With the much-needed expansion of the Attwater's prairie-chicken program, every chamber is precious. The time had come to find new homes for the remaining greater prairie-chickens that were initially brought to the facility to assess and refine the breeding techniques in use today. Ten of the eleven made their way to Ohio. There, they will help start a new breeding program at the Toledo Zoo. The one remaining bird required special consideration. Her name is Ivanka and she has been part of our breeding program for the last seven years.

An unassuming chick hatched June 1st, 2015 after being transferred from a Nebraska Sandhills nest 10 days prior. At 2:42 PM she weighed in at a mere 17 grams (little over half an ounce!) Today, she has a new home at the newly renovated education building, where visitors have an opportunity to see Ivanka the greater prairie-chicken at her advanced age. She gets lots of special attention and plenty of her favorite snack, green beans. We love to show off the diversity of birds, so Ivanka has become an ambassador for our program and helps provide a visual example of Oklahoma's spectacular wildlife when we share the story of the Sutton Center and our mission.



Daniel Harris and Cara Brown make the final wellness check before Ivanka's release into her new enclosure. Photos by Dan Reinking.



Sutton Center's Education Program Update

by Daniel Harris

Education animals form close bonds with their keepers and a change in staffing can result in setbacks for trained behaviors. A transition in our education staff occurred last December. Fortunately, our ambassador birds have shown great resilience, which demonstrates how a good foundation can translate into the ongoing success of a program. This year, visits from scouts across the state as well as home school groups from the local area have enjoyed tours of our facilities to learn about the diversity and importance of our local species and the habitats they call home. We travel with our birds to reach students in the classroom and are working with educators to build programs that meet state education standards. Most importantly, we are inspiring wonder and provoking curiosity in local youth that will last a lifetime. Interest and accessibility of environmental education is the foundation on which conservation efforts of today will be passed on to the next generation. If you would like to be a part of that effort, host an event, schedule a tour, or bring Sutton Center to your classroom, please reach out to dharris@suttoncenter.org.



Students dissecting owl pellets during our visit to Jenks East Intermediate. Photo by Beth Wilson.



Students get up close and personal with Turbo, our golden pheasant. Photo by Beth Wilson.



Emma Sanderson and Daniel Harris talk feathers: form and function, at Discovery Lab's Soaring Science camp. Photo by Michelle Morgenstern.



Emma Sanderson greets Turbo with treats during a flight demonstration. Photo by Michelle Morgenstern.



coarse designations and that scale of habitat selection occurs on more of a continuum. For example, during winter when a sagegrouse bites a leaf from a twig on a sagebrush instead of a different leaf from that same twig, or from a different twig on that same sagebrush, or from a twig from an adjacent sagebrush, it would be an example of selection that occurred along a gradient that would all be considered fourth-order. As far as research goes, the scale of selection being measured depends on how you define available habitat. As described in the previous newsletter, habitat selection is usually measured by habitat characteristics found at occupied locations compared to available locations. Available locations are random points found within an appropriate spatial extent. If available habitat locations are constrained to within a regional population of grouse then you are measuring second-order selection. If available locations are constrained to an individual's home range, then you are interested in third-order selection, and if available habitat is within a specific habitat patch, then fourthorder selection is being investigated. There are different methods of measuring habitat characteristics that are typically utilized at used and random locations depending on the order of selection of interest. Investigations of first and second-order selection usually use remotely-sensed data (via satellites). Third-order selection can be measured either with remotely-sensed data or directly in the field depending on the context (Fig 1 and 2). Fourth-order selection research almost has to use field measurements because it is on a smaller scale than what can be detected remotely.

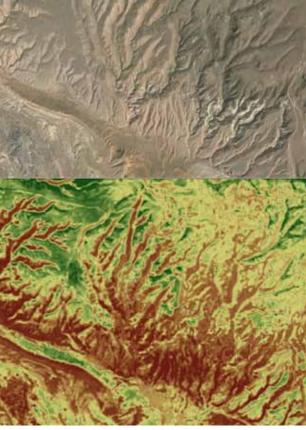


Fig 1: Satellite imagery (top panel) can be turned into sagebrush canopy cover (green = high, red = low; bottom panel) to overlay with grouse use and available locations

Habitat Selection and Sage-Grouse – Part 2

by Aaron Pratt

In the last newsletter, I said one of the reasons that location data is collected is to better understand habitat selection. I also described that the sage-grouse is known as the sage-grouse because they are associated with sagebrush and the sagebrush ecosystem and that they are described as selecting this plant community because they use it at a greater rate than what is available to them. That is a pretty simple explanation, but sage-grouse habitat use and selection is not quite that simple. For one reason, there are different scales of selection dependent on space and time.

In a spatial sense, there are four orders, or scales, of selection that have been described (Johnson 1980; Ecology 61). The first order of selection is the geographical range of a species. So, sage-grouse selecting the sagebrush ecosystem in western North America is first-order habitat selection. The second order of selection is when an individual selects its home

range from the portion of the species' geographic range that is available to it. This is also called homerange-scale selection. So, a sage-grouse female may select a breeding-season home range that has more hills dominated by sagebrush instead of another area say five miles away where the hills are dominated by juniper. This would be an example of secondorder habitat selection. The third order of selection is when an individual selects habitat components from what is available within its home range. This is also called patch-scale selection. So, that same female may select a specific hill with a patch of Wyoming big sagebrush to nest in instead of along a riparian area with basin big sagebrush that is a half mile away. Finally, in our example, the female sage-grouse selecting an individual Wyoming big sagebrush to nest under instead of a rabbitbrush that is five feet away would be fourth-order selection. Johnson (1980) acknowledged that these were somewhat



Fig 2: Collecting field measurements of sagebrush canopy cover in a mix of Wyoming big sagebrush (*Artemisia tridentata wyomingensis*) and black sagebrush (*A. nova*)

Habitat Selection and Sage-Grouse – Part 2

(Continued)

by Aaron Pratt

You might think it would be safe to assume that sage-grouse would always select for more sagebrush. Well, besides spatially, sage-grouse habitat selection can vary temporally. It is probably safe to assume that sage-grouse will select sagebrush during the nesting season as in our example above. However, sagebrush is not as important during later summer when grouse are often forced to look for better forage as vegetation dries up in the dry heat of summer. This map shows all of the summer locations of a sage-grouse who lived almost exclusively within a couple of irrigated hayfields (Fig 3). Sagebrush cover within its home range was essentially 0%. This bird's selection of its home range (second-order) would have been for sagebrush during the winter and spring but against sagebrush during the summer. Keep in mind that if the hayfields were not located in a sagebrush landscape (first-order) then they would never have been used. Similarly, sage-grouse can select different habitat characteristics based on behavior and the time of day. Recent research that I collaborated on documented that some sage-grouse broods actively select more cover while foraging during the day but actively avoid cover while roosting at night (third-order selection; Gelling et al. 2022; Wild. Soc. Bull. e1293).

Also of note is that all sagebrush is not the same. There are several sagebrush species (Artemisia). Big sagebrush is the most widespread and abundant. Subspecies of big sagebrush (A. tridentata) are not all the same either. Sage-grouse will use Wyoming (A.t. wyomingensis) and mountain (A.t. vaseyana) big sagebrush but basin (A.t. tridentata) big sagebrush is usually too tall (Fig 4). Wyoming big sagebrush is found in drier areas and does not readily recover from disturbance so land management is focused on conservation and restoration. Mountain big sagebrush is found at higher elevations in more productive systems because of increased precipitation. Because of this, mountain big sagebrush stands can sometimes become too dense where artificial treatments may improve the suitability of these areas as grouse habitat. Mountain big sagebrush plant communities are more resilient to disturbance. As you can see, sage-grouse utilize a variety of complex habitat characteristics and it is not so simple for land managers who have a lot to consider when managing, conserving, and restoring sage-grouse habitat.

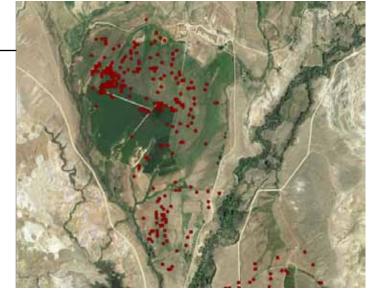


Fig 3: Most of the locations (red points) during summer for this sage-grouse occurred within irrigated hayfields

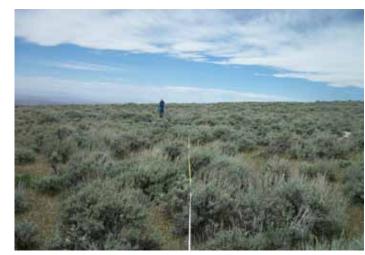


Fig 4: Mountain big sagebrush (Artemisia tridentata vaseyana)



The Birds and the Bees... and Butterflies!

by Don Wolfe



Matt Marvin (Quail Forever volunteer) tilling the pollinator bed. Photo by Randall Hodges.

The nationwide organization Quail Forever (QF) may be best known for their efforts to improve quail habitat, but their focus far exceeds just that. Local QF chapters are also encouraged to promote various activities that engage youth and get them involved in conservation efforts to learn and appreciate the outdoors, and also to undertake projects that benefit pollinators such as bees and butterflies, which of course, benefits all other wildlife as well as humans. Indeed, without the contribution of bees and butterflies, agricultural production that feeds the 7,000,000,000+ world's population could not exist. Several Sutton staff have been involved with QF activities, and, likewise, QF staff have assisted with Sutton projects, including assisting with transfer of masked bobwhite to Arizona, and habitat restoration efforts on Buenos Aires National Wildlife Refuge. This partnership between the two organizations will undoubtedly grow with time. Most recently, as part of the Earth Day celebration and conservation weekend, we partnered on a pollinator planting adjacent to Lee Lake in Bartlesville, the first of hopefully 100 or more such plantings. Funds raised by the Big Bluestem Quail Forever Chapter purchased the pollinator seed, and local Boy Scouts of America helped distribute the seed into freshly-tilled soil. In addition to your continued support of the Sutton Center, consider also supporting QF, and if you are already a member of QF, we encourage you to become active in your local chapters. Together, we can and will make a difference for birds, bees, butterflies, other wildlife, and life as a whole.



Zach Brewer (Quail Forever biologist) mixing seed for distribution. Photo by Randall Hodges.



Pollinator garden sign. Photo by Clay Cooper.

National Geographic Photo Ark Exhibit **Features Sutton Center Animals**

by Dan Reinking

Through the end of July, a National Geographic Photo Ark exhibit featuring photographs by Joel Sartore is on display at the Boathouse Gallery at the Gathering Place park in Tulsa. Joel's first photo assignment for National Geographic was the Sutton Center's bald eagle reintroduction program. This article and Joel's photos were featured in the November 1992 issue of National Geographic (check that big stack in your garage to find this issue!). Joel went on to photograph many additional feature articles, including a number of cover photos for National Geographic. His passion for wildlife and its conservation has taken him around the world. He also became a good friend of the Sutton Center and our staff, and has returned here many times to photograph birds that we have worked with over the years.

In 2006, Joel began what has become a wildly ambitious project to photograph all of the species currently under human care in zoos, aquariums and other similar facilities around the world. Each species is photographed on both stark white as well as black backgrounds using studio portraiture techniques. This results in intimate portraits of each animal, offering an "eye-to-eye" perspective to the viewer. Sartore's goal is to make people care, fall in love, and take action to conserve endangered and declining



National Geographic photographer Joel Sartore introduces the 89th Photo Ark exhibit worldwide at the Gathering Place in Tulsa. Photo by Dan Reinking.

wildlife. He has visited more than 50 countries and photographed over 12,000 species, and after more than 15 years of work, he thinks he might have another decade to go to complete his mission.

The current exhibit at Tulsa's Gathering Place is the 89th exhibit in 20 countries for the Photo Ark. Most of the animals featured in this photo exhibit are native to Oklahoma, an intentional decision to bring awareness of the beauty and diversity of wildlife in our own backyards, so-to-speak. The Sutton Center had a role in this exhibit, because two of the bird photographs on display are of birds that were once part of our education program (animal ambassadors including a sandhill crane and a greater roadrunner that Joel photographed at our facility) and another, a wild lesser prairie-chicken, is one that we had trapped, marked and released as part of a long-term ecological research project we were conducting on this declining species. Sutton Center senior biologist Don Wolfe assisted Joel in taking its "studio portrait" in difficult conditions (using an appliance box for a studio, before Joel refined his methods!) while we briefly captured the bird for measuring and marking, then released for future tracking and study.



Sutton Center senior biologist Don Wolfe (left) helped Joel Sartore (right) photograph this lesser prairie-chicken in western Oklahoma. Photo by Elizabeth Wolfe.

For more information about the Tulsa exhibit, see: https://www.gatheringplace.org/art-in-the-park

For more information about the Photo Ark, see: joelsartore.com or https://www.nationalgeographic.org/ projects/photo-ark/?locale=en

Joel Sartore Joins Sutton Board



We are pleased to announce that Joel Sartore has agreed to be an honorary board member for the Sutton Center. Strong overlap between the educational and conservation missions of the Photo Ark and the Sutton Center, together with our decades of cooperation and friendship, make this feel like a natural fit, and simply formalizes our existing relationship. We look forward to Joel's continued accomplishments with the Photo Ark, and together we will strive to find cooperative conservation solutions for birds and the natural world through science and education.

Covey Up! A Glimpse into Masked Bobwhite Behavior

by Morgan Anderson and Lily Grant

A covey is a small flock of quail that can consist of 8-25 individuals. During the non-breeding season, coveys are formed to keep the quail warm during harsh winter environments while roosting at night, and allows them to stay alert for predators. In a roosting covey formation, the quail form a circle with their tails pointing inward and heads pointing outward. As this type of behavior is normal in the wild, it is an instinctual behavior that is also seen in captive rearing. Observing this behavior as aviculturists of the masked bobwhite program at the Sutton Center has been an insightful experience. It can be such a challenge to capture on camera, because as soon as the birds sense our presence, they break formation.

Even from their very beginning as chicks, you can see them adapt and slowly change their roosting formation from a chaotic pile into a flawless circle. As young chicks, they are in a brooder room together. Although they still have heat lamps supplying warmth as well as new feathers growing in, they will huddle close together to share in the warmth (Photo A/B). As depicted in this picture, there is not much of a structure. They all pile on top of one another. Over the next few weeks, they learn to fan out more, but are still not quite there.

After a couple of months, the juveniles are big enough to be placed into smaller groups of peers and into an adult chamber. Some groups can adjust more quickly than others, and continue fanning out as they have learned. The slower groups forgo fanning out entirely and form a line. Not quite there! They were so close!

Once they became accustomed to the new chambers and surroundings, their covey-like formation reappeared. Originally, it felt as if they were gradually figuring themselves out, but then one morning you could walk in and they had it perfect! Some groups would attempt to form a circle and end up huddling together (Photo C). However, with other groups, it truly felt like they mastered the technique



PHOTO A: Three week old chicks huddle together.

Photo by Morgan Anderson.



PHOTO B: Three week old chicks huddled together.

Photo by Lily Grant.



PHOTO C: Six month old females huddling in a tight formation. Photo by Lily Grant.

overnight—like a switch had turned on in their heads (Photo D). Now the 8-month old birds can do it casually and effortlessly, it seems. Even after pairing up some of the birds into cluster groups, they still have a covey mindset (Photo E). It is so pleasing to the eye to see the adults covey up perfectly. They are the veterans who know exactly what they are doing. They have it down to a science. As we see in (Photo F) these males have arranged themselves in a perfect circle.

As we enter into the upcoming 2022 breeding season, we hope to document more of our quails' journey from chick to adult and their innate abilities to determine which behaviors are beneficial to their covey.



PHOTO D: Three month old males and females.

Photo by Lily Grant.



Masked bobwhite chicks find a friendly perch on aviculturist Lily Grant. Photo by Morgan Anderson.



PHOTO E: A breeding cluster group.

Photo by Lily Grant.



PHOTO F: Adult males in a perfect circle formation.

Photo by Lily Grant.

Who Was George Miksch Sutton?

by Warren Harden

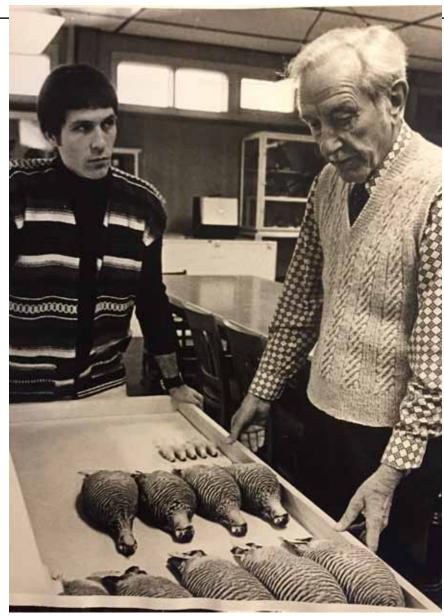
Have you wondered why we are the "George Miksch Sutton Avian Research Center?" You can find "George Miksch Sutton" in reference books and on the internet and learn of facts and his accomplishments, but that does not tell you who he was.

The facts: George Sutton was born in Nebraska in 1898, died in Oklahoma in 1982 and in between became a renowned ornithologist. In childhood he began drawing and painting birds. After studying with Louis Agassiz Fuertes he became a famous bird artist. He was a member of expeditions to the Arctic, Iceland, Canada and Mexico. As a writer, Sutton authored numerous scientific papers and chronicled his expeditions and trips in books and articles and illustrated them with his own paintings. Many other publications were enriched by his artwork. He spent a year with native people on Southampton Island that resulted in his dissertation for a Ph.D. from Cornell University. He was a faculty member of the University of Michigan and the University of Oklahoma, and a member of the Oklahoma Hall of Fame.

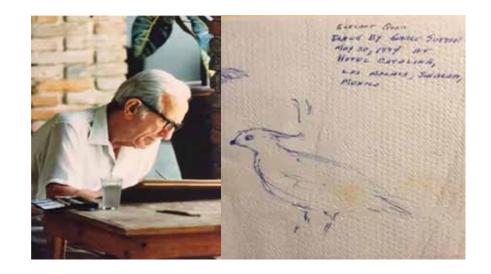
So much for the facts. But, who was George Sutton as a person? Learn more by viewing Sutton Center's video of an interview with Dr. Jack Tyler and Warren Harden who worked closely with George Sutton, were his friends and, as a result, became life-long friends themselves. They talk about their experiences with George Sutton giving insight as to who George Sutton was and why we wanted his life to live on in the work of the Sutton Center.

See suttoncenter.org \rightarrow About \rightarrow The Life of George Miksch Sutton

WWW.SUTTONCENTER.ORG



Warren Harden and George Sutton with prairie-chicken specimens.



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Volunteer Spotlight – John Hays



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As part of the "Wild Bunch," John has been a supporter and volunteer at the Sutton Center for many years. He has been instrumental in several demolition and construction projects (with scars to show for it), monitors bald eagle nests with the BEST, and assists with the Hulah Reservoir and Tallgrass Prairie Preserve Christmas Bird Counts. Most recently, John travelled to Buenos Aires National Wildlife Refuge in November 2021 and February 2022 to help transport masked bobwhite and conduct habitat improvement at potential release sites. John received his PhD in Physics from Oklahoma State University, and is a Chief Scientist in the Analytical Services and Research group at Phillips 66. He has worked for Phillips (with various permutations of the name; Phillips Petroleum, ConocoPhillips and now Phillips 66) for 26 years. Thank you John, for all your contributions to the Sutton Center!