

**KENTUCKY
STATE REPORT**
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WILDLIFE

Wildlife Health Program: In 2019, the wildlife health program responded to hundreds of reports of wildlife disease from hunters, concerned private citizens, and wildlife biologists. From July to December over 1,200 reports of sick deer suspected of having hemorrhagic disease were received. The majority of these reports were from the Bluegrass and Green River region. Samples were collected from more than 50 deer across the state and Epizootic Hemorrhagic Disease serotype-2 was confirmed in 24 counties. In addition to white-tailed deer submissions, 13 out of the 19 elk submitted between January 2019 and December 2019 were diagnosed with meningeal worm (*Parelaphostrongylus tenuis*). A copper deficiency was reported in 11 of these 19 animals. Since January 2020, an additional 15 elk submission have been sent for diagnostic evaluation. In an effort to elucidate the impact trace mineral deficiencies may be having on elk, serum was collected from 30 apparently healthy individuals during the elk capture this past January and submitted for analysis. Two thirds of these animals had a clinical significant Selenium deficiency. Unfortunately, liver biopsies are the preferred diagnostic sample for copper values since copper varies widely and is difficult to interpret from serum. Further investigation is needed to tease apart complex interactions between trace minerals values and disease in Kentucky's elk population.

Wild turkey was the next most commonly submitted sample for diagnostic evaluation. Thirteen birds were submitted. Seven of these birds tested positive for Lymphoproliferative disease virus (LPDV), one of which presented with clinical signs. This was a very interesting case, typically when LPDV is detected it is considered subclinical. The population level impacts are still not well understood. A goal for 2020 is to enhance surveillance for LPDV and determine the prevalence in wild turkeys and any potential population level impacts it may be having. In 2019, the first confirmed case of Histomoniasis (Blackhead disease) in a wild turkey was reported. This disease is commonly associated with commercial poultry operations and is considered an important disease of wild turkeys. This disease has likely been underdiagnosed due to the difficulty recovering carcasses from the landscape before they are scavenged. Other mammalian submissions include black bear, raccoon, bats, beaver, mink, opossum, and red fox. Of these submissions, the most notable was a clinical case of distemper in a black bear. This is Kentucky's first report of distemper in a black bear. This prompted a follow-up surveillance project that will involve collecting samples from road-kill bear for diagnostic testing. Wildlife Health's vector surveillance programs are ongoing and include ticks submissions and a mosquito surveillance project to investigate the presence of arboviruses in ruffed grouse habitat.

Deer and Elk Program: Deer hunters harvested the second highest record of white-tailed deer (148,395), 78,633 bucks and 66,762 does, in the 2019 season. The number of estimated deer hunters has been slightly decreasing over the past 5 years with an estimated number of 300,000 deer hunters statewide. A total of 39,163 people submitted 78,713 applications for the 594 total drawn tags available for the 2019 elk season. Including all permit types and seasons, 142 bulls and 100 cows were harvested. The first year of a 3-year elk research project is under way studying adult/yearling cow elk natality rates and elk calves survival estimates using GPS collars. Samples from 1,962 deer and 38 elk were collected from across the state for the chronic wasting disease surveillance program in which CWD was not detected.

Small Game Program: The Small Game Program is in the final stages of reporting on the Road to Recovery: the Blueprint for Restoring Northern Bobwhite in Kentucky. The 10-year plan expired in 2019 and efforts have been underway to complete the final report. Much work was accomplished over the decade with the most important being establishing a strong connection between habitat and birds. The program has been working towards its next phase of habitat development under the adage “making conservation good business”. Two 10,000-acre projects have been established with a focus on using native grasses as forage and hay with a heavy production slant. This has been attempted in the past, but the partnership is more diverse and includes significant players from the agricultural community. In the last two planting seasons, 350 acres of native grasses have been planted on the two focus areas. More recently, the program has committed time and effort on the Rabbit Hemorrhagic Disease working on regulations, informing in-state partners, and working across state lines to the mitigate risk.

Bear Program: In an effort to update the population model for a disjoint bear population centered in the Big South Fork National River and Recreation Area (BSFNRA), the Kentucky Department of Fish and Wildlife Resources (KDFWR) and the Tennessee Wildlife Resources Agency (TWRA) collaboratively funded a research project through the University of Tennessee. This bear population is the result of translocation efforts by the TWRA in 1996 and 1997, with a founder population of 14 adult bears. Limited research followed this translocation effort, with the first assessment of population genetics conducted in 2009, followed by a non-invasive mark-recapture abundance estimate in 2010. The population abundance research indicated a growing population, yet was founded on a statistical methodology that has since been eclipsed by a more rigorous, spatially explicit modeling framework. In the summer of 2019, 492 hair snare sites were constructed across the 3.7 million acre interstate study area. Following 6-week-long sampling periods, 210 hair-snare sites were visited by bears, with 1,332 genetic samples collected from the Kentucky portion of the study area. These samples are currently at the genetics lab for microsatellite analysis. Results are expected in late 2020, following the construction of a spatially explicit abundance and density model by University of Tennessee researchers. These results will allow for an update of the KDFWR black bear population model for this area and a continued emphasis on a sustainable harvest model.

Wildlife Diversity Program: Wildlife Diversity: The Wildlife Diversity Branch has continued to address multiple SWAP priorities in avian, freshwater mollusks, bats, herps, and insects. The state's Monarch Conservation Plan is continuing to be implemented through on site meetings and training, plantings, and monitoring. Bat research regarding the reproductive

success of Indiana Bats post-WNS was completed with statistical analysis and publications currently in production. In addition, efforts to assess reasons for COVI declines have been instituted in the Eastern portion of the state. Efforts to assimilate data for the USFWS service to be included in multiple SSA's is ongoing throughout the program. Work has continued on the Reptiles and Amphibians of Kentucky with a renewed push to bring this work to completion in the near future. At the Center for Mollusk Conservation (CMC), restoration efforts continue throughout the state with an emphasis on the Cumberland Bean, Fanshell and other high priority species. Partnerships with the USFWS and USFS continue to prove beneficial to all parties to help institute research and mussel community restoration. Avian efforts continue, as Loggerhead Shrike, Golden-winged Warbler, and various contaminant studies have been a significant portion of our workload. Efforts to identify stressors and mitigate those elements continue to be ongoing.

MARKETING

Total Sales: For the third year in a row, we achieved over \$30 Million in total license and permit sales and despite wet spring weather sold over 1 Million quantity of licenses and permits. We again for the seventh year in a row achieved record sales of the Kentucky Elk Hunt Drawing application process, generating over \$950,000 to help manage the resource. This is a direct result of the outstanding resources our state affords and the marketing and recruitment campaigns our staff work to offer, which allow us to reach a more varied and expanded user base.

Platforms: *Direct Mail* – For current and lapsed license customers, we conducted 2 direct mails to promote license purchases for and participation in our spring and fall hunting seasons, as well as our elk hunt drawing. We also did a Conservation Camp Promotion. We direct mailed about 210,000 pieces. *E-Blasts* – For license customers, for which we had email addresses, we conducted 5 e-blasts to promote license purchases for and participation in our spring and fall hunting and fishing seasons, as well as 4 elk hunt drawing promotions. We are also fully engaged in the third year of our email platform to all stakeholders to opt-in for timely and relevant information and opportunities specific to their interests, sending a total of 96 bulletins throughout this year. *Social Media* – We continued to grow our social media impact, with a following of over 195,000 fans across Facebook, Twitter, Instagram and YouTube. We are continuously building engagement within these accounts to provide timely information, share program and event details, and engage with our growing audiences. We continue to expand our video inventory through Facebook and YouTube. This spring we enacted a brand new way to engage with our audiences with a semi-live turkey hunting show. The reach of the show surpassed our projections for engagement at every level. In Facebook engagement, minutes viewed were up 1823% from the previous 7 days, 1 minute video views were up 2282% from the previous 7 days, 3 second video views were up 916% over the previous 7 days, and engagement was up 823% over the previous 7 days. New audiences were reached and existing audiences were further engaged thanks to the team effort with “Struttin’ in the Bluegrass.” *Shows and Events* - KDFWR participated in 7 shows/events, ranging from regional boat shows in Louisville, Lexington and Cincinnati to the Kentucky Deer and Turkey Expo, the Kentucky State Fair, The Archery Trade Association (ATA), and the National Wild Turkey Federation show in neighboring Nashville,

TN. At several of these shows/events we also set up an air rifle range where people can shoot, demonstrate some key firearm safety skills, and complete their hunter education range requirement. Over the past year we had 151 people complete their “range day” portion of the training at these events. At these shows and events we also sold \$3,575 in various memberships of our Kentucky Wild program aimed at attracting new customers. Our ROI for these events exceeded \$44,994.

LAW ENFORCEMENT

Staffing: The Division of Law Enforcement currently is staffed with 138 officers (25 recruits) and 1 civilian employee, with the intentions of adding two additional administrative assistants this year.

Training: The Division of Law Enforcement training section is comprised of a full time Lieutenant and Sergeant. Many other officers across the state hold various instructor certifications and are routinely utilized for division training purposes. The academy staff have been extremely busy this year with twenty-five newly hired conservation officers that are currently in the process of completing their academy training.

Technology & Equipment Updates: *Cellular Trail Cameras* - The increased use of cellular trail cameras has proven to be very beneficial for field officers to detect criminal activity and to reduce the personnel hours required to apprehend these violators. Several documented bait sites were monitored with these cameras during the past spring turkey season. This allowed officers to monitor several sites at the same time from a remote location rather than spending hours physically watching one bait site. The cameras notified the officers when the violator had entered the area. They were then able to respond and make contact with the violator at the bait site. *Tasers & Firearms* - Updated equipment acquisition has been a top priority for the division. This past year, all field officers were issued Axon tasers to increase officer/subject safety by offering another less lethal compliance tool. DRMO patrol rifles were removed from service and replaced with agency owned Sig M400 rifles equipped with an optic and weapon mounted light. Officers will also be issued an agency owned Glock 43 handgun this year for backup/off-duty instead of having to carry a personal owned weapon for these purposes.

FISHERIES

Habitat Program: KDFWR’s habitat branch plans and coordinates small and large-scale fish habitat projects across the state. Each year, with the assistance of the habitat branch, the seven fishery management districts focus on small-scale projects on their state owned and managed lakes along with larger reservoir projects limited to small areas. For 2019-20 staff assisted with staging and deploying 5,154 structures at 93 habitat sites in 10 lakes. Several different material types were used to create habitat sites including large trees, Christmas trees, rock, wooden pallets, and plastic. The Christmas tree drop-off program resulted in 8,183 trees donated to be used for fish habitat. The habitat branch is assessing the effectiveness of the different habitat types by sportfish sampling. GPS coordinates and habitat types are provided in

Google maps format for the public on the KDFWR website. Habitat placement has become more efficient through the construction of several pontoon habitat barges by district staff.

Large-scale projects require critical coordination and teamwork as they involve several state and federal agency interests along with angler and county tourism impacts. Project plans bring together a multitude of partners to guide project development, habitat structure acquisition and construction, heavy machinery donations, and ultimately staging and placement of the structures in large reservoirs. The Barren River Lake Largescale Fish Habitat Project was started in summer 2019 with the selection of 7 phases for habitat enhancement. To date, 22 sites in 2 phases have been built with 550 individual habitat structures. Sites range from 8 to 22 feet deep and consist of main lake points, humps, flats, creek channels, and main lake pockets. Grant funding in the amount of \$1,000 was awarded by the Reservoir Fish Habitat Partnership to the Friends of Barren River Lake and Park in October 2019. This funding was used to purchase 70 ton of shot rock to build Spider Hump Structures on main lake points. The rock/log combination structures individually cover 400 square feet. In order to evaluate the effectiveness of various habitat structures, electrofishing of habitat sites was conducted at Barren River Lake in the fall 2019. Habitat sites made of natural material on main lake pockets and points had the highest catch rates of sportfish, consisting mostly of largemouth bass and crappie. Phase 3 of 7 is scheduled for completion in winter 2020. All habitat locations were marked with GPS and are provided to the public on the KDFWR web site.

The Kentucky Department of Fish & Wildlife Resources, U.S. Army Corps of Engineers at Lake Barkley, the Kentucky B.A.S.S Nation, U. S. Forest Service, Tennessee Wildlife Resources Agency, Wired2Fish, Murray State University Bass Anglers, Kentucky BASS High School Trail West, McCracken County High School Bass team, Kentucky Bassmasters, and Akridge Farm Supply were awarded \$30,000 for habitat improvement efforts on Lake Barkley. The project will include the installation of cypress tree plantings, simulated laydown cover, fish attractors, and long lasting artificial spawning beds throughout Lake Barkley.

Catfish Spawning Boxes - Pilot-Test: Due to limited spawning habitat, channel catfish populations are maintained in many of KDFWR's smaller lakes through stocking. However, after attending a fisheries conference in Pennsylvania, KDFWR staff are now experimenting with a catfish spawning box design presented at that conference. Our hope is that the department can transition from stocking to a naturally recruiting population through the use of the spawning boxes. If successful, this could open up hatchery ponds for production of other important sport fish to be stocked in Kentucky waters. KDFWR tested out the boxes in 2019 at a 39-acre lake in the northeastern part of the state. Twelve boxes were placed in the lake and boxes were checked weekly starting in June. The result was twenty-three individual channel catfish nests found in the boxes with some boxes being used more than once. In 2020, KDFWR plans to expand the testing by placing spawning boxes in a half dozen lakes ranging in size from 10 to 200 acres. The boxes will be monitored for three years, and no channel catfish stocking will take place in these lakes during this time. If full recruitment to catchable size is found, the department will assess whether this can successfully replace the current stocking program at small lakes across the state.

Kentucky Wetland and Stream Mitigation Program -Sponsored by KDFWR: The KDFWR has sponsored an in-lieu fee mitigation program under an agreement with the US Army Corps of Engineers since 2002. In 2019, the program completed a stream restoration project on Goose Creek in the upper Green River system of Kentucky. Early monitoring results of the project produced a new distribution record of *Phenacobius uranops*, stargazing minnow, listed in Kentucky's Wildlife Action Plan as a species of greatest conservation need. There was only one previous record 35 years ago from the upper Green River system.

Assessing Potential Regulation Changes on Smallmouth Bass Stream Fisheries in Kentucky: Smallmouth bass are a valuable natural resource, and are one of the most highly targeted species in Kentucky's streams and small rivers. Prior to 2012, the Kentucky Department of Fish and Wildlife Resources (KDFWR) had little data on stream and river smallmouth bass populations. Sampling events were infrequent and were often localized to only one site. Efforts in the past 8 years have focused on collecting population demographic data such as catch rate, size structure and species composition. An exploitation study was also conducted in 2016 – 2017 on a highly popular system that indicated smallmouth bass exploitation was low at 6.8%. Recently, anglers have expressed their concerns with potential overharvest, citing issues such as decreased catches and lack of larger fish. These anglers are supportive of more stringent regulations such as increased minimum length limits and reduced creel limits. To address these concerns, KDFWR began resampling many streams in 2020. Subsamples of the populations from each waterbody were sacrificed to gather information on age structure, growth, and mortality. Growth has been similar across most populations, with smallmouth bass reaching the current statewide minimum length limit of 12 inches between 4 and 5 years of age. Total annual mortality rates have ranged from 25.4 – 37.7% thus far, and fall within the range of smallmouth bass populations from surrounding states. Biologists are currently modeling data at different levels of exploitation to assess the effectiveness of potential regulations changes.