2022 Iowa TWS Winter Meeting

March 2-3, 2022

Quality Inn & Suites Starlight Village Conference Center
2601 E 13th Street, Ames, Iowa

PROGRAM AGENDA

Wednesday, March 2, 2022

1:00 - 1:30	Check-in/Registration	
1:30 - 1:40	Welcome and Housekeeping	Matt Dollison, *Iowa TWS President*
1:45 - 2:45	Recollections of a Half Century of Prairie Activity in Iowa	Daryl Smith - *University of Northern Iowa*
2:45 - 3:05	Assessing Neonicotinoid Exposure In Minnesota's Wild Deer	Patrick Hagen – *MN DNR*
3:05 - 3:25	The Effect of the Neonicotinoid Clothianidin on Ring-Necked Pheasants	Michael Sundall – *Iowa Pheasants Forever*
3:25 – 3:45	Creating Chronic Wasting Disease Ambassadors in Iowa	Adam Janke - *ISU*, Tyler Harms – *Iowa DNR*, and Rachel Ruden – *Iowa DNR*
3:45 - 4:00	Break	
4:00 - 5:00	Iowa TWS Business Meeting	
5:00 - 6:00	Poster Session, Social, & Fundraiser	
6:00 - 7:00	Banquet (Dinner & Awards)	
7:00 - 8:00	**Keynote:** Realizing a more perfect practice: Examining the barriers and opportunities to broaden engagement in wildlife stewardship	Adam Janke - *ISU*
8:00 - 9:00	Social	

Meeting Registration Fees:
Regular: $55.00
Student/Retiree: $45
One Day: $25

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Thursday, March 3, 2022

4:30 – 8:25	Continental Breakfast (provided for those staying at the hotel)	
	Moderator: Nate Schmitz	
8:30 - 8:50	Distribution and risk factors of lymphoproliferative disease virus (LPDV) in Iowa Wild Turkeys (*Melearis gallopavo*)	Kelsey Smith - *ISU*
8:50 - 9:10	Environmental Factors Influencing Detection Probability of Ring-necked Pheasants and Northern Bobwhite Broods during August Roadside Surveys	Zachary Dienes - *ISU*
9:10 - 9:30	Mountain Plover breeding biology inferred from high-frequency GPS transmitters	Rachel Siller – *ISU*
9:30 - 9:45	*Break*	
	Moderator: Stephanie Shepherd	
9:45 – 10:45	Women in Conservation - Panel Discussion	Erica Billerbeck – *Iowa DNR* Bonnie Friend – *Iowa DNR* Sarah Klein – *Iowa DNR* Sarah Nizzi – *The Xerces Society* Melanie Schmidt - *INHF*
10:45 – 11:00	*Break*	
	Moderator: Laura Leben	
11:00 – 11:20	Vegetation responses to controlled water level management in Iowa	Nicole Bosco - ISU
11:20 - 11:50	Using high frequency GPS transmitters to infer nesting & breeding behavior of Dunlin	Sarah Hoepfner - *ISU*
11:50 – 12:00	Wrap-up and Adjourn	Nathan Schmitz, *Iowa TWS President*

* = If there are multiple authors this denotes the author who will speak.

Recollections of a Half Century of Prairie Activity in Iowa
Daryl Smith, Emeritus Professor of Biology and Tallgrass Prairie Center Director at the University of Northern Iowa.

The past fifty plus years in Iowa have borne witness to numerous changes in prairie recovery and activities. The state has become much more prominent in "the prairie world." Most notably, interest and involvement in prairie work became more widespread, the number of prairie restorations and reconstructions multiplied rapidly (including large projects), and conservation organizations and programs developed and flourished. Iowa was at the forefront nationally of roadside vegetation management and hosted more North American Prairie Conferences than any other state.

Assessing Neonicotinoid Exposure in Minnesota's Wild Deer
Patrick Hagen, Minnesota Dept. of Natural Resources

Recent research has raised concerns about potential adverse effects of neonicotinoid exposure in white-tailed deer (Odocoileus virginianus) including reduced survival and productivity. To assess whether free-ranging deer in Minnesota are being exposed to neonicotinoids, we solicited deer hunters to voluntarily submit spleens from harvested animals during the 2019 deer hunting season. Interested hunters signed up to receive a sampling kit (n=1836) and were asked to submit the spleen of their harvested deer and also report the sex, age, date of harvest, and kill location. Hunters could also submit a tooth sample if they wanted their harvested deer aged. A total of 770 spleens and 517 tooth samples were submitted by hunters throughout Minnesota and 29 additional spleens were collected by agency staff from opportunistic deer (agency culling and sick deer). A subsection of each collected spleen (n=799) was submitted to the Ecdysis Foundation (Estelline, SD) for analyses of neonicotinoid exposure; results discussed.

The Effect of the Neonicotinoid Clothianidin on Ring-Necked Pheasants
Michael Sundall, Iowa Pheasants Forever

The objective of our study was to gain an understanding of how the neonicotinoid, Clothianidin, affects survival and breeding in pheasants. Our first experiment was to determine if there was a selection bias for seeds treated with neonicotinoids. In this experiment, eight ring-necked pheasants (4 hens and 4 roosters) where placed in an enclosure for 10 days. They were provided a choice of three options; untreated, dyed, and dyed/treated seed corn. Seeds were treated with Poncho® 1250 (containing Clothianidin) and dyed with Rhodamine B to match the color of treated seeds. Pheasants selected ($P < 0.0001$) untreated seeds over dyed and treated seeds. We then collected 185 wild ring-necked pheasant hens from their primary range in South Dakota during the 2017 spring agricultural planting season. We necropsied collected pheasants and collected liver, spleen, and crops. We examined crop contents; 151 (~81.6%) of 185 hens had consumed agricultural seeds and of those 24 (~12.9%) of 185 hens had seeds that had treatment dye. We found that ~15.68% of the hens had greater than 0.5 parts per billion (ppb) neonicotinoid concentrations in livers. Pheasants that had consumed neonicotinoid treated seeds averaged ~3.49 ng/mL Clothianidin versus ~1.90 ng/mL for birds that did not have confirmed treated seeds, which was significantly different ($P < 0.04$). To test survival of pheasants exposed to Clothianidin in the 2016 field season, groups of 15 captive hen pheasants received seeds of Armor® (Jonesboro, Arkansas, USA) Seed Corn 1046 or Armor® (Jonesboro, Arkansas, USA) Seed Corn 1046 that had been treated with Poncho 1250 (1.25 mg/seed). The five treatment levels consisted of 75 treated seeds, 15 treated seeds, 2 treated seeds, 1 treated seed, and 0 treated seeds (control), which were used in all trials (2016-2017). For the four groups that did not receive 75 treated seeds, untreated seeds were used to fill out the 75 total seeds provided to pheasants. Hens were then monitored for sixty days. After death or euthanasia, hen pheasants were necropsied for lesions or tumors. In 2017, our breeding study consisted of 14 days of treatments for captive pheasants, which were identical to the previous year's treatments except roosters were included with hen pheasants. There were 5 replicates of 10 hens and 5 roosters. All pheasants received 75 seeds of Armor® (Jonesboro, Arkansas, USA) Seed Corn 1046. The same seed and variety also were treated with Poncho 1250 for the treated seeds. After the 14 days of treatments, hens were placed in breeding cages. Eggs were collected for the 8 days of breeding and 30 days following breeding and placed in an incubator. The 2016 survival results showed support for the null model (AICc 123.88). The survival results from 2017 indicated that the likelihood of survival for pheasants consuming the 75 treated seeds was 0.49 while the other treatments (combined) had a survival probability of 0.83. Survival of pheasant chicks differed; chicks from the 75 seed treatment had a survival rate of 0.50 (SEM = 0.13), whereas survival for 15, 2, 1, and control treatments were 0.73 (SEM = 0.14), 0.81 (SEM = 0.09), 0.62 (SEM = 0.08), and 0.71 (SEM = 0.07), respectively. Our study indicated that pheasants avoid treated seeds, survival probability was lower for pheasants consuming the 75 treated seeds treatment in 2017, and pheasant chick survival and nest initiation were lower and later for the higher treatment levels of Clothianidin.

Creating Chronic Wasting Disease Ambassadors in Iowa
Adam Janke, Iowa State University, Rachel Ruden, Iowa Dept. of Natural Resources, Tyler Harms – Iowa Dept. of Natural Resources.

Managing Chronic Wasting Disease (CWD) will be one of the premier challenges for wildlife resource agencies in the next decade and beyond. The plurality of challenges related to population management, disease mitigation, and human health considerations presented by this deer disease is perhaps unprecedented, and may lead to challenges in maintaining public support and engagement in the long term. Short term educational interventions about CWD are ubiquitous and have variable impacts on behavior and attitudes toward the disease and its management. We sought to meet the complexity of the disease through an intensive, 3-week educational curriculum about CWD that helped community leaders appreciate the complexity of the disease and become competent in the delivery of key messages for disease mitigation strategies. During Fall 2021, our group of biologists and educators with the Iowa DNR and Iowa State University Extension and Outreach collaborated to train 24 community leaders in core CWD endemic areas of northeastern Iowa. Graduates demonstrated improved knowledge on the technical details and response strategies employed to address CWD and qualitative survey results suggested widespread satisfaction in the curriculum. Here we will report on our approach to the instruction and discuss the advantages of this new paradigm to CWD education that seeks to equip local leaders with the knowledge and talking points to become ambassadors for effective CWD education in communities across the state. Training and engaging these leaders may be an effective long-term strategy for addressing CWD challenges and maintaining trust among core constituencies.

Keynote Address

Realizing a more perfect practice: Examining the barriers and opportunities to broaden engagement in wildlife stewardship

Adam Janke, Iowa State University

The arc of social progress in the United States is often described as a journey towards a more perfect Union as prescribed in the Declaration of Independence. The story of wildlife conservation in this country follows on a similar plane. Marked by early transgressions against land and people, today over a century of work has put in place systems of land and wildlife stewardship that right some of the wrongs of the first two centuries of American history. But shifting societal values toward wildlife and a clearer view of historical and lingering practices of exclusion illuminate how far we have to go. In this presentation, I will seek to represent these challenges and explore some of the innovations seeking to right some of the wrongs of America’s first two centuries. These efforts seek to move wildlife stewardship towards a more perfect practice: one that engages people across a wide cross-section of society in this critical and noble work.

Thursday, March 3, 2022

Distribution and risk factors of lymphoproliferative disease virus (LPDV) in Iowa Wild Turkeys (Melearis gallopavo)

Kelsey Smith, Iowa State University*, Julie Blanchong, Iowa State University

First identified in the United States in 2009, Lymphoproliferative Disease Virus (LPDV) is an avian retrovirus found in Wild Turkeys (Meleagris gallopavo) that has since been documented across the eastern and central U.S. and multiple Canadian provinces. Examination of hunter-harvested turkeys suggests that most birds are asymptomatic, but little is known about population level effects or impacts to poults. Our goal was to investigate the occurrence of LPDV in Iowa, identifying potential risk factors and spatial patterns of LPDV distribution. In collaboration with the Iowa Department of Natural Resources, tarsi from hunter-harvested turkeys were collected between 2019 and 2021 across Iowa. DNA was extracted from bone marrow and tested for LPDV using the gag and LTR sections of the viral genome and results were visualized using agarose gel electrophoresis with confirmation of a subset of positive samples by sequencing. LPDV infected turkeys were identified in 82 of 99 counties. Logistic regression was used to examine the relationship between the risk of LPDV infection and the ratio of agriculture to forest, total forest edge, forested area, presence of water bodies, historic translocation data, harvest trends, and brood survey data. Cluster analysis identified areas of elevated prevalence of LPDV in Iowa. While more research is needed to fully understand the effects of LPDV on Wild Turkey populations, these results contribute to ongoing surveillance and monitoring of LPDV in North America and may help managers identify localized regions for additional surveillance and management.

Environmental Factors Influencing Detection Probability of Ring-necked Pheasants and Northern Bobwhite Broods during August Roadside Surveys

Zachary Dienes, Iowa State University

Monitoring populations is a critical aspect of managing harvested wildlife populations. The August roadside survey is a population index used to monitor statewide trends in productivity and overall population status for ring-necked pheasant (Phasianus colchicus) and northern bobwhite (Colinus virginianus) in many states. Historical estimates of inter-annual population index changes from roadside surveys have observed biologically implausible changes, indicating survey bias and limiting the utility of the index. Although past work has shown correlative patterns in ring-necked pheasants and northern bobwhite detections along survey routes, range-wide rigorous assessment of factors influencing detection has never been considered. We sought to evaluate factors influencing the detection probability of ring-necked pheasants and northern bobwhites across the species range where August roadsides surveys are an important part of state monitoring efforts and to provide guidance on survey design. We used a single-species N-mixture model in a Bayesian framework to estimate brood abundance and detection probability. Average detection probability for pheasant broods was 0.32 (95% CrI: 0.286, 0.357) and 0.21 (95% CrI: 0.156, 0.262) for northern bobwhite broods. Soil moisture had a positive effect on the detection probability of pheasant and northern bobwhite broods. Wind speed negatively influenced the detection probability of pheasant broods but had no significant effect on northern bobwhite broods. Accounting for the uncertainty in the detection process could improve inference and prediction of population trends.

Mountain Plover (Charadrius montanus) breeding biology inferred from high-frequency GPS transmitters

Rachel S. Siller*, Department of Natural Resource Ecology and Management, Iowa State University
Stephen J. Dinsmore, Department of Natural Resource Ecology and Management, Iowa State

The Mountain Plover (Charadrius montanus) is a small shorebird that breeds in the Great Plains and has a rapid multi-clutch mating system with uniparental care. Understanding this breeding biology is important for informing management and conservation decisions. We studied Mountain Plovers in Phillips County, Montana in the summer of 2021. At each nest found, we captured the adult plover and attached a high-frequency GPS transmitter that collected location data every fifteen minutes. Data collection occurred from the end of May to mid-August and we downloaded >49,000 locations from 24 transmitters. Plovers show an affinity for prairie dog colonies and spent 80.2% (SD = 21.9%) of their time on the colonies. Movements between colonies increased post-breeding. We found that plovers were at the nest an average of 73.0% of their time (n = 9, SD = 5.46%). During incubation off-bouts, plovers were away from the nest an average of 27 minutes (SD = 4.2 min) and traveled an average of 167 m (SD = 111 m) from the nest with infrequent movements farther away; the maximum distance traveled was 10,228 m. While with a brood, adult plovers moved an average of 2,692 m per day (n = 4, SD = 271 m). This study provides a preliminary analysis to better understand the breeding biology of this species of conservation concern. Two additional field seasons are planned for 2022 and 2023 to continue this research.

Women in Conservation - Panel Discussion

Erica Billerbeck – Conservation Officer, Iowa Dept. of Natural Resources
Bonnie Friend – State Park Manager, Iowa Dept. of Natural Resources
Sarah Klein – State Park Technician, Iowa Dept. of Natural Resources
Sarah Nizzi – Conservation Planner & Biologist, The Xerces Society
Melanie Schmidt – Volunteer Coordinator, Iowa Natural Heritage Foundation

This panel discussion will focus on the experiences of women in conservation. Each panelist will discuss their unique backgrounds, interests, and the challenges they've endured professionally. Time will be allotted for group discussion.

Vegetation responses to controlled water level management in Iowa

Nicole Bosco*, Department of Natural Resource Ecology and Management, Iowa State University
Stephen J. Dinsmore, Department of Natural Resource Ecology and Management, Iowa State

The Sustainable Rivers Program (SRP), a cooperative effort between the U.S. Army Corps of Engineers and The Nature Conservancy, aims to better develop comprehensive water level management strategies in flood-control reservoirs. A main area of interest is manipulating water to benefit wildlife, especially migratory birds. Vegetation growth on exposed mudflats is one potential benefit to migratory birds. Beginning in July 2021 a controlled water draw-down was initiated at Red Rock Reservoir along the Des Moines River in central Iowa. Vegetation sampling took place during an 8-week period, were we emphasized monitoring the recently exposed mudflats. We sampled 194 20 cm x 50 cm quadrats that were added weekly at the receding water line, spaced along 25 line transects. Surveys found 19 species of plants with an average of 8 per transect (SD = 1.52). First appearance of vegetation was observed at 1.47 weeks (SD = 0.86) post exposure; quadrats took an average 3.38 weeks (SD = 0.90) to reach at least 50% vegetation cover. During the survey period 11 species of plants came to seed, taking an average of 2.4 weeks (SD = 0.89) for the first species to seed. This allowed us to quantify weekly patterns of vegetation relative to the receding waterline. It is important to document patterns of vegetation colonization, growth and seed propagation in response to water manipulation as these each contribute to additional habitat and food resources for migratory waterbirds during fall migration.

Using high frequency GPS transmitters to infer nesting & breeding behavior of Dunlin

Sarah Hoepfner*, Iowa State University

Stephen J. Dinsmore, Iowa Sate University
Rick Lanctot, US Fish & Wildlife Service

Traditional techniques for monitoring shorebird nests require regular disturbance at nests and likely biases nest survival estimates, an important demographic metric used in assessing population status. Until recently, tracking devices were too large for shorebirds and could not collect accurate and frequent location fixes. In summer 2021 we placed high frequency GPS tags on Dunlin at Utqiaġvik, Alaska and tracked adults from pre- to post-breeding. Based on a limited number of nests with both GPS and human visit data, we determined criteria to assess nest fate solely from the GPS tracks without ever seeing the nest. This will allow us to determine the first true nest survival estimates without human disturbance. Equally important, we gained insights into other nesting behaviors that were not previously possible. Using the tracking data we could see pre-breeding movements, how many birds attempted nesting, the direction and distance of incubation break movements, seasonal adult survival, and habitat use throughout the entire breeding season. Reported decreases in nest survival of Arctic shorebirds may be linked to invasive research methods, so it is important to quantify the effect we may have on nest survival and account for it.