MIDWEST ILLEGAL TURTLE TRADE WORKSHOP:

Enhancing Partnerships to Combat Poaching and Trafficking

Executive Summary
2024

ASSOCIATION of FISH & WILDLIFE AGENCIES

PARTNERS IN AMPHIBIAN AND REPTILE CONSERVATION

INTRODUCTION

Illicit wildlife trafficking is estimated as the fourth largest category of illegal trade globally, valued between $7.8 billion and $10 billion per year by the Wildlife Conservation Society.

Illegal wildlife trade impacts many species, but an unfortunate confluence of factors make the illegal collection and trade of turtles and tortoises particularly troublesome in North America. The substantial demand from both international and domestic markets, along with the unique life history traits of North American turtles, renders their populations highly vulnerable to rapid and irreversible declines, subjecting them to exceptionally elevated risk.

This two-day, no-cost, and virtual workshop (full agenda in **Appendix 1**) was designed to bring state, federal, provincial, and tribal wildlife agencies together to learn about illegal trade in turtles; to share experiences, existing resources, and strategies; and to identify some priority barriers or needs to address this growing threat to wild turtles native to the Midwestern United States and Canada. The workshop was hosted in partnership among the Association of Fish and Wildlife Agencies (AFWA), Partners in Amphibian and Reptile Conservation's (PARC) [Collaborative to Combat the Illegal Trade in Turtles (CCITT)](#), and Midwest Partners in Amphibian and Reptile Conservation (MWPARC).

Over 300 participants attended with representation among 38 state agencies, U.S. and Canadian federal government, and other partners. While the majority of attendees came from the law enforcement sector, we also had the valued participation of biologists, social scientists, and others, affiliated with the U.S., Canada, and Tribal and First Nations.

Summary of the Illegal Trade in the United States & Canada

Turtles are a significant part of the illegal reptile trade, with the United States being a major importer and exporter (UNODC). Certain species are highly sought after for the pet trade and other purposes. In Canada, turtles are primarily consumed through the pet trade and food markets, with many illegally entering from the United States via various smuggling methods including mail, courier, and commercial freight. Overall, North America is a hotspot for illegal turtle trade, and cross-jurisdictional communication and collaboration is needed to effectively address this conservation issue.

WORKSHOP PLANNING COMMITTEE

- **Gordon Batcheller** – Legal Strategy Advisory Council, Association of Fish and Wildlife Agencies
- **Scott Buchanan** – Wildlife Biologist, U.S. Fish and Wildlife Service
- **Michelle Christman** – Federal Coordinator, PARC, U.S. Fish and Wildlife Service
- **Michela Coury** – Project Manager, Muskegon River Water Assembly
- **Emily Horton** – Social Scientist, U.S. Fish and Wildlife Service
- **Cristina Jones** – U.S. Fish and Wildlife Service
- **Lane Kisonak** – Chief Legal Officer, Association of Fish and Wildlife Agencies
- **Thomas Loring** – Special Agent, US Fish and Wildlife Service
- **Justus Nethero** – Wildlife Investigator; Ohio Division of Wildlife
- **Michael Ravesi** – Wildlife Biologist; Department of Energy and Environmental Protection
- **Kerry Wixted** – Amphibian, Reptile and Invasive Species Program Manager, Association of Fish and Wildlife Agencies

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CASE STUDIES: DISEASE AND LAW ENFORCEMENT PERSPECTIVES

Session Focus: Case studies of the illegal turtle trade in the United States as it relates to disease prevalence in trafficked turtles, how to effectively prosecute turtle cases, and examples of illegal trade cases in the Midwest and nationally.

The first case study emphasized the importance of identifying health parameters in turtle populations to enhance conservation outcomes. The presentation featured information on a confiscation in New York where all of the approximately 100 seized box turtles eventually succumbed to a Ranavirus infection. Therefore, it was recommended that confiscated turtles undergo disease screening before release. For turtles with herpesvirus and/or mycoplasma, it may be feasible to release into populations with similar health conditions. However, it was recommended that turtles with Ranavirus, Adenovirus, and/or Emydomyces not be released into the wild until more information is known.

The prosecution presentation highlighted the complex nature of wildlife investigations, particularly involving turtles and complex networks of poachers, shippers, middlemen, and financiers spanning multiple jurisdictions. Wildlife crimes typically require proof of knowing involvement, necessitating evidence such as permits, prior violations, circumstantial behavior, statements, emails, payments, and more. Effective prosecution requires providing prosecutors with state laws, regulations, modus operandi, programmatic significance, and community support, while emphasizing the importance of clear communication with judges, juries, and prosecutors using plain language.

Several law enforcement case studies were presented, and they emphasized the importance of promoting collaboration, communication, and information sharing among wildlife agencies, including biologists, law enforcement, leadership, and other entities. Wildlife trafficking, including turtle trafficking, can span state and international borders, with criminals exploiting weak and/or unclear laws for their benefit. Turtle trafficking investigations often involve turtles moving across multiple jurisdictions, complicating enforcement efforts. Additionally, wildlife trade frequently occurs in online markets, posing challenges for monitoring and regulation as it is often time consuming and unfunded.

CASE STUDIES: DISEASE AND LAW ENFORCEMENT PERSPECTIVES

During the session, participants were polled and a significant amount (72% of 131 respondents) reported encountering at least one suspected violation involving turtles in the last five years, with 19% indicating four or more violations. The majority of respondents (82%) considered illegal turtle trade to be important. However, there was a discrepancy between an individual's ranking of importance versus priority at their agency level, highlighting the need for greater prioritization of the issue.

When asked what can be improved with current training for law enforcement, the respondents' results in successive polls emphasized five main areas:

1. **Provide Initial Training:** Another poll showed 42% of 137 respondents received some instruction, and 50% had no training in reptile identification, handling (including with venomous species), and care. Respondents highlighted challenges with identifying reptile species, including those not native to the U.S.
2. **Include Regular and Refresher Training:** Only 13% of respondents received periodic training in handling and identifying reptiles. Only 32% felt at ease handling reptiles, and 13% stated they were not comfortable handling reptiles. Due to the lack of training, respondents emphasized the necessity for regular courses to keep skills up to date. Many indicated they preferred hands-on training.
3. **Enhance Agency Resources:** Several participants mentioned constraints in agency resources. Some individuals expressed a preference for free and locally available training as well as a need for agencies to provide necessary equipment for handling both venomous and nonvenomous reptiles.
4. **Provide Training on Biosecurity Protocols and Disease:** Respondents expressed a need for education on biosecurity measures and identifying disease in reptiles, recognizing the importance of health-related knowledge for proper handling.
5. **Examine Policy on Live Species Handling:** Some participants mentioned agency policies discouraging or prohibiting the handling of live species, suggesting a need for clarity on this aspect and potential training alternatives.

CONFISCATION AND REPATRIATION SUMMARY

Session Focus: How agencies can most effectively respond when native turtles are being confiscated, particularly when the source of the turtles is unknown.

Key Takeaways:

- Genetic databases for North American turtles are needed to reduce cost and time associated with repatriating confiscated turtles.
- Genetic analyses also can be used to identify poaching hotspots and to help prosecutions.
- Using genetics to help get turtles back into the wild can be a way to strengthen existing populations, increase genetic diversity, and improve overall viability of populations and species.
- There are 34 Association of Zoos & Aquariums Turtle SAFE partners in the United States, 18 of which are in the Midwest.
- It typically takes three months to two years to clear confiscated turtles for repatriation. Challenges therefore arise in holding confiscated animals, especially in cases involving large numbers.
- Funding is needed for: quarantine facilities, animal care (labor, food, supplies), veterinary care and disease screening, building genetic databases and genetic testing, and costs associated with repatriation.
- [Time of confiscation protocols](#) are available on the CCITT website, and states/provinces should use this and other resources to create a confiscation plan for their agency.
- When polled, 36% of the 108 poll respondents did not have a plan for confiscating 50 turtles, and 54% of respondents expressed that confiscations involving more than 100 turtles would be a challenge for their agency.
- Around 30% of 100 respondents worked at agencies currently holding confiscated turtles, and the number of confiscated turtles held each year by agency varied from five to 400+ turtles. On average, respondent's agencies held 25 confiscated turtles each year.

Duct-taped turtles seized by US Bureau of Customs

LEGAL FRAMEWORK SUMMARY

Session Focus: Information on existing laws at the state and federal levels in the United States and Canada, including information regarding the Convention of International Trade of Endangered Species (CITES).

Key Takeaways:

- Significant variations exist in state regulations and enforcement regarding the commercial and personal harvest of wild turtles across the United States.
- Accessing regulation information, both internally and externally, proves challenging due to incomplete data and varying jurisdictional levels.
- Seventeen states still allow for some form of commercial harvest of wild turtles, and over half of those states do not have harvest limits.
- Some type of personal take of wild reptiles and amphibians is allowed in almost all states except Alaska and the District of Columbia. In the states that allow harvest, some states do not have annual bag limits, size limits, permits, and/or reporting requirements for personal take.
- It is often difficult to separate legal and illegal activities.

Participants noted that cross-border trafficking enforcement requires international and interstate communication, coordination, and cooperation which doesn't always occur. Furthermore, it can be difficult to seize animals without capacity or funding to hold confiscated animals, particularly with large cases. These capacity and funding shortages, coupled with training gaps, can hinder effective enforcement efforts. At the prosecution level, a lack of buy-in and education can lead to unsuccessful cases, while some enforcement staff also struggle with getting their peers and agencies to recognize the significance of illegal turtle trade. In some cases, a cultural shift in leadership mindset and legislative support is necessary to effectively address these challenges.

LEGAL FRAMEWORK SUMMARY CONT'D

When asked about improvements to existing legal frameworks, participant's answers fell into the following categories:

- **Regulatory Consistency Between Jurisdictions:**
  - Implement clear seasons and bag limits across states to avoid loopholes in federal laws.
  - Consider regional collaboration and standardization of regulations.
  - Build capacity simultaneously while strengthening laws to ensure effective enforcement.
- **Humane Treatment of Animals:**
  - Focus not only on numbers but also on the condition and treatment of trafficked animals.
- **Enforcement and Penalties:**
  - Identify and address challenges in inspecting and regulating turtle farms.
  - Implement heavier penalties and more effective deterrents, and ensure that penalties surpass profits gained from illegal activities.
- **Education and Communication:**
  - Encourage sustained and detailed communication between law enforcement, managers, and biologists to enhance collaboration.
  - Educate officers, agency leadership, and the public about the importance of turtle conservation and the threats of illegal trade.
- **Challenges and Solutions:**
  - Address issues with legal commercial collection leaving species vulnerable.
  - Mitigate concerns about disease transmission due to wild capture and release.
  - Foster buy-in and education among fisheries staff for effective turtle conservation.

HUMAN DIMENSIONS AND COMMUNICATIONS SUMMARY

Session Focus: Integrating social sciences into cross-disciplinary efforts to understand and address complex wildlife trafficking challenges.

Part 1: Conservation Social Sciences and the Human Dimensions of Illegal Wildlife Trade

Emily Neidhardt–Gutierrez and Dr. Emily Horton from the USFWS discussed the diverse range of social sciences contributing to conservation efforts, particularly in combating wildlife trafficking. They emphasized the complexity of wildlife trafficking, occurring across various social–ecological contexts and requiring interdisciplinary collaboration. A systems approach, integrating social sciences alongside other expertise, is crucial for addressing the multifaceted factors driving illegal trade. This approach has been adopted by initiatives like the Collaborative to Combat the Illegal Trade in Turtles (CCITT), notably through strategic planning and the involvement of the Human Dimensions and Communications (HDC) Working Group in 2023.

Part 2: CCITT Human Dimensions and Communications Working Group

Bridget Macdonald (USFWS) provided an overview of CCITT's HDC Working Group, highlighting how the group ensures social science expertise is at the table when developing cross-disciplinary CCITT strategies. The purpose of the CCITT HDC work group is to apply best practices from the social sciences and communications to understand how people affect and are affected by the illegal turtle trade and engage with priority audiences to reduce the illegal turtle trade. In this work, the group aspires to keep people and their wellbeing, alongside that of turtles, at the forefront of efforts. Currently, the work group is focused on implementing priority action items in support of its six goals. This includes a variety of activities, such as contributing to CCITT's cross-disciplinary strategic planning process, raising public awareness through Wild Turtle Week, and mapping the evidence base to better understand and more effectively reduce illegal turtle trade.

HUMAN DIMENSIONS AND COMMUNICATIONS CONT'D

Part 3. Turtle Trade: Human Dimensions Research

- **Zoie McMillian & Dr. Willandia Chaves** (Virginia Tech) sought to identify drivers of demand for wild turtles in the U.S. Employing a panel survey, their research examined how the perceived threat of turtle trade to wild populations and social norms around pet ownership were associated with turtle ownership. They found that those who never considered turtle ownership ranked the threat of wild trade, poaching, and over-exploitation lower than those who considered or owned turtles. Understanding these perceptions and norms can help inform interventions like demand reduction strategies.

- **Dr. Rachel Boratto** (Monitor) presented her research on compliance and noncompliance in the Canadian turtle trade. As part of her study, she interviewed turtle vendors (wholesalers, pet store owners, online sellers and breeders) on their knowledge of the trade, including on laws, smuggling, and people being caught. She found that perceptions of sanction threats varied based on one's knowledge of the illegal turtle trade; people with more knowledge of the trade perceived the certainty of being caught to be very low. She also found that some vendors were willing to turn a blind eye to illegal trade and used neutralizations to justify their actions. For example, while some vendors expressed support for conservation and animal welfare, they used neutralizations (e.g., lack of captive-bred turtles available) to justify participation in illegal supply chains.

- **Michelle Anagnostou**, a PhD student at the University of Waterloo, is researching crime convergence – looking at the intersections of illegal wildlife trade with other forms of serious and organized crime activities such as human trafficking, money laundering, and cybercrime.

- Finally, **Elle J. Xu**, a PhD student at the University of Maryland, presented on Place-Network Investigations (PNI). Xu's collaborative research explored the potential of applying PNI strategy to conservation contexts and in identifying the spatial patterns of nature crimes. Instead of focusing on offenders, PNI explores places, with an emphasis on neglected places beyond crime sites. Participatory mapping methods were employed with local village members and law enforcement in Vietnam to map out crime-associated places and other spatio-temporal data. Results highlighted how collaborative community-based research can inform wildlife crime prevention. Research on neglected spaces can help prioritize and inform choices of situational crime prevention interventions, location of such activities, and place-management solutions.

RESEARCH AND DATA SUMMARY

Session Focus: Information on what is known and not known about the illegal trade in turtles as well as information on data management, data sensitivity, and data needs.

Between 2002 and 2012, the United States legally exported approximately 127 million turtles, with around 19%, or roughly 24 million, primarily comprising *Trachemys* (sliders), *Chrysemys* (painted), and *Pseudemys* (cooters) species (Mali et al. 2014). In 2010, expenditures on turtle-related products by owners reached $765 million (Collis and Fenili 2011), while approximately three million turtles were owned in the US in 2019 (American Pet Products Survey 2020). There also is a concerning trend of selling turtles under the federal legal size of four inches (Montague et al. 2022). Overall, much of wildlife trafficking crime is likely to go unnoticed or be misreported (Wellsmith 2011, Kurland and Pires 2017), with turtle sales predominantly occurring through various online platforms, including social media and the dark web.

Key Takeaways from Session Polls:

- Around 44% of 90 respondents answered that they regularly monitor trade venues, such as pet shops, reptile expos, and/or oddity marketplaces.
- The majority of agencies do not require owners to register their pet turtle(s).
- The majority of respondents (70%) indicated they would contribute to and use a centralized database for data on locations of PIT tagged turtles, turtle genetics data by region, and state/federal turtle confiscation data.
- Many participants were uncertain if their agency has a policy or guidelines for disclosing location information on sensitive species.
- Various states and agencies employ different methods to protect location data, such as redaction or limiting data sharing. However, concerns about protecting sensitive species' locations, particularly on private land was highlighted.

Just **under 30%** of respondents noted that their agency has dedicated staff and resources to address cyber crime (social media, internet, etc.).

RESEARCH AND DATA SUMMARY CONT'D

Key Takeaways from Session Polls:

1. **Scope and Scale Needs:**
   a. Understand the extent of the problem regarding illegal turtle collection and possession, including the scale of the issue within states, tribal lands, and provinces.
   b. Improve monitoring methods for turtle populations and address challenges related to shifting baselines. This includes monitoring rare and understudied species and how legal and illegal take may impact populations.
2. **Human Dimensions Needs:**
   a. Assess international market dynamics, demand, and cultural drivers of turtle trade to inform strategies for reducing demand within the US.
   b. Investigate the effectiveness of sentencing and criminal justice strategies to deter illegal turtle trade.
3. **Data Needs:**
   a. Determine the origin of turtles, whether captive-bred or wild-caught.
   b. Investigate disease prevalence and genetics in wild turtle populations to aid repatriation and management decisions. Enhance surveillance efforts to better understand disease ecology and detect disease outbreaks.
   c. Gather data on the types of reptile-related crimes and creating searchable incident databases to track violations and aid law enforcement efforts.
   d. Compile data on herpetofaunal collection from the wild, both for personal and commercial use, within each state to inform management strategies.
   e. Gather information on tactics and leads to initiate investigations into illegal turtle trade.
   f. Assess and track the number of pet turtles owned by the public to inform regulatory decisions.
   g. Assess the practicality of creating centralized databases, implementing secure central storage with metadata standards, and ensuring data security.
   h. Create standardized data-sharing agreements.

Publicly available data on community science platforms, social media, and scientific literature may contribute to poachers locating sensitive populations. For example, while iNaturalist may obscure locations up to 22 km for observations in states where species are protected, it's still possible to triangulate these locations. An evaluation of wood turtle research between 2017 and 2021 found that the locations of 70% of study sites could be identified within an average of 7.9 minutes (G. LeClair unpublished data).

WORKSHOP CONCLUSIONS

Key takeaways underscored the urgent need for collaborative, multi-faceted approaches to address various aspects of the illegal turtle trade.

One prominent theme during the workshop was the importance of consistent regulation alignment across states and regions. Efforts to implement clear seasons, bag limits, and standardized regulations are crucial to avoid loopholes in existing laws and enhance enforcement capabilities. Moreover, the workshop emphasized the need for building capacity simultaneously with strengthening laws, ensuring that resources and capabilities align with regulatory frameworks. Finally, there is a clear need to devote additional resources to this issue.

Key Recommendations:

1. **Enhance Disease Screening and Management for Confiscated Turtles:**
   a. Implement standardized disease screening protocols and guidelines for release of confiscated turtles.
   b. Establish protocols for identifying health parameters in turtle populations.
2. **Improve Prosecution Efforts:**
   a. Provide training and resources to law enforcement on wildlife investigations, particularly involving turtles.
   b. Strengthen evidence collection methods, including permits, prior violations, circumstantial behavior, statements, emails, and payments.
   c. Enhance communication with prosecutors by providing clear information on state laws, regulations, and programmatic significance.
3. **Promote Collaboration and Information Sharing:**
   a. Foster collaboration among wildlife agencies, biologists, law enforcement, and leadership to combat wildlife trafficking.
   b. Encourage states/provinces to hold their own illegal turtle trade workshops to bring in additional stakeholders to learn and form stronger partnerships.
   c. Establish communication channels and information-sharing platforms to address challenges in monitoring and regulating online wildlife trade.
   d. Develop strategies to address wildlife trafficking across state and international borders.
4. **Address Training Gaps and Resource Constraints**
   a. Develop and implement initial training for law enforcement on handling, identification, biosecurity, and other best practices to more effectively respond to illegal turtle trade cases. Provide refresher courses.
   b. Explore funding for quarantine facilities, veterinary care, genetic databases, and repatriation efforts.

WORKSHOP CONCLUSIONS CONT'D

5. **Develop Confiscation and Repatriation Protocols:**
   a. Utilize genetic testing to aid in repatriating confiscated turtles and identifying poaching hotspots.
   b. Establish a network for confiscations and utilize resources from organizations like the CCITT.
   c. Create state confiscation plans.

6. **Strengthen Legal Frameworks and Enforcement:**
   a. Complete the 2024 State of the Union update synthesizing regulations on commercial and personal harvest of wild amphibian and reptile species.
   b. Harmonize regulatory frameworks across states and regions to prevent loopholes from weakening existing laws.
   c. Implement and encourage use of heavier penalties and deterrents for illegal wildlife trade, including turtle trafficking.

7. **Incorporate Social Sciences into Conservation Efforts:**
   a. Utilize social science research to understand motivations behind participation in illegal wildlife trade.
   b. Develop intervention strategies based on social norms around pet ownership and perceptions of wildlife trade threats.
   c. Foster cross-disciplinary collaboration to address human dimensions of conservation issues.

8. **Enhance Research and Data Management:**
   a. Prioritize research on the extent and impact of illegal turtle trade.
   b. Establish centralized databases and standardized data sharing agreements to facilitate collaboration and enforcement efforts.
   c. Develop best practices for sharing data relating to turtle population locations for the public, researchers, and agencies.

9. **Allocate Additional Resources:**
   a. Devote additional resources to collaborative efforts addressing the illegal turtle trade, including capacity building and enforcement.
   b. Explore funding opportunities for quarantine facilities, veterinary care, genetic databases, and data management initiatives.
   c. Look for long-term funding opportunities to address needs.

APPENDIX 1: AGENDA

Midwest Turtle Workshop
Enhancing Partnerships to Combat Poaching and Trafficking

9:00 am– Welcome and Introductions
- Chris Aldrich, Special Agent in Charge, US Fish and Wildlife Service Region 3

9:20 am– Collaborative Efforts to Combat the Illegal Trade in Turtles
- Michael Ravesi, Wildlife Biologist, Connecticut Department of Energy and Environmental Protection michael.ravesi@ct.gov

9:50 am– Summary of the Illegal Turtle Trade in the United States
- Dr. Scott Buchanan, Wildlife Biologist, US Fish and Wildlife Service, International Affairs scott_buchanan@fws.gov

10:20 am– Summary of the Illegal Turtle Trade in Canada
- John Miller, A/Regional Intelligence Officer, Environment and Climate Change Canada john.j.miller@ec.gc.ca

10:50 am– Break

11:00 am– Case Studies: Disease and Midwest Examples
- Ill-effects of Confiscation Events in Box Turtles (*Terrapene* sp.) and Possible Solutions to Combat Disease Events
  - Dr. Matt Allender, DVM, Director, Wildlife Epidemiology Lab, Department of Veterinary Clinical Medicine mcallend@illinois.edu
- Justus Nethero, Wildlife Investigator; Ohio Division of Wildlife justus.nethero@dnr.ohio.gov

12:00– 1:00 pm– Virtual Lunch Break

1:00 pm– Law Enforcement Case Studies
- Missouri's Law Enforcement Case Studies
  - Darin Pettit, Sergeant Detective, MO Department of Conservation darin.pettit@mdc.mo.gov
  - Jeff Briggler, Herpetologist, MO Department of Conservation jeff.briggler@mdc.mo.gov
- Federal Case Study and Turtle Trafficking Trends
  - Thomas Loring, Special Agent, US Fish and Wildlife Service thomas_loring@fws.gov

2:30 pm– Break

2:45 pm– Effectively Prosecuting Turtle Cases
- Ryan Connors, US Department of Justice ryan.connors@usdoj.gov

3:20 pm– Addressing State and Federal Confiscation Needs and Priorities
- Dr. JJ Apodaca, Executive Director, Amphibian and Reptile Conservancy jj@arcprotects.org
- Julie Slacum, Division Chief, Strategic Resource Conservation, US Fish and Wildlife Service julie_thompson-slacum@fws.gov
- Dave Collins, Director of Animal Management and North American Programs, Turtle Survival Alliance, AZA SAFE: American Turtle Program Leader dcollins@turtlesurvival.org

4:20 pm– Wrap up

APPENDIX 1: AGENDA CONT'D

Midwest Turtle Workshop
Enhancing Partnerships to Combat Poaching and Trafficking

Friday February 16, 2024

9:00 am– Welcome and Introductions

9:15 am– Legal Considerations for Turtle Conservation
- Lane Kisonak, Chief Legal Officer, Association of Fish and Wildlife Agencies lkisonak@fishwildlife.org
- Gordon Batcheller, Executive Secretary, Northeast Association of Fish and Wildlife Agencies gordon.batcheller@gmail.com
- Dr. Thomas Leuteritz, Branch Chief, Conservation Science Policy, Division of Scientific Authority, US Fish and Wildlife Service thomas_leuteritz@fws.gov
- Carolyn Caldwell, Midwest Association of Fish and Wildlife Agencies, CITES Technical Work Group Representative mafwacites@gmail.com
- Kerry Wixted, Amphibian, Reptile & Invasive Species Program Manager, Association of Fish and Wildlife Agencies kwixted@fishwildlife.org

11:30– 12:30 pm– Virtual Lunch Break

12:30 pm– Integrating Social Science Perspectives
- Integrating Social Science to Address Illegal Turtle Trade
  - Emily Neidhardt–Gutierrez, US Fish and Wildlife Service emily_neidhardt@fws.gov
  - Dr. Emily Horton, US Fish and Wildlife Service emily_horton@fws.gov
- CCITT Human Dimensions and Communications Working Group Overview
  - Bridget Macdonald, US Fish and Wildlife Service Office of Communications bridget_macdonald@fws.gov
- Research Briefs: Human Dimensions of the Illegal Wildlife Trade
  - Dr. Rachel Boratto, Monitor Conservation Research Society rae.boratto@mcrsociety.org
  - Elle J. Xu, University of Maryland ellexu@umd.edu
  - Zoie McMillian (zoiee23@vt.edu) and Dr. Willandia Chaves, Virginia Tech wchaves@vt.edu
  - Michelle Anagnostou, University of Waterloo managnostou@uwaterloo.ca

2:00 pm– Research and Data Perspectives
- Dr. Nancy Karraker, Director of Applied Conservation, Center for Applied Fire and Ecosystem Science nkarraker@newmexicoconsortium.org
- Dr. Jennifer Sevin, Director of Biological Instruction, University of Richmond jsevin@richmond.edu

3:30 pm– Wrap up and Next Steps

APPENDIX 2: REFERENCES

American Pet Products Survey (2020). Pet Industry Market Size, Trends & Ownership Statistics. https://www.americanpetproducts.org/news/News-Public-Relations/pet-industry-market-size-trends-ownership-statistics

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