



ICOET

2025

INTERNATIONAL CONFERENCE ON
ECOLOGY AND TRANSPORTATION



DENVER, CO | MAY 11-15, 2025

PROGRAM LAST UPDATED 3/37/25

PRE-CONFERENCE CONSIDERATIONS

MENTORING PROGRAM

This year we are launching the first ever Mentoring Program at ICOET. In order to facilitate networking and give students and young professionals the opportunity to get the most out of the conference, we have created a mentoring program when mentees and mentors are hand paired via their compatibility of interests, career paths, and aspirations. We are asking mentoring pairs to meet once before the conference, once during the conference, and once after the conference to ensure adequate one on one time for the conversations, connections, and advice to flow! If you are interested in being a mentor, mentee, or both, please fill out [this application](#). Applications are due Friday, April 11th, 2025.

ROAD ECOLOGY PHOTO CONTEST

Enter your best pictures/graphics to win a prize and accolades from your colleagues. The 10 best pictures submitted will be determined by a panel and prizes will be given for the top 3 determined by attendees at the Monday Welcome Reception (must be present to win). You will retain ownership of your entries, but by submitting your photo, you give us permission to use them in ICOET materials. Pictures can be funny, sad, exciting, happy, inspirational, informative or thought-provoking. Please email your entries to slemieux@ucdavis.edu with a note indicating your name, organization (if desired), and a few words describing the picture, unless its obvious. Good luck. and may the odds be ever in your favor! **All photos due by Sunday, May 4th 2025.**

FIELD TRIP & TRAINING REGISTRATIONS

Don't miss your chance to pre-register for field trips and trainings. Complete your ICOET experience by signing up to see what nature Colorado has to offer, marvel in the road ecology projects, or hone valuable skills. Field trip summaries and information can be found at www.icoet.net/2025/fieldtrips. Training explanations and details can be found at www.icoet.net/2025/trainings.



LIVE LIFE
OUTSIDE

Colorado Welcomes You to ICOET 2025



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CONFERENCE TIMES & TIME ZONES

Thanks for joining ICOET from your time zone. Because the conference includes an in-person component, all times in the program are expressed relative to local time in Denver, Colorado (Mountain Daylight Time, MDT). If you are participating virtually, you can find your time relative to MDT based on your location, using this website: <https://greenwichmeantime.com/time-gadgets/time-zone-converter/>. We have also put major time zones at the beginning of the program.

For example, Denver is -6:00 hours relative to GMT, so 9 am MDT in the program = 8 AM in California and 5 pm in Johannesburg, South Africa.



MESSAGE FROM THE CHAIR

Chris Slesar, ICOET Conference Chair
Vermont Agency of Transportation

On behalf of the ICOET Steering Committee, it is my pleasure to welcome you to the fourteenth biennial International Conference on Ecology and Transportation in beautiful Denver, Colorado. ICOET is more than a conference, it is a community of transportation and environmental planners, practitioners, and academics working at the nexus of linear infrastructure and ecology. Again, this is a hybrid conference expanding our reach far beyond the walls of the conference rooms via virtual participation. New to ICOET in 2025 are a series of training sessions on relevant topics ranging from community involvement to managing and monitoring bats in transportation projects.

We have a robust and exciting program consisting of 4 trainings, 270 presentations (Podium, Lightning, and Multi-media/Poster), from 18 countries and 35 US states. We are honored to have award-winning independent conservation journalist, author of *Crossings: How Road Ecology is Shaping the Future of Our Planet*, Ben Goldfarb as our keynote speaker.

The conference theme for 2025 is Bridging Divides Through Collaboration. Collaboration is critical to success on all scales. Collaborative partnerships overlap and interact in dynamic ways to create and maintain a healthy planet. There are collaborations that are exclusive to the work we are doing in our own jurisdictions. And there are collaborations that capture broad landscapes and multiple political jurisdictions across the globe.

The magic of ICOET is rooted in multifaceted collaborations. ICOET is fueled by the interaction of many individuals representing many diverse organizations, working at different scales, from global to local - together producing a combined effect greater than the sum of their separate parts. This interdisciplinary conference flourishes on the relationships among participants, and their relationships in the contexts in which they are working.

Colorado's magnificent landscape of arid desert, river canyons, and rugged snow-covered Rocky Mountains provides the backdrop for this meeting. It is within this setting that we will undertake a four-day dialog that will inform and inspire participants to return to their respective jurisdictions and continue to bring our work to the next level. Conference participants will be steeped in the most current research and practices as represented by the foremost minds (both newcomers' and veterans') in transportation ecology research, academics, policy, and practice.

ICOET 2025 will be highly engaging and interactive and will delve into a diversity of relevant topic areas that root transportation decision-making in science and sound policy. We enthusiastically and warmly welcome newcomers to ICOET and look forward to embracing them in the camaraderie of the ICOET community. Please take every opportunity to network with old and new colleagues, collaborators, and friends. We look forward to your active engagement in ICOET 2025.

Welcome to Denver and enjoy the conference!

MESSAGE FROM THE ORGANIZER



Fraser Shilling, PhD

Road Ecology Center Director and ICOET Lead Organizer

Every two years, ICOET brings you, a large, diverse and international crowd together to examine how transportation systems impact nature and what we can do to reduce those impacts. Your knowledge and enthusiasm are what makes ICOET successful and allowed it to persist for over two decades now. This year's conference celebrates and focuses on partnership as an important part of mitigating the impacts of transportation. Thanks to our sponsors, to the universities supporting the next generation of transportation ecologists, to the local, state and federal agencies encouraging their staff's participation, and to the private organizations and individuals providing their expertise.

One of the founding and still most common type of presentation at ICOET is "wildlife crossings", which bridge the roads that divide nature. In many ways, wildlife crossings are analogous to partnerships that bridge political divides and probably take as much time to get built. With today's political division, coming together around re-connecting nature provides a needed respite from damaging conflict. The question for nature, as it is in politics, is whether or not we will build enough bridges to save what we value in time to preserve it.

Partnership is at the core of this year's conference theme and many of the abstracts you submitted for presentation. It's also assumed to underlie successful conservation and environmental protection. However, it's often adversity and conflict that drives advancement and innovation, not collaboration. The world's environmental protection laws, civil rights legislation, the gradual recognition of indigenous peoples' sovereignty, women's right to vote, the end of slavery, and even the creation of many national forests and parks arose from different types of adversity. In a time of conflict it is worth considering what we can learn and gain from the adversity. Should we engage in evaluation of where we are in transportation ecology, find out if we are being successful; what should we really be doing, and who should we be doing it with?

This year's ICOET will be the largest in terms of abstract submissions (270), number of panels and organized sessions (19), and number of professionals and students participating. As in previous years, ICOET will be held in hybrid format (in-person and virtual), allowing greater participation by international and state partners and also limiting greenhouse gas production from travel. ICOET benefits from: a) a very active Steering Committee, which advises on overall strategies in conference content and evolution, selects awardees, and connects the conference to other organizations; b) a Program Committee that functions as a deep bench of scientific and practice experts, and c) an Abstract Review Committee, which includes many of you, providing your expert reviews of all contributed presentations. To these Committees -- I appreciate all of your efforts, individually and collectively.

The Road Ecology Center (<https://roadecology.ucdavis.edu>) is joined in organizing ICOET 2025 by the UC Davis Institute of Transportation Studies (<https://its.ucdavis.edu/>) and the National Center for Sustainable Transportation (<https://ncst.ucdavis.edu/>). The three organizations are each pioneers and among the largest in their fields and, in combination cover most issues in evolving sustainable transportation. We are excited to bring you ICOET 2025 and to make sure that ICOET is continuously and expertly managed into the future. We look forward to meeting many of you in-person and virtually and to helping you have a great ICOET experience. Look us up online, or during the conference.



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KEYNOTE SPEAKERS



Ben Goldfarb

Journalist

<https://www.bengoldfarb.com/>

Ben Goldfarb is an environmental journalist whose work has appeared in National Geographic, the Atlantic, the New Yorker, Smithsonian Magazine, Science, and many other publications. His most recent book, *Crossings: How Road Ecology Is Shaping the Future of Our Planet*, was named one of the best books of 2023 by the New York Times, and received the Rachel Carson Award for Excellence in Environmental Writing and the Banff Book Competition's Grand Prize. His previous book, *Eager: The Surprising, Secret Life of Beavers and Why They Matter*, won the PEN/E.O. Wilson Literary Science Writing Award. He lives in Colorado with his wife, Elise, and his dog, Kit — which is, of course, what you call a baby beaver.



Dan Gibbs

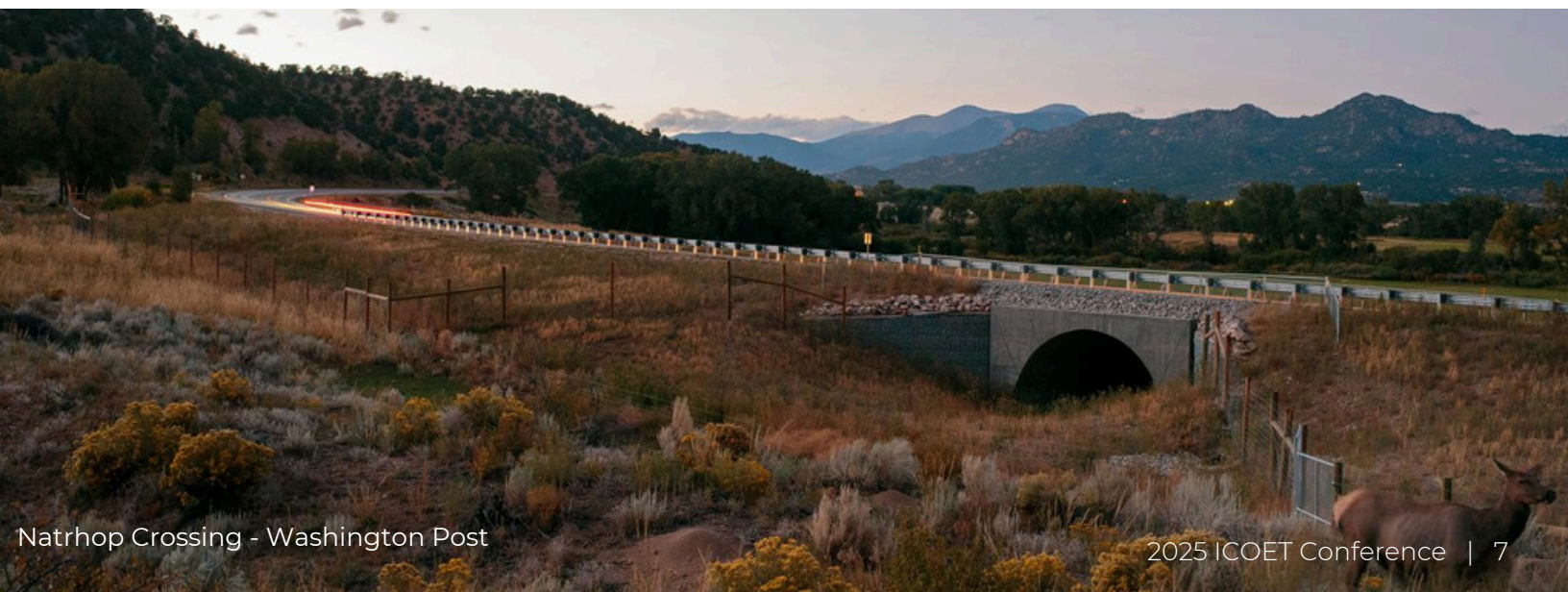
Colorado Department of Natural Resources Executive Director

As Executive Director, of the Colorado Department of Natural Resources, Dan Gibbs leads the departments development and execution of the initiatives for the balanced management of the state's natural resources. Dan works on an array of issues pertaining to all of Colorado's natural resources, including water, wildlife, state lands, oil and gas and mining.

Prior to joining the Department of Natural Resources, Dan served as a Summit County Commissioner from 2010-2018. Prior to his tenure as a Commissioner, Dan served in the Colorado House of Representatives and in the Colorado State Senate where he served on the Senate Agriculture and Natural Resources Committee.

Dan is a graduate of Western State Colorado University and completed the Harvard Kennedy School Senior Executives in State and Local Government Program. He is also a Marshall Memorial Fellow.

Dan and his family reside in Breckenridge, Colorado, where he enjoys all that living in the high country has to offer, including skiing, running, mountain biking, hunting and fishing.



SPONSORS & ORGANIZERS

THANK YOU to our generous private Sponsors for continuing to help us reduce registration fees, to our outstanding co-host agencies, and to the members of the Steering, Program, Abstract Review, and Awards Committees. ICOET 2025 is made possible through the financial and volunteer support of the many organizations listed in this program. Please take time during your participation during the conference to visit the Sponsor booths and exhibits, learn about their products and services, and to express your appreciation for their support of the conference.

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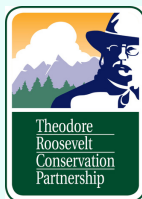


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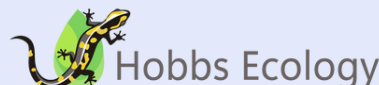
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EXHIBITORS



POOLED FUND STUDY PARTICIPANTS

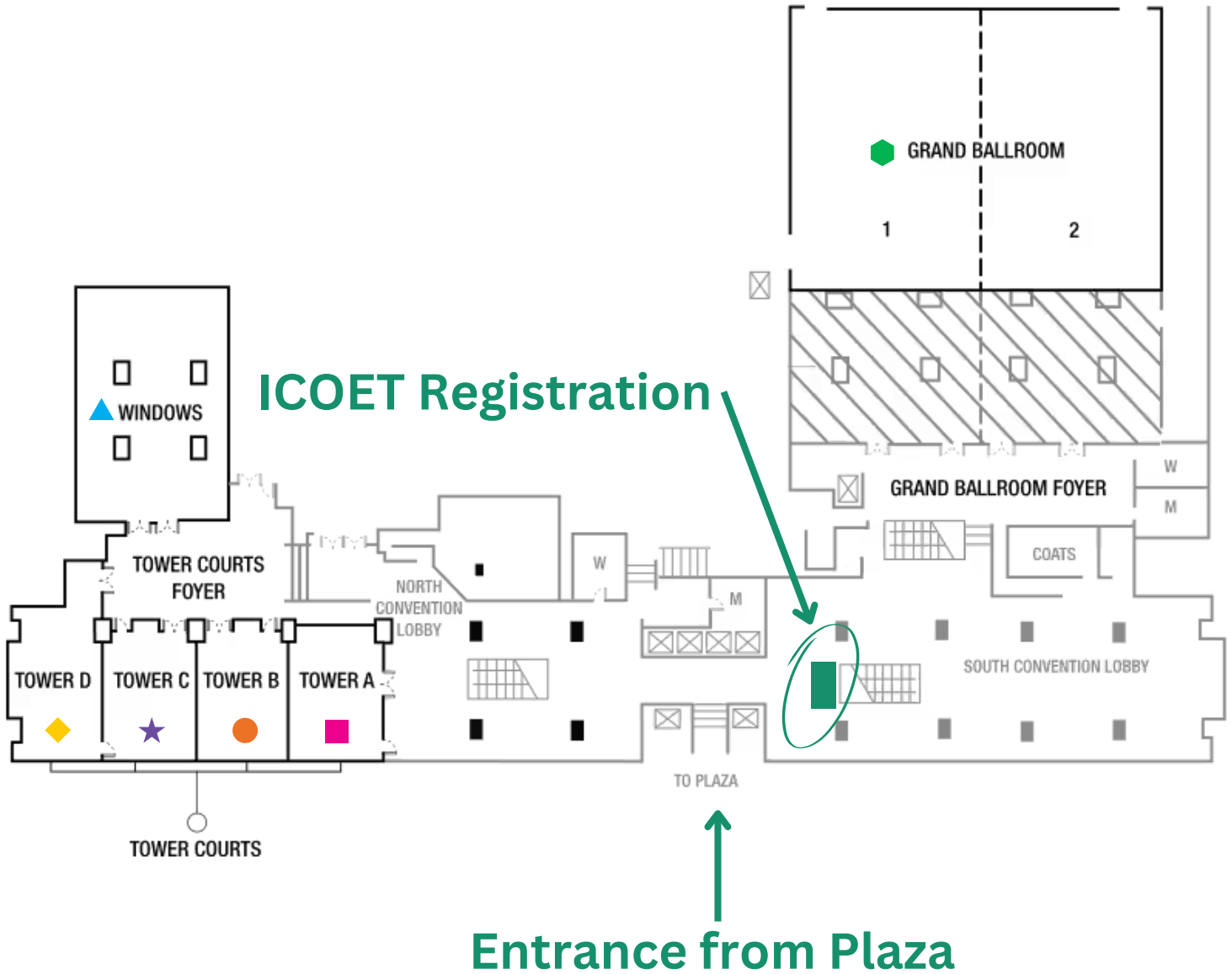
THANK YOU to these state Departments of Transportation that have donated up to \$10,000 towards ICOET 2025. They show the dedication happening across the nation for improvements to transportation ecology.



CONFERENCE ROOM MAP

- Grand Ballroom
- Tower A
- Tower B
- Tower C
- Tower D
- Windows
- Silver
- Denver

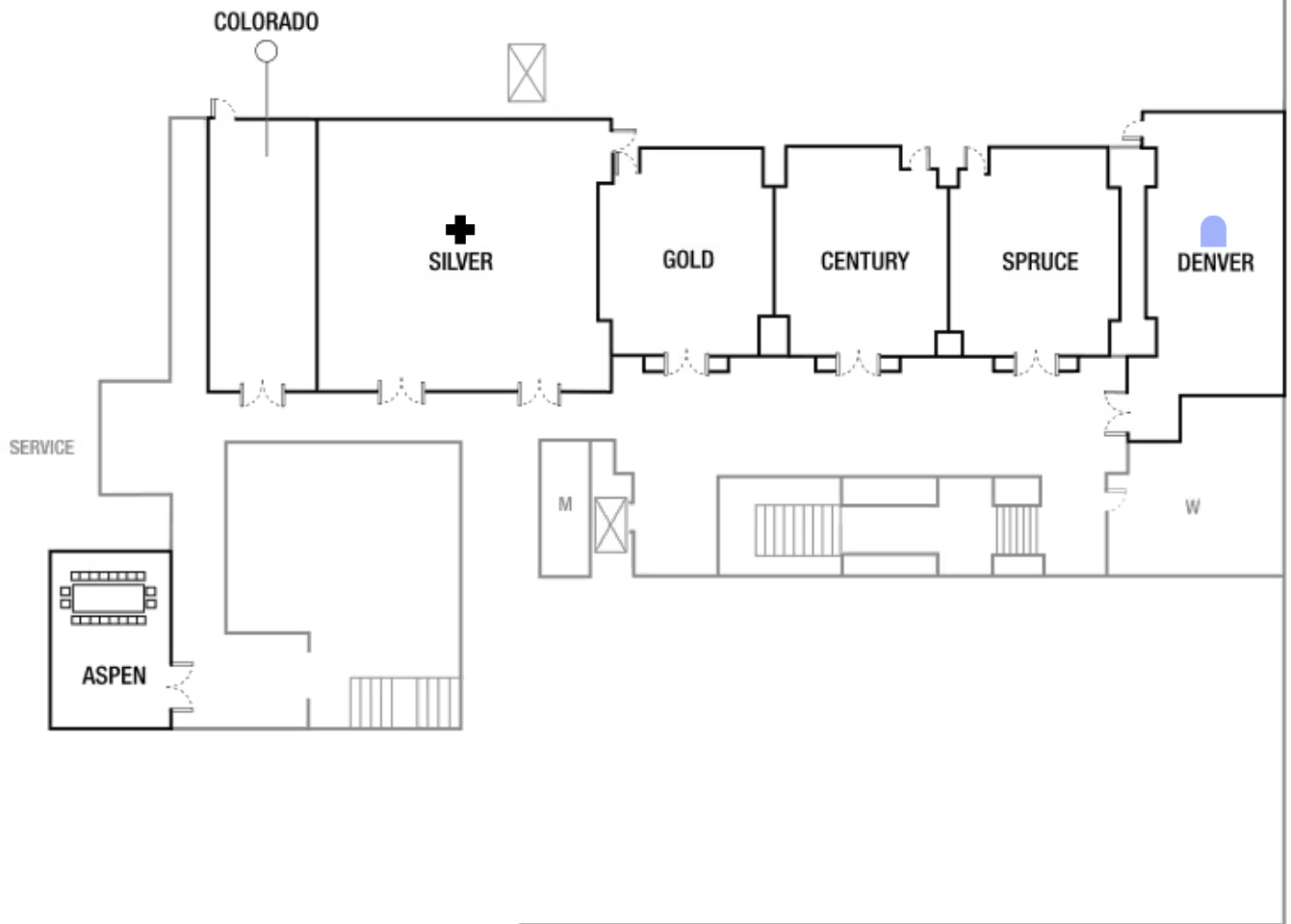
I.M PEI TOWER SECOND FLOOR LEVEL



CONFERENCE ROOM MAP

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I.M. PEI TOWER MEZZANINE LEVEL



EVENT PROGRAM

9 AM MDT = 8AM PDT; 3PM GMT; 5PM Johannesburg, South Africa; 8:30PM Mumbai, India, 1AM(next day) Sydney, Australia

Blue text denotes virtual presentation

Information on trainings can be found at www.icoet.net/2025/trainings

Grand Ballroom Tower A Tower B Tower C Tower D Windows Silver Denver

SUNDAY, MAY 11

- 12:00 PM (MDT)** ICOET Check-In Starts (South Convention Lobby)
Stop by registration to collect your materials
- 1:30 PM (MDT)** Trainings (Rooms TBD)
 - Advancing Transportation Ecology Through Agency-University Partnerships
- 2:45 PM (MDT)** Break
- 3:00 PM (MDT)** Trainings (Rooms TBD)
 - AI: What Is It and How Can You Use It?
 - Managing and Monitoring Bats at Transportation Structures



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Sydney, Australia

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 ◆ Tower D
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MONDAY, MAY 12

- 8:30 AM (MDT)** ◆ Day 1 Welcome Plenary Session
Remarks from Conference Chair and Lead Organizer
-
- 9:00 AM (MDT)** ◆ Colorado Welcomes
Welcome Addresses by CO Transportation and Natural Resources Representatives
-
- 9:30 AM (MDT)** ◆ ICOET Awards by Conference Chair and Ben Goldfarb
-
- 9:50 AM (MDT)** ◆ Plenary Keynote: Ben Goldfarb
-
- 10:30 AM (MDT)** Break & Poster Setup
10 minutes
-
- 10:40 AM (MDT)** Technical Sessions 1, 2, 3, 4, & 5 and Panel 1
- • Panel 1: Planning for Pollinators: How Voluntary Conservation Initiatives Can Address the Challenges of Pollinator Listings for Transportation Agencies
 - • Session 1: Partnerships Connecting the Florida Wildlife Corridor (80, 103, 201, 85)
 - ★ • Session 5: The Cat's Meow (73, 128, 63, 4)
 - ◆ • Session 4: Collaborative Initiatives for Leveraging Road Ecology in Latin America ([130](#), [69](#), 185, 79)
 - ▲ • Session 2: A Road Runs Through It: Improving Stream Quality & Stability (75, 5, 183, [222](#))
 - + • Session 3: Dead Serious About Preventing Roadkill (146, 19, 17, 172)
-
- 12:10 PM (MDT)** Lunch, Sponsor Meet-up, & Poster Setup
60 minutes

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Sydney, Australia

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MONDAY, MAY 12 CONTINUED

1:10 PM (MDT)

Technical Sessions 6, 7, 8, 9, & 10 and Lightning Session 1, and TRB








-  • Session 6: No Bank, No Problem: An Almost Comprehensive Review of FDOT Alternative Mitigation Strategies for Wildlife and Resiliency (77, 98, 40, 200)
-  • Session 7: Batting a Thousand ([250](#), 10, [18](#), 153)
-  • Session 10: The 3Cs: Connectivity, Collaboration, Crossings (163, 231, 154, 129)
-  • Session 9: Canopy Bridges: A Cost Effective, Under-Utilized Fragmentation Solution for Arboreal Species ([62](#), [105](#), 177, 61)
-  • Lightning Session 1 (68, 34, [197](#), 277, [198](#), 112, 8, 20, 11, 12)
-  • Session 8: Connecting the Dots ... Wildlife Fencing and Crossings (120, 41, 275, 253)
-  • TRB: NEPA Update

2:40 PM (MDT)

Break & Poster Setup
20 minutes

3:00 PM (MDT)

Technical Sessions 11, 12, 13, 14, & 15; Panel 2; and TRB

-  • Panel 2: Stitching It Together: Integrating Transportation and Land Use Policies to Support Ecological Connectivity at the Landscape Scale
-  • Session 11: Corridors, Collisions, & Conservation Funding ([30](#), 193, 123, 194)
-  • Session 15: I Think I Am Being Followed ([158](#), 243, 221, 187)
-  • Session 14: New Voices, New Solutions ([178](#), 132, 282, 217)
-  • Session 12: I Get By With a Little Herp From My Friends (38, 262, 136, 134)
-  • Session 13: Predictions Are Hard, Especially About the Future (26, 7, 25, 1)
-  • TRB: AEP Committe Business Meeting

4:30 PM (MDT)

End of Technical Sessions

6:00 PM (MDT)

Welcome Reception
120 minutes

END OF DAY 1



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TUESDAY, MAY 13

WEAR YOUR FAVORITE ANIMAL HEADBAND!

9:00 AM (MDT)

Technical Sessions 16, 17, 18, 19, & 20 and Lightning Session 2

- • Session 16: This Session is 90% Bats, and the Other Half is Birds (257, 53, 232, 215)
- • Session 17: Watershed Moments in Aquatic connectivity (269, 219, 102, 242)
- ★ • Session 18: Connecting People to Connect Habitat (124, 229, 83, 268)
- ◆ • Session 19: Planning for California's Wildlife Crossing Future (241, 248, 95, 71, 35, 72, 60, 43)
- ▲ • Lightning Session 2 (214, 272, 119, 16, 117, 70, 143, 152, 67)
- + • Session 20: Borders and Barriers (96, 87, 48, 264)

10:30 AM (MDT)

Break
20 minutes

10:50 AM (MDT)

Technical Sessions 19 (cont.), 21, 22, 23, & 24 and Lightning Session 3

- • Session 21: Lift Each Other Up: Seeing Opportunities & Sawing Barriers (205, 118, 246, 58)
- • Session 22: Nature On the Verge - What's the Buzz? (204, 160, 199, 46)
- ★ • Session 23: Can't We All Get Along...? Benefiting Wildlife Through Collaboration (142, 175, 84, 109)
- ◆ • Session 19: Planning for California's wildlife crossing future (Continued - See Order Above)
- ▲ • Lightning Session 3 (166, 225, 33, 207, 42, 65, 91, 106, 101, 140)
- + • Session 24: Digital Pathways: Enhancing Wildlife Connectivity Through Technology (23, 238, 281)

12:20 PM (MDT)

Lunch
Details to come closer to conference

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TUESDAY, MAY 13 CONTINUED

WEAR YOUR FAVORITE ANIMAL HEADBAND!

1:30 PM (MDT)

Technical Sessions 25, 26, 27, & 28, Lightning Session 4, and Panel 3








-  • Panel 3: Connecting Colorado: How Colorado Used a Statewide Prioritization Process to Implement Wildlife Mitigation Projects
-  • Session 25: A Novel, Methodological Approach to Present and Future Multi-benefit, Resilient Transportation Design in Yellowstone National Park (64, 247, 165, 99)
-  • Session 26: Building Partnerships to Build Wildlife Crossings (239, 45, 157, 104)
-  • Session 28: Global Perspectives From the Roadkill Café (2, 161, 180, [170](#))
-  • Lightning Session 4 ([92](#), [191](#), [252](#), [251](#), [82](#), [59](#), [260](#), 202, 159, [261](#))
-  • Session 27: Successes in Crossing Structures: Lessons From the I-90 Snoqualmie Pass East Project Across Taxonomic Groups and Diverse Measures (21, 22, 208, 121)

3:00 PM (MDT)

Break
20 minutes

3:20 PM (MDT)

Panel 4, 5, 6, & 7 and Trainings and Workshops

-  • Training: Promising Practices for Community Involvement in Transportation Ecology
-  • Workshop: Communicating Your Transport Ecology Story to the Community, Engineers and Your Mum: Enthralling Your Audience With a Captivating Blog and Stunning Audio-Visuals
-  • Workshop: From Policy to Practice: Tackling Barriers to Building Wildlife Crossings
-  • FHWA: Planning and Implementing Wildlife Crossings Under IIJA (Subject to Federal Staff Participation)
-  • FHWA: Introduction to the Stochastic Empirical Loading and Dilution Model
-  • Panel 4/5: Collaborative Strategies for Integrating Ecology into Transportation Projects: Insights From the Duckabush Estuary Restoration/Arach-No-phobia: Perspectives and Results From a Unique, Collaborative Study of Tarantulas in Southeast Colorado
-  • Panel 6/7: Wild Ways: Designing Connectivity/The Application of Nature-based Solutions (NBS) for Transportation Systems

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TUESDAY, MAY 13 CONTINUED

WEAR YOUR FAVORITE ANIMAL HEADBAND!

5:00 PM (MDT)

Poster Reception
120 minutes

END OF DAY 2

Wallis Annenberg Wildlife Crossing

Dream Big For The Future Of Wildlife



Building A Bridge for Biodiversity: with Science, Policy, and Design

Crossing Leadership Team: National Park Service, Santa Monica Mountains Conservancy, Rock Design Associates, Caltrans and National Wildlife Federation.

savelacougars.org

101wildlifecrossing.org



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Information on field trips can be found at www.icoet.net/2025/fieldtrips

WEDNESDAY, MAY 14

8:00 AM (MDT)

Field Trip Day Orientation

Details to come closer to conference.

8:30 AM (MDT)

Field Trip Departures (*denotes half day)

- I-25 Front Range Wildlife Crossings and Riparian Mitigation
- US 34 Big Thompson Flood Resiliency and Stream Restoration
- Rocky Mountain National Park
- I-70 Mountain Corridor: Genesee to Georgetown Wildlife Crossings
- State Highway 9 & I-70 East Vail Pass: Locally-driven Wildlife Crossings Projects
- *Rocky Mountain Arsenal National Wildlife Refuge Wildlife and Birding
- *I-70 Central Cover Park, 47th & York Pedestrian Bridge Tour and Heron Pond Open Space Carpio-Sanguinette Park

END OF DAY

3



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THURSDAY, MAY 15

9:00 AM (MDT)

Technical Sessions 29, 30, 31, & 32; Lightning Session 5; and Panel 8

- • Panel 8: Leveraging Training For a Culture of Conservation in Transportation
- • Session 31: Conversations on Conservation Collaboration (151, 240, 156, 233)
- ★ • Session 32: Wildlife Spatial Ecology and Road Systems (276, 90, 168, 107)
- ◆ • Session 30: Planning For Climate-informed Wildlife Crossings (115, 110, [56](#))
- ▲ • Lightning Session 5 (206, 39, 249, 49, 145, 162, 271, [108](#), 279, [174](#))
- + • Session 29: (Team)Work Zone Ahead – How Interagency Collaborations are Endeavoring to Improve Our Understanding of How Bats and Bat Habitat are Connected to Transportation Infrastructure (258, 116, 235, 211, 54, 78, 74, 97)

10:30 AM (MDT)

Break
20 minutes

10:50 AM (MDT)

Technical Sessions 29 (cont.), 33, 34, & 35 and Panel 9

- • Panel 9: Wildlife Connectivity Projects and Natural Resource Assessments
- ★ • Session 34: Restoration Can Be Fun-Guys (113, [173](#), 209, 213)
- ◆ • Session 33: California Dreamin': Wildlife Crossing Planning (167, [278](#), 47)
- ▲ • Session 35: Making Way For Moving Mammals (A Nod to Norris) ([245](#), 188, 274, 284)
- + • Session 29: Collaborations are Endeavoring to Improve Our Understanding of How Bats and Bat Habitat Are Connected to Transportation Infrastructure (Continued - See Order Above)



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THURSDAY, MAY 15 CONTINUED

12:20 PM (MDT)

- Plenary Wrap-Up and Introduction to ICOET 2027
Details to come closer to conference

END OF CONFERENCE

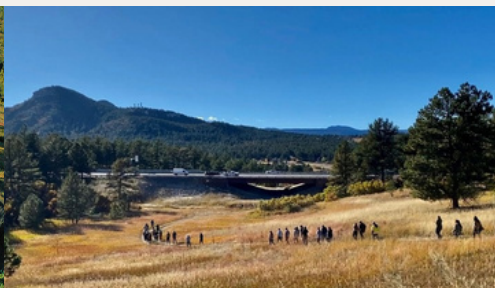


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US 160 Wildlife Overpass



I-25 Wildlife Underpass



CO 9 Wildlife Overpass

CDOT's Bridging Divides Through Collaboration

"Connecting the little pieces to to make a big difference!" - The Colorado Department of Transportation



Kristin Salamack, USFWS/CDOT
Arach-No-phobia: Perspectives and results from a unique, collaborative study of tarantulas in southeast Colorado. Join CDOT at the panel presentation to discuss the study of tarantula movements in southeast Colorado.



Mark Lawler, CDOT

CDOT's lynx in-lieu fee fund: Colorado's Department of Transportation has developed an approach that gives them the option to pool funds to mitigate impacts for Canada lynx.

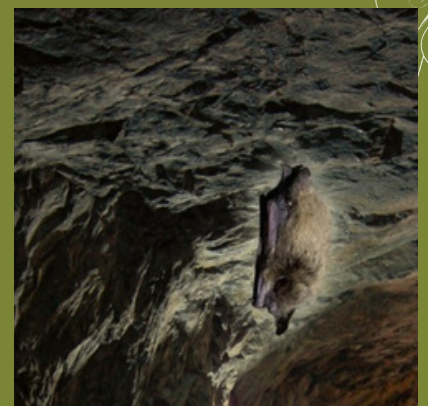


Chuck Attardo CDOT

Connecting Colorado: How Colorado Used a Statewide Prioritization Process to Implement Wildlife Mitigation Projects: I-25/Greenland Wildlife Overpass - Success Isn't Comfortable



Francesca Tordonato, CDOT
Feasibility of Composting as an Alternative Disposal Method for Wildlife Vehicle Collision-Induced Carcasses within Colorado Department of Transportation Processes.



Jason Roth & Anne Hoffman, CDOT

Understanding Bat Use of CDOT Structures: Two species of bats (tricolored and little brown) are proposed to soon be protected by the Endangered Species Act. Learn about Colorado's research to aid the challenges posed by this lack of existing data.

Explore the 2025 ICOET Program for a full list of presentation times and details.



Colorado Parks & Wildlife



COLORADO
Department of Transportation



Colorado Wildlife Transportation Alliance

DETAILED PROGRAM

9 AM MDT = 8AM PDT; 3PM GMT; 5PM Johannesburg, South Africa; 8:30PM Mumbai, India, 1AM(next day) Sydney, Australia



= Abstract Number



Blue Text Denotes Virtual Presentation



Green Symbol Denotes Student



Orange Symbol Denotes State DOT



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Windows



Silver



Denver

MONDAY, MAY 12 | 10:40AM - 12:10PM (MDT)

● Session 1: Partnerships Connecting the Florida Wildlife Corridor



80

Aligning Vision and Tactics to Salvage Florida's Wildlife Corridor (Also Part 1 of Partnerships Connecting the Florida Wildlife Corridor)

Jason Lauritsen (Florida Wildlife Corridor Foundation)



103

FDOT Pile Bridge Wildlife Crossings

Brent Setchell (Florida Department of Transportation)



201

Road to Recovery – How FDOT and USFWS Have Partnered to Recover the Endangered Florida Panther

Florida Department of Transportation



85

Corridors and Conservation Strategies in Florida – A USFWS Perspective

Mark Cantrell (US Fish and Wildlife Service)

▲ Session 2: A Road Runs Through It: Improving Stream Quality & Stability



75

Stream Design, Living in a Digital World

Nich VanBuecken (Jacobs), Ben Dupuy



5

Failure Probability Curves for Road Cut Slopes Considering the Effect of Water Erosion and Variability in the Rainfall Pattern

Manuel Contreras-Jara (Department of Construction Engineering and Management, Pontificia Universidad Católica de Chile; Research Center for Integrated Disaster Risk Management), Esteban Sáez, Alondra Chamorro Gine, Carlos Bonilla, Jorge Gironas, Tomás Echaveguren, Eduardo Arancibia-Ruiz



183

6PPD-Quinone: Responding to an Emerging Contaminant

Jana Crawford (Jacobs)



222

Use of the Palmiter Stream Management Technique to Maintain Transportation Infrastructure

Matthew Perlik (Ohio DOT)

+ Session 3: Dead Serious About Preventing Roadkill



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Confirming High Levels of Wildlife Roadkill in Baseline Surveys on US Highway 64, North Carolina, USA

Ron Sutherland (Wildlands Network), Alexandra Blunt, Ashwin Narayanan

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MONDAY, MAY 12 | 10:40AM - 12:10PM (MDT) CONTINUED



Session 3: Dead Serious About Preventing Roadkill - Continued



Median Treatment May Impact Wildlife-Vehicle Collisions on California Highways

Lorna Haworth (UC Davis Road Ecology Center), Ben Hodgson, Leo Hecht, Ash Henderson, Laura Morris, Shannon Lemieux, Michelle See, Fraser Shilling



Estimating Total Roadkill Rate for a US State

Alice Michel and Fraser Shilling (University of California Davis), David Waetjen, Chloe Schaecher



A Multi-Tiered Assessment of Wildlife-Vehicle Collision Risk to Inform Mitigation

Amy Villamagna, Ph.D. (Plymouth State University), Clara Dawson, Remington Moll, Rebecca Martin, Eric Laflamme, Hyun Joong Kim



Session 4: Collaborative Initiatives for Leveraging Road Ecology in Latin America



The LACTWG: Crossing Borders for Environmentally Sustainable Transport Infrastructure in Latin America

Fernanda Z. Teixeira (Center for Large Landscape Conservation (CLLC)), Larissa Oliveira Gonçalves, Talita Menger, Júlia Beduschi, Daniela Araya Gamboa, Esther Pomareda García, Esmeralda Arevalo Huezo, Diego Varela, Clara Grilo, Anthony Clevenger, Juan Carlos Jaramillo Fayad, Victor Colino Rabanal



Ten Years of Experience Supporting the Development of Road Ecology Public Policies in Brazil

Larissa O. Gonçalves (Universidade Federal do Rio Grande do Sul), Fernanda Z. Teixeira, Talita Menger, Júlia Beduschi, Caroline Zank, Bibiana Terra Dasoler, Andreas Kindel



Collaborative National Inventory of Wildlife Underpasses on Costa Rican Roads

Daniela Araya-Gambo (PANTHERA), Yosette Araya-Jimenez, Andrea Avila-Alfaro, Esther Pomareda García, Esmeralda Arevalo Huezo, Katia Castro del Valle, Angie Sánchez Nuñez, Karina Rodriguez Saenz, Silvio Boyat, Andrea Induni Vizcaini, Anthony Gomez Portugues, Einer Reyes Martinez, Alejandra Mendez Baez



Experience of Implementing the Wildlife Friendly Roads Toolbox for Ten Years in Costa Rica

Esther Pomareda García (Vías Amigables con la Vida Silvestre-Centro de Rescate Las Pumas), Esmeralda Arévalo Huezo, Daniela Araya Gamboa, Yocelin Ríos Montero, Rosemarie Menacho Odio, Cristina Aguilar Ruiz

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MONDAY, MAY 12 | 10:40AM - 12:10PM (MDT) CONTINUED



Session 5: The Cat's Meow



Habitat Selection and Connectivity of Mountain Lions (*Puma concolor*) Across Anthropogenic Barriers on the Olympic Peninsula: A Multi-Method Comparison

Read Barbee (Panthera)



Predicting Florida Panther Movements and Potential Road Crossing Locations within South-Central Florida (2023)

Daniel J. Smith (Center for Landscape Conservation Planning, University of Florida)



Primary Arteries are Obstacles to Mountain Lion Recolonization of Eastern North America, as Predicted by an Individual-Based Model

Mark Elbroch (Panthera), Thomas W. Glass, Richard Beausoleil, Brian N. Kertson, Benjamin T. Maletzke, Quinton Martins, Marc R. Matchett, T. Winston Vickers, Christopher C. Wilmers, Heiko U. Wittmer, Hugh Robinson



The Influence of Anthrophony on Use of Wildlife Crossing Structures Built for Ocelots in Texas

Thomas J. Yamashita (Caesar Kleberg Wildlife Research Institute, Texas A&M University), Ashley M. Tanner, Evan P. Tanner, Daniel G. Scognamillo, Michael E. Tewes, John H. Young Jr., Jason V. Lombardi



Panel 1: Planning for Pollinators: How Voluntary Conservation Initiatives Can Address the Challenges of Pollinator Listings for Transportation Agencies

Organized by Catherine O'Reilly (University of Illinois Chicago)

Panelists: Cathy Ford (Idaho Transportation Department), Catherine O'Reilly (University of Illinois Chicago), Erica Christiansen (Stantec), Christopher Smith (Minnesota DOT), Katasha Cornwell (Florida DOT)

This panel consists of representatives from the University of Illinois Chicago (UIC), Stantec, Minnesota Department of Transportation (MnDOT), Idaho Transportation Department (ITD), and Florida Department of Transportation (FDOT). The goal of this panel will be to discuss the challenges that pollinator species' listings pose to transportation agencies and how conservation agreements offer flexibility to continue operations while providing a conservation benefit to pollinators. The learning objectives for this panel include: 1) how to best prepare their agencies for potential pollinator species' listings, 2) roadside vegetation best management practices for pollinators, specific to different regions, and 3) how to integrate pollinator conservation initiatives into operations and maintenance activities for transportation agencies. Following the presentations, panelists will address questions from the moderator and audience members.

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MONDAY, MAY 12 | 1:10PM - 2:40PM (MDT)



Session 6: No Bank, No Problem: An Almost Comprehensive Review of FDOT Alternative Mitigation Strategies for Wildlife and Resiliency



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FDOT Sunshine Skyway Wave Attenuating Devices (Part of Session - No Bank, No Problem: An Almost Comprehensive Review of FDOT Alternative Mitigation Strategies for Wildlife and Resiliency)

Nicole Monies (Florida DOT)



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SR AIA Hurricane Response

Zakia Williams (US Fish and Wildlife Service Florida Ecological Services)



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A Unique Solution to Stormwater Challenges. Part of Session: No Bank, No Problem: An Almost Comprehensive Review of FDOT Alternative Mitigation Strategies for Wildlife and Resiliency.

Casey Lyon (Florida DOT)



200

No Bank, No Problem: An Almost Comprehensive Review of FDOT Alternative Mitigation Strategies for Wildlife and Resiliency - Wildlife Crossings

Jason Houck (Ardurra)



Session 7: Batting a Thousand



250

Living on the Edge of the Range: Time-Use Metrics of Non-Traditional Hibernacula on the Southern Edge of a Small Hibernator

Nathan W. Fuller (US Fish and Wildlife Service), Leah N. Crowley, Samantha Leivers, Catherine G. Haase



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eDNA Surveys for Bridge-Roosting Bats

Daniel Fisher (Rutgers University), MacKenzie Hall, Brooke Maslo, Robert Kwait, Erin McHale, Morgan Mark, Kathleen Kerwin



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To What Extent Have the Mandates of Transportation Agencies Improved Regarding the Consideration of Biodiversity? An International Comparison.

Sabrina Mruzec (Concordia University), Jochen A.G. Jaeger



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Delivering a Landscape Scale Connectivity Strategy for Threatened Species on a Coastal Motorway, Investigating Overall Success Through the Analysis of Operational Monitoring Data

Chris Thomson (Jacobs Australia), Scott Lawrence, Dr David Rohweder, Simon Wilson

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MONDAY, MAY 12 | 1:10PM - 2:40PM (MDT) CONTINUED



Session 8: Connecting the Dots ... Wildlife Fencing and Crossings



What Makes a Good Wildlife Fence? An Exploration into Implementing and Maintaining an Effective Wildlife Exclusion and Safe Passage Project

Steve Bega (Animex International), Steve Mars, Kari Gunson



Testing the Effectiveness of Wildlife Fences for Arboreal Mammals

Edgar van der Grift (Wageningen University and Research), Nina Villing, Hugh Jansman, Margreet Laar



Planning Wildlife Crossings at the State Scale Using Spatially Explicit Decision Support

Fraser Shilling (Road Ecology Center, UC Davis)



Evaluating Ecological Inputs and Engineering Design to Improve Wildlife Connectivity

Sasha Dansky (Mark Thomas & Company)



Session 9: Canopy Bridges: A Cost Effective, Under-Utilized Fragmentation Solution for Arboreal Species



A Global Review of Canopy Bridges Studies as a Tool to Mitigate Habitat Fragmentation

Fernanda Z. Teixeira (Center for Large Landscape Conservation (CLLC)), Fernanda Delborgo Abra, Tremaine Gregory, Birthe Linden, Kylie Soanes, Anna Nekarís, Inés Azofoifa Rojas, Gabriella da Costa Pereira, Farah Carrasco Rueda, Thais Queiroz Morcatti



Planning and Monitoring Canopy Bridges for an Endangered Primate in Southern Brazil: Enhancing Connectivity for Arboreal Mammals

Larissa Oliveira Gonçalves (Systematics and Ecology Lab, Federal University of Rio Grande do Sul), Júlia Beduschi, Talita Menger, Caroline Zank, Andreas Kindel



The Reconecta Project: Projeto Reconecta: Bridging the Amazon for the Conservation of Endangered Primates

Fernanda D. Abra (Smithsonian's National Zoo and Conservation Biology Institute (NZCBI)), Tremaine Gregory, Alfonso Alonso, Marcel Huijser, Marcelo Gordo



Canopy Bridge Design: Emerging Recommendations from a Growing Body of Literature

Tremaine Gregory (World Wildlife Fund, US; Smithsonian's National Zoo and Conservation Biology Institute), Fernanda Delborgo Abra, Fernanda Z. Teixeira, Birthe Linden, Kylie Soanes, Anna Nekarís, Pamela M.K. Cunneyworth, Inés Azofoifa Rojas, Gabriella da Costa Pereira, Farah Carrasco-Rueda, Gabriella de Costa Pereira, Thais Morcatty

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MONDAY, MAY 12 | 1:10PM - 2:40PM (MDT) CONTINUED

★ Session 10: The 3Cs: Connectivity, Collaboration, Crossings



Sir Francis Drake Boulevard Road Improvement Project: A Collaboration and Mitigation Success Story

Timberley Belish (Federal Highway Administration Eastern Federal Lands Highway Division), Tamara Burke



Collaborating for Connectivity: Multi-Agency Efforts to Remediate Barriers to Wildlife Movement in the Tehachapi Linkage in California

Katie Rodriguez (Caltrans), Trish Smith



The Long and Winding Road: Lessons from Project Planning and Implementation in Wyoming

Corinna Riginos (The Nature Conservancy), Jill Randall, Chris McBarnes, Hall Sawyer, Tom Hart



Turning Lemons into Lemonade: Breaking Organizational Silos to Increase Wildlife Crossing Planning in the United States National Park Service

Hanem Abouelezz (NPS Washington Support Office (WASO)), Kristy Boscheinen, Michael Mencarini

▲ Lightning Session 1



A Feasibility Study of Animal Detection and Driver Warning Systems to Mitigate Animal-Vehicle Conflicts on a Rural Highway in Southwest Virginia

Roe (S. Bell) (Virginia Tech Transportation Institute), Tarah Crowder, Andrew S. Alden



Breaking Barriers: Protecting Wildlife Through Community-Driven Barbed Wire Removal

Christie Greene (Wild Aware), Sara Barnas, Einar Jensen



Planning Wildlife Barrier Fencing and Crossings Using Mountain Lion Road Crossing Events vs. Roadkills

Rafael Barrientos (Universidad Complutense de Madrid), Guillermo Fandos, Winston Vickers, Travis Longcore, David P Waetjen, Fernando Nájera, Fraser M Shilling



Using Landscape Structure and Species Navigation Traits to Plan Road Mitigation: Insights from Individual-Based Models

Bibiana Terra Dasoler (Universidade Federal do Rio Grande do Sul), Fernanda Zimmermann Teixeira, Andreas Kindel, Fernando Ascensão, Vinicius A. G. Bastazini

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MONDAY, MAY 12 | 1:10PM - 2:40PM (MDT) CONTINUED

Lightning Session 1 Continued



Explaining Factors of Wildlife-Trains Collisions and Use of Underpasses and Overpasses Not Dedicated to Wildlife by Wild Ungulates in North-Western France – PhD Study Currently in Progress.

Tess HEYDORFF-DECAUX (SNCF Réseau and LADYSS laboratory)



Impact Analysis of an Eco-Geomorphological Design on Conventional Minor Culverts: A Study in Northern Mexico

Armando Ponce de Leon Aldaco (Departamento de Ingenieria Civil, Universidad de Monterrey), Santos Sáenz Delgado, Camilo Cañón Barriga,



Spatiotemporal Assessment of Elk Movement Across a Major Highway

Brielle Jaglowski (Cal Poly Humboldt), Micaela Szykman Gunther, Carrington Hilson



Connectivity at a Crossroads: Evaluating Urban Green Spaces and Linear Infrastructure Effects on Tiger Conservation for Bhopal city, MP, India

Anam Ahsan (University of Missouri), DP Srivastava, Dr BS Adhikari, Dr Shekhar Kolipaka



Wildlife-Friendly National Route 253. Guanacaste, Costa Rica

Esmeralda Arévalo Huezo (Universidad Latina de Costa Rica), Esther Pomareda García, Daniela Araya Gamboa



Patterns of Population Structure and Gene Flow in a Fragmented Environment: How Road Infrastructure Impacts Bobcat and Ocelot Dispersal

Jack Towson (Texas A&M University - Kingsville, CKWRI), John Young, Trevor Black, Trevor Black, Emma Brookover, Elizabeth Grunwald, Thomas Landschied, Sean Kiernan, Daniel Scognamillo, William Stephens, Hunter Vasquez, Thomas Yamashita, Michael Tewes



TRB: NEPA Update

Speakers: Fred Wagner and Ted Boling

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MONDAY, MAY 12 | 3:00PM - 4:30PM (MDT)

Session 11: Corridors, Collisions, & Conservation Funding



Hypernature for Iowa's Rail-Trail Corridors: A Typology of Enhancements for Linear Infrastructure in the Corn Belt

Sumaiya Binte Azad (Iowa State University), Austin Dunn, Katharine Shiffler



CDOT's Lynx In-Lieu Fee Fund

Mark Lawler (Colorado DOT)



Sharing Knowledge of Wildlife-Vehicle Conflict in a Planning Tool to Foster Collaboration

Will Thoman (Idaho DOT), Patricia Cramer, Julie Hausknecht



Feasibility of Composting as an Alternative Disposal Method for Wildlife Vehicle Collision-Induced Carcasses within Colorado Department of Transportation Processes

Francesca Tordonato (Colorado DOT)

Session 12: I Get By With a Little Herp From My Friends



Identifying Road Encounter Hotspots of Blanding's Turtle Using Sparse, Unsystematically Collected Data and Behavioral Modeling

Tom Langen (Clarkson University), Sean Jackson, Alexandra Burrows, Glenn Johnson



Data-Based Design – Building Diamondback Terrapin Barriers and Nesting Habitat into Road Construction

Kimberly M. Andrews (University of Georgia), Abbey C. Crossman, Chris Goodson



Multiple Turnarounds Increase the Probability that Migrating Salamanders Reach a Passage System in Stanford, CA, USA

Brittany Ewing (USGS), Cheryl Brehme, Michael Hobbs, Esther Cole Adelsheim, Robert Fisher



Effectiveness of Amphibian and Reptile Road Crossing Systems: Research, Literature Review and Meta-analysis

Cheryl Brehme (USGS Western Ecological Research Center), Robert Fisher

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MONDAY, MAY 12 | 3:00PM - 4:30PM (MDT) CONTINUED

Session 13: Predictions Are Hard, Especially About the Future



Scale Sensitivity of Two Habitat Generalists with Applications

Matthew Roos (SUNY ESF, Department of Environmental Biology), H. Brian Underwood



Predicting Wildlife Use of Existing Highway Bridges and Culverts

Noah Thoron (University of California, Davis), David P Waetjen, Fraser Shilling



Predicting Species Assemblages at Wildlife Crossing Structures Using Multivariate Regression of Principal Coordinates: Implications for Ocelots in the U.S.A.

Thomas J. Yamashita (Caesar Kleberg Wildlife Research Institute, Texas A&M University), Daniel G. Scognamillo, Kevin W. Ryer, Richard J. Kline, Michael E. Tewes, John H. Young Jr., Jason V. Lombardi



Exploring Wildlife Crossing Effectiveness on the N4 Toll Route (TRAC N4), Gauteng Province, South Africa

Thabo Innocent Hlatshwayo (Centre for Functional Biodiversity, School of Life Sciences, University of KwaZulu-Natal; Endangered Wildlife Trust), Manqoba Moses Zungu, Wendy Jane Collinson-Jonker, Colleen T Downs

Session 14: New Voices, New Solutions



Coalition of Women Assist Costa Rica to Build Wildlife-Friendly Roads

Daniela Araya Gamboa (PANTHERA), Esther Pomareda García, Esmeralda Arévalo Huezo, Andrea Ávila Alfaro, Angie Sánchez Nuñez, Karina Rodriguez Saenz, Marcela Sudasassi Vargas, Grettel Delgadillo Molina, Shirley Ramirez Carvajal, Ana Lucía Orozco Rubio, Susana Gutiérrez Acuña, Katya Barrantes Salas



It's Time for Younger Hands to Lead: YoPro, A Young Professionals Youth Workforce Development STEM Program in Brunswick, Georgia, USA

Kimberly Andrews (University of Georgia), Shawn Williams, Ray Daniels, Layla Davis, Andrew Mooring, Chayse Swinson, Athena West, Fraser Shilling



Resiliency in the Face of Adversity: A Tale of Climate Change, Infrastructure, Ecological Mitigation and Collaboration

Rick Black (SLR International)



Northeastern US Habitats and Highways Training

Alissa Fadden (The Nature Conservancy), Chris Slesar, Jens Hilke, Jed Merrow

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MONDAY, MAY 12 | 3:00PM - 4:30PM (MDT) CONTINUED

★ Session 15: Session 15: I Think I Am Being Followed



Using an Automated Radio-Tracking System as a Novel Approach to the Landscape Scale Assessment and monitoring of bats on a UK based linear infrastructure project

Chris Kerfoot (Jacobs UK) and Charlotte Wevill (Jacobs UK)



Use of GPS Collar Data to Plan and Prioritize Wildlife Crossing Projects in Wyoming: A Case Study of the Carter Mountain Pronghorn Herd

Jill Randall (Wyoming Game and Fish Department), Hall Sawyer, Sam Stephens, Corey Class



Landscape Connectivity and Spatial Ecology for an Endangered Carnivore: How Ocelots Move Near Transportation Infrastructure

Sean Kiernan (Caesar Kleberg Wildlife Research Institute, Texas A&M-Kingsville), John Young, Michael Tewes, Trevor Black, Emma Brookover, Elizabeth Grunwald, Tom Langschied, Daniel Scognamillo, William Stephens, Jack Towson, Hunter Vasquez, Thomas Yamashita



Using Tracking Data and Actionable Maps to Guide Linear Infrastructure Development for Migratory Ungulates Worldwide

Matthew Kauffman (USGS), Thomas Mueller, Janey Fugate, Melinda Boyers, Buuveibaatar Bayarbaatar, Francesca Cagnacci, Simon Chamaille-Jammes, Nandia Dejid, Elie Gurarie, Grant Hopcraft, Kyle Joly, Petra Kaczensky, Steffen Mumme, Albert Salemgareyev, Wenjing Xu, Wibke Peters, Steffen Zuther, Tim Fullman

■ Panel 2: Stitching It Together: Integrating Transportation and Land Use Policies to Support Ecological Connectivity at the Landscape Scale

Organized by Neal Sharma (Wildlife Conservation Network)

Panelists: Tiffany Yap (Center for Biological Diversity), Mari Galloway (Wildlands Network), Todd Black (Eagle Mountain City, Utah), Bettina Cameron (Eagle Mountain Nature & Wildlife Alliance), Miles Cottom (Chaffee County, Colorado), Andy Hough (Douglas County, Colorado), Kylie Paul (Center for Large Landscape Conservation)

Transportation systems are situated within a broader array of processes and decisions regarding land use, with land use and transportation decisions affecting each other and the ecosystems in which they exist. We will explore ways people have accounted for ecological/wildlife connectivity in land use policies in order to complement the effectiveness of such considerations regarding linear infrastructure. We will discuss key features of policies intended to support wildlife connectivity at the landscape scale and how those policies are working in practice.



TRB: AEP Committee Business Meeting

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TUESDAY, MAY 13 | 9:00AM - 10:30AM (MDT)

Session 16: This Session is 90% Bats, and the Other Half is Birds



What are the Critical Challenges When a Road Agency Fails to Implement Their Own Environmental Policy?

Josie Stokes (City of Gold Coast Council)



The Bat Mitigation and Monitoring Plan: A Collaborative Approach to Improving Bat Mitigation Outcomes

Jill Carpenter (LSA Associates)



Filling the Gap - Bat Exclusions on Bridges Prior to Demolition

Meghan Lind (Stantec Consulting Services Inc.), Liza Colucci, Tracy White



Prioritization Methods for APHIS Monitoring of GDOT Bridges During Migratory Bird Nesting Season

Carolyn Bryan (AECOM), Sharilyn Meyers, Ashlie Stone, Sujai Veeramachaneni

Session 17: Watershed Moments in Aquatic connectivity



This is Water: Integrating Ecological Connectivity and Conservation into Water Infrastructure Planning and Design

Shannon Crossen (Jacobs), Craig Broadhead, David Allison



Assessment and Prioritization of Road-Stream Crossings to Restore Aquatic Connectivity

Scott Jackson (University of Massachusetts Amherst), Kat Hoenke



Tait Station Dam Removal - An Innovative Approach to Ecological Lift

Joel Thrash (Stantec), Matt Perlik



A Streamlined Approach to Aquatic Species Consultation on Transportation Projects in Georgia

Matt Carroll (Georgia DOT), Morgan Niccoli, Eric Prowell, Chris Goodson, Laci Pattavina, Melissa Rottenberg

Session 18: Connecting People to Connect Habitat



Wildlife Crossings: Paving the Way to Sustainable Development - A Case Study from India

Lalit Kumar Sharma (Zoological Survey Of India, Kolkata Hq), Saurav Bhattacharjee



Colorado Wildlife Mitigation and Collaborative Context Sensitive Solutions on the I-70 Mountain Corridor as Part of the Programmatic Environmental Impacts Statement, Highlighting the Process for Vail Pass

John W. Kronholm (Colorado DOT)

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TUESDAY, MAY 13 | 9:00AM - 10:30AM (MDT) CONTINUED



Session 18: Connecting People to Connect Habitat (Continued)



Establishing Least Cost Corridors for Safe Passage of *Ursus americanus* Across Interstate 40 in the Pigeon River Gorge, North Carolina, USA.

Aurora Wynne (National Parks Conservation Association), Liesl Erb, Steve Goodman



Developing Transportation Priorities for the Washington Habitat Connectivity Action Plan

Glen Kalisz (Washington State DOT), Patty Cramer



- CIVIL ENGINEERING
- STRUCTURES ENGINEERING
- SURVEYING
- LANDSCAPE ARCHITECTURE
- CONSTRUCTION MANAGEMENT
- PLANNING & URBAN DESIGN
- GRANT FUNDING ASSISTANCE

Mark Thomas is at the forefront of developing innovative solutions to improve connectivity and safety for wildlife. As transportation design experts, we incorporate biological priorities with engineering design considerations to develop improvements that are approvable by state transportation agencies, constructible, and meet the biological needs of area species.



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TUESDAY, MAY 13 | 9:00AM - 10:30AM (MDT) CONTINUED

◆ Session 19: Planning for California's Wildlife Crossing Future



The California Wildlife Conservation Board's Wildlife Corridor Program
Don Crocker (Wildlife Conservation Board)



Building Bridges for Connectivity: CDFW's Efforts and the Impact of AB 2344
Juan Torres (CDFW)



The East Bay Wildlife Connectivity Project: How to get Pumas (and Prey) Through Three VERY BUSY California highways
Courtney Coon (Alameda County Resource Conservation District), Farley Connelly, Fraser Shilling, Brock Ortega, Sasha Dansky



Connecting People to Connect Wildlife: A Case Study from Coyote Valley, CA
Taylor Jang (Peninsula Open Space Trust), Marian Vernon

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TUESDAY, MAY 13 | 9:00AM - 10:30AM (MDT) CONTINUED

Session 20: Borders and Barriers (96, 87, 48, 264)



Unbroken from Canada to Mexico: Is Interstate 5 a Continental Barrier to Wildlife?

Laura Morris (University of California, Davis Road Ecology Center), Shannon Lemieux, Jay Chen, Madison Morgan, Cierra Kelly, Ben Hodgson, Leo Hecht, Fraser Shilling



US-Mexico Border Wall Impedes Wildlife Movement

Eamon Harrity (Sky Island Alliance), Myles Traphagen, Dr. Aaron Facka, Meagan Bethel, Emily Burns, Michael Dax



They Can't All Swim. Identifying Where to Help Wildlife Get Across 300 Miles of the California Aqueduct?

Brock Ortega (Dudek), Shelly Amrhein, Valerie Goodwin, Mike Howard, Mike Henry PhD, Anna Cassady, Alexandria Reed, Lorna Haworth, Autumn Iverson



Assessing the Impact of Linear Infrastructure-Induced Habitat Fragmentation on the Diversity, and Richness of Urban Bird Populations: A Case Study in Chattisgarh, India

ANAM AHSAN (University of Missouri)

Lightning Session 2



Relocating a Rare Crayfish: Jefferson County Crayfish

Kayti Ewing (Arkansas Department of Transportation), Maxwell Hartman, Dustin Lynch, Matt Schrum, Lindsey Lewis, Randal Looney



Collaboration for Wetland Mitigation to Benefit Aquatic Ecosystems Along Roadsides in Oklahoma

Ricky Wilson (HDR Engineering Inc.), Jared Bechtol



Road Disturbance: Impact on Groundwater Flows and Ecological Integrity of Boreal Peatlands

Ariane Bouffard (Ministry of Transport and Sustainable Mobility and University of Quebec at Montreal), Marie Larocque, Monique Poulin, Michelle Garneau, Jonathan Chabot-Grégoire, Mathieu Vaillancourt



An Investigation Into the Fracturing of Asphalt Pavement Surfaces Using Daikon Radishes

Prince Aminu (University of Delaware), Haritha Malladi, Daniel Feinberg



Reconnecting Floodplains Along the San Joaquin River, California

Jeremy Thomas (Jacobs), Debra Bishop, Michael Founds



Bill Vogrin-CPW

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TUESDAY, MAY 13 | 9:00AM - 10:30AM (MDT) CONTINUED

Lightning Session 2 (Continued)



Aquatic Organism Passage Solutions at Culverts Similar Structures
Shane Scott (Principal Biologist)



Testing Milkweed Installation Practices for Augmentation and Restoration Along Florida's Roadsides
Chase B. Kimmel (Florida Museum of Natural History, University of Florida), Jaret C. Daniels, Ivone de Bem Oliveira, Kristin Rossetti



Environmental Impacts on Pavement Rehabilitation
Rajashekar Reddy Dudipala (Osmania University)



Development and Assessment of Environmental DNA Surveying for the Federally Endangered Salamander Mussel (*Simpsonias ambigua*)
Christine Stahlman (Stantec Consulting), Nathaniel Marshall, Cody Fleece, Joel Thrash, Matt Perlik, Matthew Raymond

DETAILED PROGRAM

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TUESDAY, MAY 13 | 10:50AM - 12:20PM (MDT)

◆ Session 19: Planning for California's Wildlife Crossing Future (Continued)



State Route 152 Pacheco Pass: Working Together for the Benefit of Wildlife

Julie King (Santa Clara Valley Habitat Agency)



Building Regional Connectivity for the Santa Cruz Mountains Through Collaboration

Bryan Largay (Land Trust of Santa Cruz County), Tanya Diamond, Morgan Robertson



Gaviota Pass Wildlife Connectivity and Vehicle Collision Reduction Project: California's First Wildlife Crossings Pilot Program Grant

Morgan Robertson (Caltrans District 5), Shannon Crossen, Larissa Clarke, Alexandra Thiel, Mitch Dallas



Multi-Disciplinary Design for Habitat Connectivity in the Wildland-Urban Interface of Los Angeles County

Clark Stevens (Resource Conservation District of the Santa Monica Mountains)

■ Session 21: Lift Each Other Up: Seeing Opportunities & Sawing Barriers



Agency Partnerships and Tools for Streamlining Transportation Consultations

Laci Pattavina (US Fish and Wildlife Services), Eric Prowell, Ryan Pawlikowski, Chris Goodson



Bridging the Great Sonoran Desert Divide: Cooperative Partnerships to Protect Connectivity for Wildlife in the Tucson-Tortolita Mountain Wildlife Linkage in Tucson, Arizona

Jessica Moreno (Coalition for Sonoran Desert Protection)



Collaborative Strategies for Wildlife Connectivity: Integrating Partnerships, Planning, and Policy in Linear Infrastructure and Urban Development in Utah County

Bettina Cameron (Eagle Mountain Nature and Wildlife Alliance), Wendy Warren



Interagency Cooperation for Large-Scale Broadband Infrastructure Projects in Existing Transportation Corridors: Lessons Learned from the California Middle-Mile Broadband Network

David L. Sherer U.(S. Fish and Wildlife Service), Colleen Draguesku, Jennifer Osmondson, Tierra Groff, Jeanette Mar

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TUESDAY, MAY 13 | 10:50AM - 12:20PM (MDT) CONTINUED

● Session 22: Nature On the Verge - What's the Buzz?



To What Extent Are Rare Species Using ROW Habitats & What Can We Do for Them? GDOT's Program-Wide Rare Species Field Verification Effort & Species-Specific ROW Management Plan Development

Sujai Veeramachaneni (Georgia DOT), Carlee Steppe, Hannah Held, Laci Pattavina, James (Mincy) Moffett, Katrina Morris, Katie O'shields, Christopher Goodson



Bee-ing Social: Using Social Science to Bridge the Gap Between People, Roadsides, and Biodiversity

Laura A. Warner (University of Florida), Cody Gusto, Sravani Pasula, Jaret Daniels, Anissa Mattox, Sydney Honeycutt, Ricky Telg, Angie Lindsey



Buzzing Down the Highway: Understanding Driver Segments and their Views on Pollinator-Friendly Roadsides

Laura A. Warner (University of Florida), Sravani Pasula, Jaret Daniels



Programmatic Consultation for the American Burying Beetle for Nebraska Department of Transportation Projects

Jessica Jurzenski PhD (Felsburg Holt & Ullevig), Jeff Hartman PhD, Ben Trenne, Matt Greiner, Justin Luther, Luke Pitts, Brian Yanchik, Charlotte Kucera

★ Session 23: Can't We All Get Along...? Benefiting Wildlife Through Collaboration



Interstate Collaboration - Colorado/New Mexico I-25 Raton Pass

James Hirsch (New Mexico DOT), Gabriel Cosyleon



I-25 Highway Improvement Project Use of Process Based Restoration Techniques to Provide Wildlife Habitat Connectivity and Mitigation for Federally Threatened Species

Patrick Hickey (Jacobs Engineering Restoration Ecologist), Francesca Tordonato



Revisiting US 64 in Eastern North Carolina (ICOET 2015), A Different Approach to Implementing Wildlife Crossings in this Important Landscape

Travis Wilson (North Carolina Wildlife Resources Commission)



Advancing Ecological Connectivity, Human Safety, and Wildlife Conservation in the Gateway to Yellowstone

Liz Fairbank (Center for Large Landscape Conservation), Abigail Breuer, Marcel Huijser

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TUESDAY, MAY 13 | 10:50AM - 12:20PM (MDT) CONTINUED



Session 24: Digital Pathways: Enhancing Wildlife Connectivity Through Technology



Computer Vision Automation of Wildlife Monitoring on WSDOT's I-90 Snoqualmie Pass East Project

Vedant Srinivas (Stanford University), Fraser Shilling, Mark Norman, Josh Zylstra



Hot Take: Thermal Videography Can Play a Critical Role in Documenting Wildlife Species Demographics and Vitality in the Face of a Major Habitat Barrier in the Green Mountain State

Melinda Squillace (Hoyle, Tanner and Associates, Inc.), Brogan Morton, Glenn Gingras, Jon Olin, Hoyle, Kelly LaVigne



Technological Solutions for Reducing Wildlife-Vehicle Collisions: A Framework to Develop, Test, and Apply New Solutions

Tahlia Townsend (WSP Australia), Rodney van der Ree



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TUESDAY, MAY 13 | 10:50AM - 12:20PM (MDT) CONTINUED

▲ Lightning Session 3 (Continued)



The Road to Success is Paved with Collaboration: Insights from Norway

Svenja B. Kroeger (Norwegian Institute of Bioeconomy Research (NIBIO))



Bridging the Gap Between Ecologists and Transportation Professionals (Engineers, Planners, Operations Staff,...) Through Training

Ed Frantz



Turtles and The Railway: A Simple Solution for Rail Mortality of Turtles and other Herps

Jessie Johnson (VTrans)



Temporary Bridges for Mammals in the UK: Designs, Results, and Lessons Learned

Steve Bega (Animex International), Hattie Taylor, Ian White



Integrating Science and Real Data Into a Community-Based Conservation Effort; Managing for a Mule Deer Migration Route Through Eagle Mountain City, Utah.

Todd A. Black, B. Cameron, J.C. Seamons, S.M. Mumford



Collaborative Strategies for Corridor Conservation in Colorado

Michelle Cowardin (Colorado DOT)



Structure Surveys for Bats: Emerging Trends in Frequency of Bat Use in North Carolina Bridges & Culverts

Cheryl Knepp (North Carolina Department of Transportation)



Kentucky Transportation Cabinet - Wildlife Vehicle Collision Reduction Pilot Project

Tony Miller (Lochner), Andrew Logsdon, Calvin Andries



Wild Cats on the Roads of Costa Rica, 10 Years of Data

Esther Pomareda García (Vías Amigables con la Vida Silvestre-Centro de Rescate Las Pumas), Daniela Araya Gamboa, Esmeralda Arevalo Huevo



Wild Feline Roadkill in Costa Rica

Esther Pomareda García (Vías Amigables con la Vida Silvestre-Centro de Rescate Las Pumas), Daniela Araya Gamboa, Esmeralda Arevalo Huevo

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TUESDAY, MAY 13 | 1:30PM - 3:00PM (MDT)

Session 25: A Novel, Methodological Approach to Present and Future Multi-benefit, Resilient Transportation Design in Yellowstone National Park



Climate Change Projections for Fluvial Hazards Along the Northeast Entrance Road Corridor in Yellowstone National Park, WY.

Thomas C. Walsh, PhD, PE (Jacobs), Tyler Jantzen



Changes in Future Hydrological Regimes along the Northeast Entrance Road Corridor in Yellowstone National Park, WY

Craig Baxter (Jacobs)



Incorporating Resilient Design for Present and Future Hazards Along the Northeast Entrance Road Corridor in Yellowstone National Park, WY: Lessons Learned

Jeff Dobmeier (Jacobs)



In-Stream Ecological Drivers and Impacts of Uncertain Future Hydrological Regimes along the Northeast Entrance Road Corridor in Yellowstone National Park, WY

Karen Williams, PhD (Jacobs)

Session 26: Building Partnerships to Build Wildlife Crossings



Advancing Wildlife Connectivity Efforts in Virginia with Bipartisan Infrastructure Law Discretionary Grant Funding

Amy Golden (Virginia DOT), Bridget Donaldson



Act Locally: Integrating Wildlife Crossings and Connectivity into Municipal and County Plans and Policies in the United States: Examples, Case Studies, and Recommendations

Kylie Paul (Center for Large Landscape Conservation), Abigail Breuer, Anna Wearn



After the Crossing: Protecting Land and Incorporating a Land Back Philosophy in Order to Protect Wildlife Pathways that Lead to Crossing Structures

Brian Stewart (Conservation Northwest)



Tackling Large Challenges by Harnessing the Power of Collaboration from Science to Implementation: An Overview of How an Individual Became Multiple Coalitions Focused on Getting Wildlife Crossing Structures on I-5 in Washington State

Brian Stewart (Conservation Northwest)

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TUESDAY, MAY 13 | 1:30PM - 3:00PM (MDT) CONTINUED



Session 27: Successes in Crossing Structures: Lessons From the I-90 Snoqualmie Pass East Project Across Taxonomic Groups and Diverse Measures



Body Condition Index of Small Mammals as an Indicator of Habitat Quality of Wildlife Crossing Structures

Lindsay Millward (Oregon State University), Kristina Ernest



Small Mammal Perception of Risk on Wildlife Crossing Structures

Sarah Sanz (Central Washington University), Kris Ernest



Big Crossings for Little Animals: The Use of Large Crossing Structures by Amphibians and Reptiles to Cross I-90 in the Snoqualmie Pass Area, WA, USA

Jason T. Irwin (Central Washington University)



Medium to Large Mammal Use of Wildlife Crossing Structures in the I-90 Snoqualmie Pass East Project

Alison Scoville (Central Washington University), Mark Norman, Josh Zylstra, Glen Kalisz

Session 28: Global Perspectives From the Roadkill Café



Effects of Public Roads on Wildlife-Vehicle Collisions in Hluhluwe-iMfolozi Park and iSimangaliso Wetland Park in KwaZulu-Natal, South Africa

Cameron T. Cormac (Centre for Functional Biodiversity, School of Life Sciences, University of KwaZulu-Natal), Colleen T. Downs, Wendy Collinson, Cormac Price, Jarryd P. Streicher, Dave J. Druce



Mitigating the Roadkill of Raptors Along a Section of the N3 Highway Through the Use of Raptor Perches, South Africa

Thabo Innocent Hlatshwayo (University of KwaZulu-Natal, Endangered Wildlife Trust), Manqoba Moses Zungu, Wendy Jane Collinson-Jonker, Colleen T Downs



Roadkill-Induced Extirpation of Largest Known Population of Pacific Newts (*Taricha* spp) Requires Emergency Response

Shannon Lemieux (University of California Davis Road Ecology Center), Madison Morgan, Laura Morris, Selena Cao, Fraser Shilling



Fifteen Years of the Largest US WVC Reporting System: The California Roadkill Observation System

Dave Waetjen (UC Davis Road Ecology Center), Fraser Shilling



Chinook Landscape Architecture

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TUESDAY, MAY 13 | 1:30PM - 3:00PM (MDT) CONTINUED

Lightning Session 4



***Restoring California's Wildlife Connectivity, Regional Collaboration to a Statewide Issue**

Colton Wise (California Department of Fish And Wildlife), Juan Torres, Angela Rehse, Sarah Estrella, Sara Holm, Michael Sawaya, Skylar Feltman, Benjamin Carter



***Restoring California's Wildlife Connectivity: California Department of Fish and Wildlife's Priority Wildlife Connectivity Barriers in the Central Region**

Michael A. Sawaya (California Department of Fish and Wildlife), David G. Hacker



***Restoring California's Wildlife Connectivity, Region 5**

Skylar Feltman (California Department of Fish and Wildlife)



***Wildlife Connectivity Barriers in Southeastern California: Identifying the Problems and Finding Solutions**

Benjamin Carter (California Department of Fish and Wildlife)

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TUESDAY, MAY 13 | 1:30PM - 3:00PM (MDT) CONTINUED

Lightning Session 4 (Continued)



Challenges When Addressing Connectivity Issues with California's Diverse Habitat and Wildlife

Sara Holm (CA Department of Fish and Wildlife), Juan Torres, Angela Rehse, Sarah Estrella, Michael Sawaya, Skylar Feltman, Benjamin Carter



Restoring California's Wildlife Connectivity in Region 1

Colton Wise (California Department of Fish and Wildlife), Angela Rehse



California Barriers, San Francisco Bay-Delta Region

Sarah Estrella (California Department of Fish and Wildlife)



Balancing Preservation and Recreational Access in the Gateway Segment of Clear Creek Canyon Park

Matt Andrews (Muller Engineering Company), Scot Grossman, Moneka Worah



Assessment and Identification of Wildlife Crash Zones in the US Railroad Network

Elena Sidorova PhD (Southern Colorado Institute of Transportation Technology (SCITT), Colorado State University Pueblo), Saqib Gulzar, Md Rashad Islam PhD



UNLOCKING ROADKILL DATA: A Comprehensive Resource to Mitigate the Impacts of Transportation

Clara Grilo (CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos, InBIO Laboratório Associado, Campus de Vairão, Universidade do Porto), Tomé Neves, Jennifer Bates, Aliza le Roux, Pablo Medrano-Vizcaíno, Mattia Quaranta, Inês Silva, Kylie Soanes, Yun Wang



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TUESDAY, MAY 13 | 1:30PM - 3:00PM (MDT) CONTINUED

Panel 3: Connecting Colorado: How Colorado Used a Statewide Prioritization Process to Implement Wildlife Mitigation Projects

Organized by Melissa Bade (CDR Associates and Colorado Wildlife and Transportation Alliance Facilitator)

Panelists: Pat Basting (Jacobs Engineering), Julia Kintsch (ECO Resolutions), Aran Johnson (Southern Ute Indian Tribe), Tony Cady (Colorado DOT), Chuck Attardo (Colorado DOT)

This session, presented by the Colorado Wildlife and Transportation Alliance (Alliance), will focus on a story line highlighting how the Alliance utilized data collected from the East Slope and Plains and Western Slope Prioritization Studies and created a systematic process for narrowing down the hundreds of identified priority areas to six statewide implementation projects. This focus allows for the Alliance to harness energy and ensure that the most implementable and timely projects are at the forefront of decision-makers minds when seeking funding for design and construction. In a story of collaboration and political support, bolstered by statewide executive orders, state bipartisan legislative efforts, and federal funding opportunities, this session will highlight two key success stories of US 160 near Durango and I-25 Greenland Overpass south of Denver. As a result of the prioritization studies, the Alliance's priority project identification efforts, and dedication of local staff to apply for grant programs, Colorado's roadways will now be safer for both wildlife and humans. This is a story of how data utilization can lead to real world implementation with the right focus and effort of all parties involved. This session also provides specific insight and information into one field trip option, giving the context of how the Greenland Overpass project came to be on I-25 and how a cohort of partners made the project happen.

Panel 4: Collaborative Strategies for Integrating Ecology into Transportation Projects: Insights From the Duckabush Estuary Restoration

Organized by Grace Amundsen Barnkow (WSDOT)

Panelists: Theresa Mitchell (WDFW), Grace Amundsen Barnkow (WSDOT), Autumn de la Cruz (WSDOT), Mark Steingrebe (WSDOT)

The Duckabush Estuary Restoration project exemplifies a multi-agency partnership committed to embedding ecological principles into transportation infrastructure development. It represents a collaborative effort between the Washington Department of Transportation (WSDOT), Washington Department of Fish and Wildlife (WDFW), U.S. Army Corps of Engineers (USACE), and the Hood Canal Salmon Enhancement Group (HCSEG). Our organized session will explore the transferability of our collaboration model to other projects, through a detailed examination of the project's goals, challenges, and outcomes, highlighting valuable lessons learned in interagency collaboration at the intersection of transportation and ecology. This 90-minute symposium will begin with an introduction by the session organizer and feature four fifteen-minute presentations from experts involved in the effort, each addressing distinct yet interconnected aspects of the project. A short (3 minute) question and answer period will follow each presentation with the final 15 minutes dedicated to audience participation and discussion.

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TUESDAY, MAY 13 | 3:20PM - 4:50PM (MDT) CONTINUED



Panel 5: Arach-No-phobia: Perspectives and Results From a Unique, Collaborative Study of Tarantulas in Southeast Colorado (Follows Panel 4)

Organized by Kristin Salamack (Colorado DOT)

Panelists: Kristin Salamack (Colorado DOT), Francisco Garcia Bulle Bueno (Butterfly Pavilion), Steve Mars (Animex International)

The Colorado Department of Transportation (CDOT) has conducted many studies of wildlife crossing structures to reduce the potential for wildlife vehicle collisions and to facilitate the movement of large and medium-sized mammals (e.g., mule deer, elk, lynx). Until recently, CDOT's wildlife movement research and fencing opportunities have focused exclusively on vertebrate species. Beginning in 2023, CDOT and its partners the Butterfly Pavilion and Animex International have worked together to conduct research and investigate potential mitigation strategies for brown tarantulas (*Aphonopelma hentzi*). Each partner will provide an overview of their perspectives and interest in participating in the study, and lessons learned that could inform other unique collaborative approaches to road ecology research and mitigation strategies. The panel and audience will have an open discussion on any themes that arise from these examples with an aim towards identifying guidance for future projects.



Panel 6: Wild Ways: Designing Connectivity

Organized by Marta Brocki (ARC Solutions)

Panelists: Nina-Marie Lister (Toronto Metropolitan University), Chris Reed (Harvard University and Stoss Landscape Urbanism), Jeremy Guth (ARC), Beth Pratt (National Wildlife Federation)

This session will feature design-based research proposals that bridge connectivity and civic infrastructure developed through the Wild Ways studio -- a professional design studio developed over three years and delivered in successive iterations to students of architecture, landscape architecture, urban planning and urban design at the Harvard Graduate School of Design. Wild Ways explores themes of peri-urban, rural, regional, and continental connectivity and resilience through the lens of wildlife and landscape infrastructure projects – in this case, throughout California, but also as prototypes for new solutions more broadly. Join Professors Nina-Marie Lister and Chris Reed, co-instructors of the Wild Ways studio, alongside sponsoring organizations ARC Solutions and the Wildlife Crossing Fund for a discussion of next practices and opportunities in design for connectivity, coexistence, and resilience.

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TUESDAY, MAY 13 | 3:20PM - 4:50PM (MDT) CONTINUED

Panel 7: The Application of Nature-based Solutions (NBS) for Transportation Systems (Follows Panel 6)

Organized by Lindsay Mobley (Stantec)

Panelists: Ashley Hall (Stantec), Joe Parfitt (VDOT), Jake Riley (Stantec), Mike Dinardo (Stantec)

The panel will explore the implementation of nature-based solutions (NbS) in transportation projects, focusing on enhancing infrastructure resilience while protecting and improving the ecological value of natural resources. Experts will share insights into planning, implementation, and the benefits of NbS for meeting regulatory requirements, along with project examples, lessons learned, and initiatives to mainstream effective approaches at programmatic levels. The audience will participate by sharing their experiences and effective methods for integrating engineering and environmental goals, as well as discussing successful and unsuccessful communication strategies within their institutions and regions. Audience members will engage in a Q&A session (moderated by Lindsay Mobley) at the end of the panel, allowing for questions and discussion on applying presented strategies to their projects.

Workshop: Communicating Your Transport Ecology Story to the Community, Engineers and Your Mum: Enthralling Your Audience With a Captivating Blog and Stunning Audio-Visuals

Organized by Rodney van der Ree (University of Melbourne and WSP Australia Pty Ltd), Steve Bega (Animex International), Dishane Hewavithana (University of Miami Coral Gables)

Trainers: Dr Rodney van der Ree (University of Melbourne and WSP Australia Pty Ltd), Kieren Topp (Science in Public)

It is predicted that 25-million lane-km of new roads will be built by 2050, and 90% of this will be in non-OECD countries. Many countries and regions lack the expertise, resources and political will to implement ecologically-friendly infrastructure development. An important key step in improving the uptake of ecologically sound advice and designs is ensuring that everyone has a better understanding of the impacts and solutions. Global efforts to communicate and disseminate information must be accessible, relevant to the audience, understandable, usable, and aesthetically appealing. In this training event, we will give practical advice, instruction, hints and tips to enable you to write a blog-style summary or produce a short social-media clip of your research or project for a relevant audience. www.TransportEcology.info is a freely accessible resource for planners, designers, ecologists, engineers, funders, and the community to implement best practice.

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TUESDAY, MAY 13 | 3:20PM - 4:50PM (MDT) CONTINUED



Workshop: From Policy to Practice: Tackling Barriers to Building Wildlife Crossings

Organized by Erin Sito (Wildlands Network)

Trainers: "Logan Christian (National Caucus of Environmental Legislators), Erin Sito (Wildlands Network), Renee Callahan (ARC Solutions)

This workshop, created by Wildlands Network, ARC Solutions, and the National Caucus of Environmental Legislators (NCEL), will engage participants in exploring barriers that impede the completion of wildlife crossing projects. The workshop offers a 90-minute interactive roundtable for both in-person and virtual participants, ensuring broad participation and engagement, fostering collaboration, and inviting insights and experiences to support and inform the community of practice.



Training: Promising Practices for Community Involvement in Transportation Ecology

Organized by Kimberly Andrews, PhD (University of Georgia)

All transportation ecology problems involve the public as stakeholders in some way. Although it is usual to involve stakeholders with institutional or consulting roles in decisions, it is less usual and often seen as more challenging to equitably involve the majority of the public. This training will cover ways that work to involve the public, youth, disadvantaged and impacted communities, and others in transportation ecology research and decision-making.



Training: FHWA - Planning and Implementing Wildlife Crossings Under IJJA

Organized by Dan Buford (FHWA), Colleen Fletcher (FHWA)

(Subject to Federal Staff Participation)



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TUESDAY, MAY 13 | 3:20PM - 4:50PM (MDT) CONTINUED



Training FHWA: Introduction to the Stochastic Empirical Loading and Dilution Model

Organized by Gregory Granato (FHWA)

Trainer: Alana Spaetzel (USGS)

The U.S. Geological Survey (USGS) in cooperation with the Federal Highway Administration (FHWA) developed the Stochastic Empirical Loading and Dilution Model (SELDM) to help quantify the risk of adverse effects of runoff on receiving waters, the potential need for mitigation measures, and the potential effectiveness of such mitigation measures for reducing these risks. SELDM is the only approved FHWA stormwater model and can be used for permitting analyses, endangered species issues, calculating pollutant yields with and without stormwater control measures to help develop total maximum daily loads. Documentation, example applications and case studies are available on the SELDM website at: <https://www.usgs.gov/SELDM>. This training will be a hands-on exercise using the latest version of SELDM available to do a hypothetical case-study to become familiar with the model and it's interface.

The Pew Charitable Trusts works to conserve wildlife corridors and promote wildlife crossings throughout the United States.

Pew



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THURSDAY, MAY 15 | 9:00AM - 10:30AM (MDT)



Session 29: (Team)Work Zone Ahead – How Interagency Collaborations are Endeavoring to Improve Our Understanding of How Bats and Bat Habitat are Connected to Transportation Infrastructure



An Association of Fish And Wildlife Agencies Resolution for B.A.T.S. (Bats and Transportation Structures) Promoting Cooperation With State Transportation Agencies

Trina Morris (Georgia Department of Natural Resources), Leanne Burns



Georgia's Bat Programmatic Agreement & Lessons Learned Through Collaboration and Implementation

Ryan Pawlikowski (Georgia DOT), Morgan Niccoli



A Range-Wide Approach to Bat Consultation for Routine Transportation Projects

Sumalee Hoskin (U.S. Fish and Wildlife Service), Catherine Liller, Karen Hallberg, Robin McWilliams, Dan Buford, Charlotte Kucera, Brian Yanchik



Leveraging Data from Transportation Structure Surveys: How NABat is Supporting Collaborative Assessment and Monitoring of Transportation Structures

Andrea Schuhmann (U.S. Geological Survey, Fort Collins Science Center, North American Bat Monitoring Program), Bethany Straw, Brian Reichert



Session 30: Planning For Climate-informed Wildlife Crossings



The Missing Link in State Wildlife Crossing Prioritization Processes

Nicholas Callero (The Pew Charitable Trusts), Nathan Jones, Justin Suraci, Julia Kintsch



Prioritizing Wildlife Crossing Locations Across Nevada's State Highway System

Nathan Jones (HDR), Julia Kintsch, Nova Simpson, Tanya Diamond, Mark Traxler, Juan Garcia



Modeling Climate-Driven Changes in Wildlife Movement to Inform Crossing Structure Locations that Support Connectivity Now and in the Future

Justin P. Suraci (Conservation Science Partners, Inc.), Caitlin E. Littlefield, Patrick T. Freeman, L. Mae Lacey, Julia Kintsch, Matthew Skroch, Nova Simpson, Nicholas Callero, Nathan Jones, Mark Traxler

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THURSDAY, MAY 15 | 9:00AM - 10:30AM (MDT) CONTINUED

● Session 31: Conversations on Conservation Collaboration



Methods to Assess Ecological Lift Associated with Wildlife Connectivity Actions

Sadie McGarvey (Integral Consulting Inc.)



Navigating the Environmental Challenges during Design and Construction of the Vulture Mountains Recreation Area

Marinela Papa (Maricopa County Department of Transportation), Sabra McNeish



A New & Substantial Project Acceleration Method at No Additional Cost – Strategic use of Planning and Environmental Linkages (PEL) by State DOTs and MPOs

Ted Devens (Stantec Consulting, Inc.), Theresa Maahs



Conserving Land, Conserving Miles: Conservation's Role in Reducing Vehicle Miles Traveled

Liz O'Donoghue (The Nature Conservancy), Mary Rose Fissinger

★ Session 32: Wildlife Spatial Ecology and Road Systems



The Utility and Limitations of Mark Recapture Models in Evaluating Crossing Structure Use

Ross Hinderer (University of Montana), Hannah Specht, Joshua J. Millspaugh, Thomas Hart, Scott Gamo



The Multi-Scale Complexities of Wildlife Movement: Workflows for Siting Crossing Structures Using GPS Collars and Related Data

Christina M. Aiello (Oregon State University Department of Fisheries, Wildlife, and Conservation Sciences), Janene Colby, Paige R. Prentice, Nathan Galloway, Sahar Sadegh Malak, Clinton W. Epps, Fraser M. Shilling



Use of Road Underpasses by Timber Rattlesnake (*Crotalus horridus*) and Other Species of Conservation Concern Point Towards an Effective Design for Further Implementation in Southern Appalachia

Liz Hillard (Wildlands Network), John Sealy, Sarah McMullen, Kevin Bischof



Developing a Caltrans-Approved Wildlife Fencing Attachment for Guardrail Systems to Reduce Road Mortality and Provide Habitat Connectivity for Reptiles, Amphibians, and Small Mammals

Steve Béga (Animex International), Alexandra Thiel

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TUESDAY, MAY 13 | 1:30PM - 3:00PM (MDT) CONTINUED

▲ Lightning Session 5



Multi-Species Occupancy and Connectivity Modeling for Road Route Planning and Mitigation Guidance in Southern Brazil

Talita Menger (Road and Railway Ecology Group (NERF), Federal University of Rio Grande do Sul, Precisa Environmental Consulting), Andreas Kindel, Bibiana Terra Dasoler, Fernanda Z. Teixeira, Júlia Beduschi, Larissa Oliveira Gonçalves, Vinicius Bastazini



Interagency Collaboration for Wildlife Connectivity in the Northern Appalachians: An Assessment of Current Transportation Planning Actions and Future Opportunities

Alissa Fadden (The Nature Conservancy), Renee Callahan, Marta Brocki



Wildlife-Friendly Trails: Shared Challenges and Potential Opportunities to Adaptively Apply Wildlife-Vehicle Conflict Solutions to Reduce Wildlife-Recreation Conflict

Renee Callahan (ARC Solutions), Marta Brocki, Darin Martens



Identifying the Best Technology for Detecting Wildlife on Roads and How this Could Help You

Steve Bega (Animex International), Gert Hamberg



Strategies for Reducing Project-Level Environmental Impacts: Understanding Different Viewpoints on What is Most Important and Feasible

Margaret Minzner (Ohio, Kentucky, Indiana Regional Council of Governments)



State of the Art Thermal Camera and Radar Technology Based Wildlife Detection and Motorist Warning Systems for Preventing Wildlife Vehicle Collisions on Unfenced Roadways

Tim Hazlehurst (CrossTek)



Waterbury IM CULV(109) Wildlife Crossing Structure-Vermont's Landscape Level Connectivity Project Funded by IIJA WCPP

Jessie Johnson (VTrans)

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TUESDAY, MAY 13 | 1:30PM - 3:00PM (MDT) CONTINUED

▲ Lightning Session 5 (Continued)



Evaluation of Environmental Measures for the Protection of Wildlife in Costa Rica's Road Network

Daniela Araya-Gamboa (PANTHERA), Susana Gutiérrez Acuña, Fernanda Zimmermann Teixeira, Roberto Salom Pérez, Esther Pomareda García, Yosette Araya Jiménez, Erick Viquez Alvarado, Esmeralda Arévalo Huezo, Silvio Boyat, Jaime Quirós Calderón, Deiver Espinoza Muñoz, Manfred Herrera Díaz, Andrés Zúñiga Garita, Manuel Mairena Jiménez, Katherine Ulate Gómez, Mónica Chavez Ramos, Joseph Lacayo Castrillo, Katherine Chacón, Abigail Corao Retana, Jesús Vado Góngora, Esperanza Gonzalez Mahecha and Priscila Picado Valenzuela



Wildlife-Detection Driver Warning Systems' Performance Under Two Different Sets of Conditions

Patricia Cramer (Wildlife Connectivity Institute), Robert Hamlin,



Site and Species-Specific Habitat Features Installed at Crossing Structures Increase their Effectiveness at Providing Safe Passage

Kami Koyamatsu (WSDOT), Glen Kalisz

■ Panel 8: Leveraging Training For a Culture of Conservation in Transportation

Organized by Chris Goodson (Georgia DOT)

Panelists: Chris Goodson (Georgia DOT), Chris Slesar (Vermont Agency of Transportation), Marni Levett (Arcadis)

Successful collaboration between ecologists, engineers, consultants, contractors, and internal teams is essential for achieving environmental compliance and ensuring infrastructure and conservation goals are met. This panel will explore how to effectively communicate job requirements across various disciplines and develop training programs and tools that ensure all stakeholders are aligned and working efficiently together. This session will feature an existing overview of existing training opportunities, a high-level overview of building effective training programs that ensure clarity and understanding across roles, and two case studies showcasing how training programs are designed, implemented, and tailored to meet the needs of different audiences. The session will conclude with a 45-minute moderated panel discussion and interactive Q&A session.

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THURSDAY, MAY 15 | 10:50AM - 12:20PM (MDT)



Session 29: (Team)Work Zone Ahead – How Interagency Collaborations are Endeavoring to Improve Our Understanding of How Bats and Bat Habitat are Connected to Transportation Infrastructure (Continued)



Under the Spans: Investigating Bridge Use by Bats in Wyoming

Riley Bernard (Department of Zoology & Physiology, University of Wyoming), Logan Detweiler, Riley Fehr Bernard, Logan William Detweiler, Joshua Franklin Layfield



Understanding Bat Use of CDOT Structures

Jason Roth (Colorado DOT), Anne Hoffman, Grey Buttner, Vanessa Santistevan, Dalton Kidder, Kristin Salamack, Sara BarnasT, Conner Denton, Erik Schmude, Summer Slama, Jeff Peterson



Detection of Listed Bat Species Under Bridges Through the Use of Fecal DNA

Faith M. Walker (Species from Feces Lab, Northern Arizona University), Cory Olson, Susan Dulc, Heather Gates, Cori L. Lausen, Erin Low, Daniel E. Sanchez



Predicting Bat Roosts in Bridges using Bayesian Additive Regression Trees

Amy Wray (Fort Collins Science Center, USGS), Jacob Oram, Helen Davis, Luz de Wit, Winifred Frick, Andrew Hoegh, Kathryn Irvine, Patrick Pollock, Andrea Schuhmann, Frank Tousley, Brian Reichert



Session 33: California Dreamin': Wildlife Crossing Planning



A Novel Population Viability Analysis to Evaluate Road Mitigation Designs

Philip Gould (USGS Western Ecological Research Center), Cheryl Brehme, Merav Vonshak, Robert Fisher



Wildlife Crossing Planning Tool / CROS Plan

Dave Waetjen (Road Ecology Center, UC Davis), Fraser Shilling



Statewide Modeling of Traffic Illumination of Surrounding Habitat

Ben Hodgson (UC Davis Road Ecology Center), David Waetjen, Fraser Shilling

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THURSDAY, MAY 15 | 10:50AM - 12:20PM (MDT) CONTINUED

★ Session 34: Restoration Can Be Fun-Guys



Exploring Nature Based Solutions for Resilience at Virginia DOT

Anna Salzberg (VDOT), Tessa Artruc (ICF), Maria Mutuc, Chris Berg



Strategies for Valuing and Restoring Ecosystem Services of Roadside Vegetation Following Large-Scale Clearing

Dr. Ellen Oettinger White (State University of New York College of Environmental Science and Forestry), Dr. Marcia S. Meixler



Studies of Fungal Communities in Pre and Post Restoration of the I-90 Snoqualmie Pass East Project Wildlife Overcrossing

Helen Lau (US Forest Service Okanogan Wenatchee National Forest), Dr. Jim JohnsonThomas Luehl, Dana Whitmore



There and Back Again; A Restoration Journey

Kelly Evans (USFS)

▲ Session 35: Making Way For Moving Mammals (A Nod to Norris) (245, 188, 274, 284)



Finding Evidence of a 70 Years Old Road Effect on Wildlife at a Complex of Protected Areas, Costa Rica

Daniela Araya-Gamboa (PANTHERA), Roberto Salom Pérez, Yosette Araya Jiménez, Deiver Espinoza-Muñoz, Erika Faubion, Jeremy Quirós-Navarro, Eladio Salazar, Jeffrey Flores Rojas, Kendall Calderón Navarro



Whitetail Whispers; North Idaho Wildlife Crossing Study

Daniel Baker (HDR), Mark Traxler



Minimizing Railway Construction Impacts to Asian Elephants and Other Wildlife with a Comprehensive Mitigation Strategy in Bangladesh: From Planning to Post-Construction Effectiveness Monitoring

Norris L. Dodd (Consultant to Asian Development Bank), Asif Imran, Karma Yangzon



Utah's Migration Initiative and Inter-Agency Partnership Implications

Makeda Hanson (Utah Division of Wildlife Resources), Matt Howard

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THURSDAY, MAY 15 | 10:50AM - 12:20PM (MDT) CONTINUED

Panel 9: Wildlife Connectivity Projects and Natural Resource Assessments

Organized by Paula Gill (Integral Consulting Inc.)

Panelists: Julie Andersen (Midpeninsula Regional Open Space District), Patrick Huber, Ph.D. (University of California, Davis), Sadie McGarvey (Integral Consulting Inc.), Will Cooper (Integral Consulting Inc.), Lindsay Vivian (Caltrans)

Our aim is to convene a panel to explore the increasingly critical and complex landscape of wildlife connectivity projects, particularly in light of California's recent Senate Bill 790 (SB 790) and the California Department of Fish and Wildlife's (CDFW) Wildlife Connectivity Advanced Mitigation Guidelines. These new regulations emphasize the need to prioritize wildlife crossing projects that contribute to species recovery goals, but their implementation requires careful navigation through various regulatory, ecological, and economic considerations. Given the complexity, cost, and oversight involved, it is essential to explore how these projects can be incentivized and streamlined to ensure their successful delivery while maximizing their ecological benefits.



The panel will focus on several key elements essential to evaluating wildlife crossings, such as ecological lift, target species scoring, habitat value, and the broader economic and societal impacts of these projects. We will also delve into the concept of connectivity action credits. To ground the discussion in real-world application, the panel will present a case study of a wildlife crossing project.

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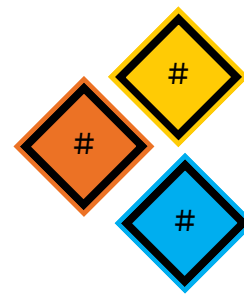


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Methodology for Evaluating Mitigation Methods to Improve the Resilience of Road Cut Slopes

Eduardo Arancibia-Ruiz (Pontificia Universidad Católica de Chile), Alondra Chamorro, Manuel Contreras-Jara, Tomás Echaveguren



Herpetofauna as a Model for Studying the Underestimation of Mortality in Small Vertebrates

Tatiane de Mello do Carmo (State University of Rio de Janeiro), Camila S. Barros, Mariana M. Vale, Marcus Vinicius Vieira



Western Toads Use Undercrossing Structures on Interstate 90's Snoqualmie Pass, Washington State, USA

Marianne Hall (Central Washington University), Dr. Jason T. Irwin



Project Deer: A Low-Cost, Onboard Audiovisual Animal Detection and Driver Alert System to Mitigate WVCs

Siddhi Singh (STEM School Highlands Ranch)



Evaluating Wildlife Responses to Highway Infrastructure: A Framework for Reducing Wildlife-Vehicle Collisions

Mahesh Sharma (Colorado State University), Saqib Gulzar, Elena Sidorova, Trung Duong, Md Rashad Islam



Predicting Roadkill: A Regional-Scale Model for the Northern Tamandua Integrating Environmental and Road Characteristics

Silvio Boyat (Universidad Latina de Costa Rica), Esmeralda Arévalo-Huezo



Recent Wildlife Overpass Innovations

Stuart Murphy (Atlantic Industries Limited), Jason Ford, Kevin Williams, Meckkey El Sharnouby, Phil Carroll



Barbed Wire: An Invisible Barrier to Wildlife Movement

Christie Greene (Wild Aware)



Designing and Implementing an Alternative Approach to Researching Wildlife Crossings and Highway Wildlife-Vehicle Collisions Through a Community-Based Lens

Christie Greene (Wild Aware), Micheal Horwith

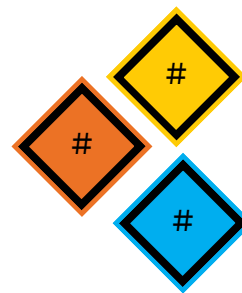


Ecosystem Impacts of Water Management Infrastructure: Challenges and Future Directions

Dr. Sofia Prado-Irwin (Center for Biological Diversity), Aruna Prabhala

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Patterns of Domestic Animal-Vehicle Collisions on Tribal Lands in Montana

Matthew Bell (Western Transportation Institute), Marcel Huijser



Bats, Bridges, and BMPs

Glen Mejia (WSDOT), Kami Koyamatsu, Michael MacDonald, Mike Junor, Abby Tobin



Sustainable Bridges

Venkatachalam Karthik (Jacobs), Anuja Baheerathan



Updated Wildlife Connectivity Efforts in Caltrans District 7 (Los Angeles and Ventura Counties)

Francis Appiah (Caltrans), Celina Oliveri



Let's Get to Work - Electric Vehicle Adoption Leadership

Brittney Breen (Forth)



Taking Advantage of Federal Discretionary Grants to Fund Wildlife Projects

Sarah Rigard (HDR), Kaitlin Marousis



Automated Workflow and Dashboard Solutions for Managing Consultant Document Reviews for Georgia Department of Transportation

Christina Schmidt (AtkinsRéalis), Dibya Maheswari, Doug Chamblin, Ryan Pawlikowski, Chris Goodson, Morgan Niccoli



Linear Infrastructure In And Around The Nairobi National Park: Reducing Wildlife Deaths

Elisha Akech Ochungo (Multimedia University)



Implementation of Road Access for a Traditional Community within the Atlantic Rainforest in a State Park in São Paulo, Brazil

Rita Monteiro Falcao (Companhia Ambiental do Estado de Sao Paulo), Ana Luisa Tondin Mengardo, Eduardo Jun Shinohara, Juliana Moreno Pina, Ticiana Risten Viana, Camilo Fragoso Giorgi

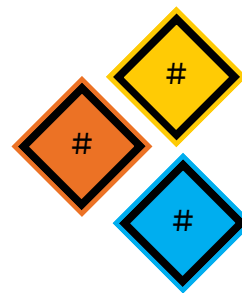


Total Ocelot Inventory and Genetic Monitoring to Inform Ocelot-Transportation Ecology and Conservation Decision-making

Emma Brookover (Texas A&M University), Trevor Black, Spencer Ferguson, Elizabeth Grunwald, Tom Langschied, Peter Marbach, Alynn Martin, Daniel Scognamillo, William Stephens, Hunter Vasquez, Thomas Yamashita, John Young, Jr., Michael Tewes

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ICOET 2001 to ICOET 2025: Perspectives from Over Three Decades Working in Transportation and Ecology

Ed Frantz (T.Y. Lin International)



Economic Sustainability in Maintaining the Low Volume Rural Roads

Dr. S Shankar (National Institute of Technology Warangal)



Road to P.E.L. and Beyond: Getting Transportation Infrastructure Right

Kovid Saxena (T.Y. Lin International), Ed Frantz



Navigating Coastal Challenges: Using the Federal 12-Component Planning Process to Improve Coastal Resiliency and Create Seagrass Mitigation Near Tampa Bay, FL.

Ben Shepherd (AtkinsRealis), Nicole Monies, Brent Setchell



Using Existing Infrastructure to Improve Wildlife Connectivity

Steve Bega (Animex International), Ed Parr Farris



Frogger in the Wild: Real-Life Oregon Undercrossing Attempts a High Score

Rachel Wheat (Oregon Department of Fish and Wildlife)



Evaluating Reduction in Monarch Butterfly Roadkill using TxDOT Monarch Flight Diverters (MFDs)

Robert N Coulson (Texas A&M University), James L. Tracy, Carl Bierman, Darlene Goehl, Andrew Birt



Review of Scientific Field Studies using HALT Technology to Monitoring Small Fauna at the Interface of Transportation Infrastructure and Ecosystems: Advancing Techniques in Transportation Ecology

Michael Hobbs (Hobbs Ecology)

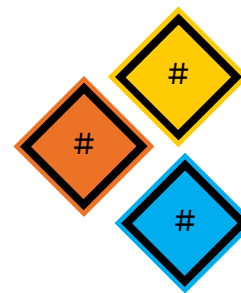


Collaborative Strategies for Integrating Ecology into Transportation Projects: Insights from the Duckabush Estuary Restoration

Grace Amundsen Barnkow (WSDOT), Theresa Mitchell, Mark Steingrebe, Autumn de la Cruz

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Partnering to Enhance Wildlife Movements Across Northern Arizona

Jeffrey W Gagnon (Arizona Game and Fish Department), Chad D Loberger, Scott C Sprague, Colin A Beach, Brianna Russo, Bill Davenport III, Keith Knutson



Grey 2 Green: Opening a “Habitat Highway” by Transforming Existing Bridges to Improve Wildlife Connectivity

Steve Bega (Animex International), Carlyne Hayes, Scott Munro



Grizzly Bear Road Crossings Along US Highway 93, Flathead Indian Reservation, Montana, USA

Payton Adams (Confederated Salish and Kootenai Tribes), Marcel Huijser, Samantha Getty



Utilization of a Noise Attenuation Calibration Model for Concrete Pile Driving in Florida

Raphael Crowley (University of North Florida), Ryan Shamet, Moses Bosco, Consolatha Mushi, Mariam Makoleo, Emily Sapp, James Gelsleichter



Control Measures for Non-Exhaust Particulate Matter (PM) Emissions

Dragomir Bogdanic (California Department of Transportation)



Port Graham Fish Passage Program: An Example of Collaboration, Communication, Critical Thinking, and Creativity to Succeed in Remote Alaska

Irene Turletes (HDR), Marguerite Tibbles, Bruce Buzby



Wildlife Movement, Crossing Point Use, and Mortality Along a Critical Stretch of the 118 Freeway Near Los Angeles

Celina Oliveri (Caltrans) Joanne Moriarty, Seth P. D. Riley



Six Years of Collaborative Monitoring on a South Texas Roadway: What Have We Learned?

Richard J. Kline (University of Texas Rio Grande Valley), Kevin W. Ryer, John H. Young Jr.

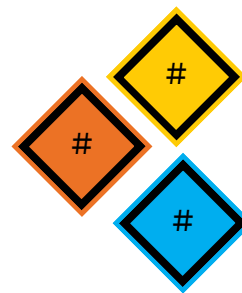


Sustainable Maintenance Analysis of Low Volume Rural Roads Using Multi-Criteria Decision-Making

Raji Reddy Myakala (National Institution of Technology), Shankar Sabavath

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Leveraging Digitalization to Build Sustainable Bridges

Venkatachalam Karthik (Jacobs), Medha Bansal



Accomplishments From the Asia's Linear Infrastructure safeGuarding Nature (ALIGN) Project

Tremaine Gregory (World Wildlife Fund, US), Sandesh Hamal, Padam Chand, Shova Chhetri, Ekraj Sigdel, Divya Karki, Semina Kafle, Swarnima Shrestha, Elina Shahi, Dipankar Ghose, Pramod Neupane, Ridhima Solanki, Chimeddorj Buyanaa, Gantulga Bayandonoi Selenge Gantumur, Oyun-Erdnen Baarardash, Rob Ament, Megan Parker, Fernanda Z. Teixeira, Melissa Butynski, Christine Weinheimer, Kate Newman, Daniel Hornett, Priscilla Yu, Sergiu Jiduc, Victoria Markovitz, Nilanga Jayasinghe, Shail Joshi, Evan Freund, Mary Melnyk, Vignon Houenou



Transforming Challenges Into Solutions: Innovative Mitigation Strategies in the Caltrans Saratoga Creek Bridge Replacement Project

Samuel Aguilar (California Department of Transportation), Mita Nagarkar, Lindsay Vivian



Rare Species Monitoring & a Changing Future for ROW Vegetation Management

Sujai Veeramachaneni (Georgia Department of Transportation), Carlee Steppe, Hannah Held, Laci Pattavina, James (Mincy) Moffett, Katrina Morris, Katie O' Shields, Christopher Goodson



Advancing Rail Infrastructure Resilience Through Integrated Climate Modeling and Vulnerability Mapping

Mequela Moreno (DOT Federal Railroad Administration), Michael Johnson



North Carolina's Next Chapter in Wildlife Passage Partnership

Marissa Rodman Cox (NCDOT), Travis Wilson, John Jamison



Lessons learned - NCDOT's Use of Innovative Technologies Through Conservation Measures

Cheryl Knepp (North Carolina Department of Transportation),

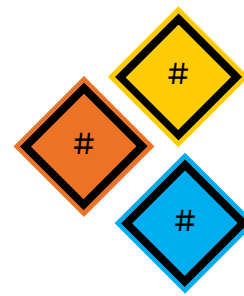


Review of Legal Policy Framework and Capacity Assessment Related to Natural Resource Safeguards in Linear Infrastructures

Bijaya Raj Paudyal (EERC), Dr. Sushila Chatterji Nepali, Ajaya Shrestha, Dr. Roshan Sherchan, Harish Prashad Bhatta, Kumar Dhamala, Kumar Bhattarai, Suresh Bhattarai, Avash Paudel, Annan Shrestha

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Integrating Spatial Ecological Network Theory Into Wildlife Crossing Design

Clara Woodie (Dudek)



Mitigation Along Major Highways Can be a Priority, but is Not Necessarily Sufficient for Conservation

Marcel Huijser (Montana State University), James Begley



Connecting Roads and Ecosystems: South Jersey Transportation Authority's Commitment to the Environment Through Collaborative Initiatives

Kailey Howard (SJTA), Lauren Hoolahan (SJTA), Nick Marchese, John McDonnell



Development Model of Urban Ecological Transportation

Rajashekar Reddy Dudipala (Osmania University),



The U.S. Geological Survey and Federal Highway Administration Collaborate to Provide Water-Quality Tools that Transportation Agencies Use to Help Inform Stormwater Management Decisions

Alana B. Spaetzel (U.S. Geological Survey), Gregory E. Granato



Improving Surface Transportation Resilience with Nature-Based Solutions

Bret Webb (University of South Alabama), Tashae Thompson, Ben Bowers, Jo Sias



Qualitative Lifecycle Analysis of Rail Tie Materials

Briana Litchholt (U.S. DOT), Alicia Zhang, Matthew Simon, Anjuliee Mittelman



Wildlife Use of Purposefully Modified Median Barriers on I-49 in Southwestern Missouri

Brock Ortega (Dudek), Caleb Knerr, David Penning, Jenni Hosey, Christopher Shulse, Craig Switzer, Karne Lane, Fraser Shilling, Clara Woodie, Jeffrey Briggler, Gabe McClain, Cheryl Brehme



Turtles in Trouble: Recent Lessons Learned in Minnesota

Christopher E. Smith (Minnesota Department of Transportation),

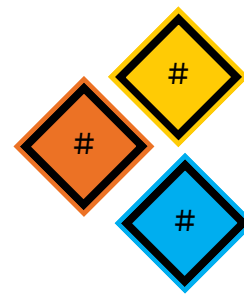


Wild Animal Mitigation Along US 160 in Southwest Colorado

Kenneth Ryan (Muller Engineering), Mark Lawler

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Wildlife Usage of Various Sized Underpass Structures in Eastern North Carolina

Travis Wilson (North Carolina Wildlife Resources Commission)



6PPD-q Triggers New Focus on Stormwater and Creates New Challenges for ESA Consultations

Jeff Dreier (Washington State Department of Transportation)



Innovations In Field Studies for Ecology and Transportation – With Advancing Technology Are We Up to The Challenge?

Kimberly Laframboise (HDR Inc.)



Bridging the Divide - Appropriate Levels of Effort for Assessing Presence of Bats Roosting in Transportation Structures and Their Implications in Western North America

Jonathan Janes (HDR Engineering, Inc.; Sacramento State University), Amelia Tauber



Bridging the Gap: Community Strategies to Address Wildlife-Vehicle Collisions and Road Safety

Christie Greene (Wild Aware)

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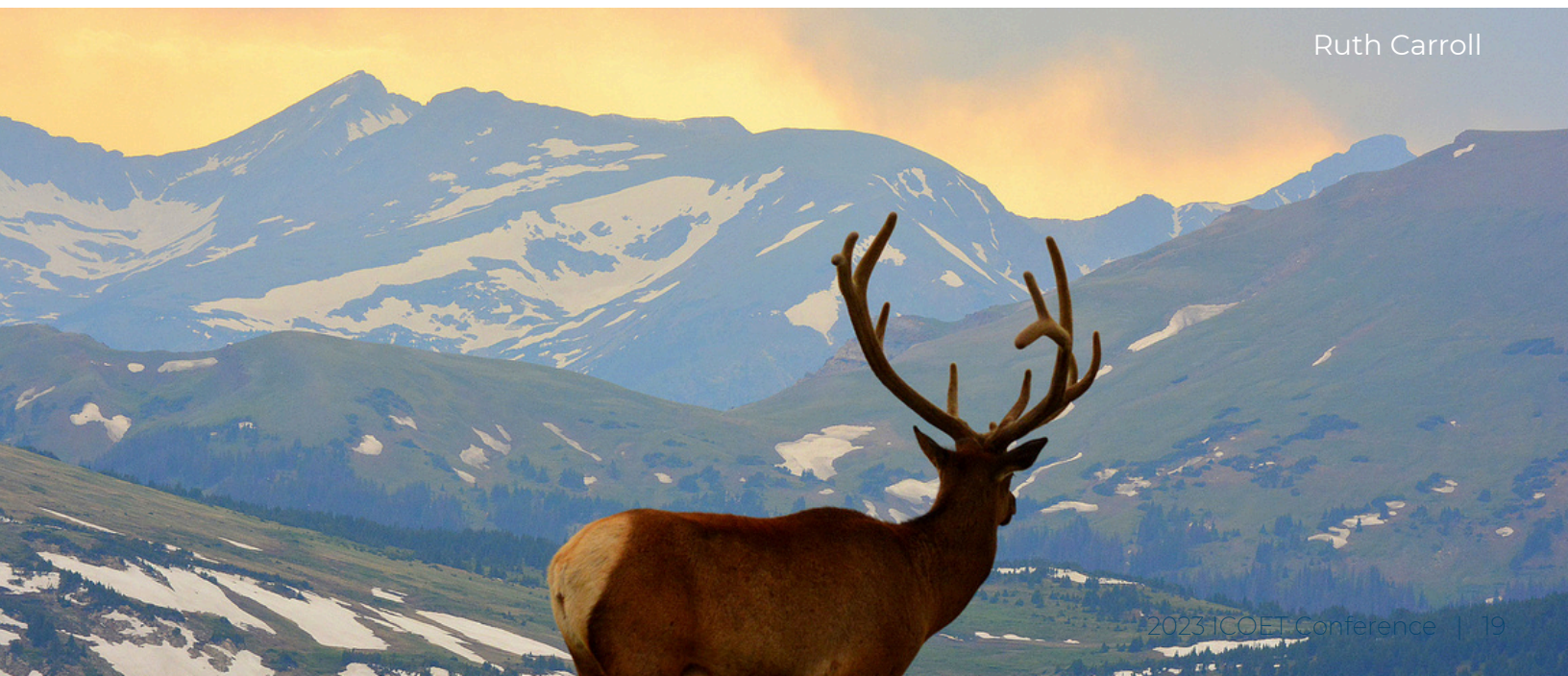
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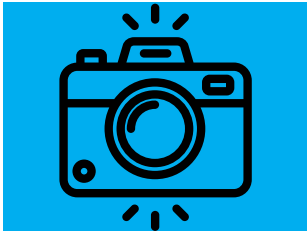
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