

Committee on Ecology and Transportation Newsletter

Transportation Research Board Committee ADC30

January 2015



View from the Chair

Alex Levy, Chair Ecology and Transportation Committee

The Connectivity of Ecology

By Alex Levy, Senior Ecologist, Arcadis, US

With the coming of each year's TRB annual meeting are opportunities for every standing committee to reconcile the paradigms of our respective disciplines. On the one hand, we have the ever-evolving themes and needs of the transportation communities of practice, while on the other hand is a broad array of private and public stakeholders who typically share both conspicuously complimentary and seemingly-divergent interests in the sustainability and betterment of the transportation systems and modalities that enable our mobile, dynamic, and fiscally-challenged society.

Forming a critical nexus between the natural resources and transportation communities for applied research with practice-ready results, each year's TRB annual meeting presents the Committee on Ecology and Transportation with the challenge of aligning our calls-for-papers, workshops, sessions, and business meetings with the themes and strategic issues identified by TRB's Executive Committee and the Technical Activities Council, as well as from the grass-roots of state transportation agencies via their individual and collective voices in the AASHTO Standing Committee on the Environment.

With the onset of the 2015 TRB annual meeting, the challenge for us is—as it will likely always be—how do a cadre of environmental advocates align our individual interests and committee's mission to deliver value to a prospective audience of over 12,000 attending transportation professionals; many with seemingly disparate concerns? In

some years, it has been exceedingly difficult to find that connection, in others—like the 2015 spotlight theme: *Corridors to the Future: Transportation and Technology*, the nexus to the interrelationship of the built and natural environments is palpable.

So it seems like a “no-brainer” that – often associated with natural habitat connectivity for fish and wildlife - our committee should find in the *Corridors to the Future* theme an easy nexus to a receptive audience in Washington, DC. However, where our committee is typically associated with trumpeting landward research and themes for terrestrial and aquatic ecology, for the 2015 annual meeting, you will find us leaving our familiar *terra firma*. At this year's annual caucus, ADC30 co-sponsors a special crosscutting session on the emerging dynamics of increased transportation through the dwindling sea ice of the Arctic Circle and the challenges it poses - both to marine ecology, as well as that of the cultural hunting and fishing traditions that are critical to the interests of native people. Leaping from Earth's final frontier to the next horizon, we also cosponsor a workshop that highlights existing and emerging digitally-empowered tools from the near-Earth perspective of geospatial data. Finally, for the first time in our committee's history, we are sponsoring an invited poster session wherein several committee members and friends will showcase case studies and research that have practice-ready outcomes for adoption and adaptation by transportation and natural resource stakeholders.

Just when it seems we've enough on our plate, during our business meeting, ADC30 will be responding to emerging emphasis areas identified by TRB as we explore

■ ECOLOGY continued on page 2

■ ECOLOGY continued from page 1

a nexus between ecology and urban-anchored megaregions, as well as discussing the burgeoning subject of connected-automated vehicles and what it may mean for relevant research themes and needs.

Our committee's mid-year business meeting was held in cooperation with the biennial Northeastern Transportation and Wildlife Conference, September 21-24, 2014 at the Sheraton Hotel & Conference Center, Burlington, Vermont. Hosted by the Vermont Agency on Transportation (VTrans) and Vermont Fish and Wildlife Department, the regional spinoff from ICOET delivered



the familiar theme: *Climate Ready? Wildlife and transportation in a changing world.*

Following the northeastern states' recent encounters with climate-related weather events that caused catastrophic losses to life, property and the transportation infrastructure, a prominent theme repeated in many NETWC presentations and remarks focused on how policies and carefully planned and designed infrastructure can not only protect and conserve fish, wildlife, and other natural resources, but posed that planned and designed sustainability for natural assets may actually serve as performance indicators of infrastructure resiliency in the face of our changing climate's sometimes potent consequences.

For including us in their program, the Committee on Ecology and Transportation extends gratitude to Chris Slesar at VTrans and Jens Hilke at Vermont Fish and Wildlife, plus a special thanks to Cindy Sherwood with Delaney Meeting and Event Management, who facilitated needs and logistics leading up to and during the wildly-successful conference.

For more information, as well as program and presentation materials, please visit www.netwc.org

Please Welcome Our Newest Committee Members



Dr. Ray Schweinsburg, Statewide Supervisor for Arizona Game & Fish Department's Contracts Division

A longtime friend of ADC30 and a significant leader in advancing ecology and transportation, Dr. Schweinsburg, has over 42 years' experience in wildlife research and management. A recipient of over 15 state and national awards, including three

Federal Highway Administration *Exemplary Ecosystem* awards and two National Association of Environmental Professionals Awards, one of which, was the *President's Award*.

Ray was instrumental in beginning the Arizona Department of Game and Fish's habitat connectivity program that has received numerous local and national awards. He is a founding member of the Arizona Wildlife Linkages Workgroup, which produced the state-scale *Arizona Wildlife Linkage Assessment* (2006), and has been instrumental in

the Department's follow-up county-scale Wildlife Linkage Assessments to ensure definition and exhaustive inclusion of more detailed wildlife linkages in Arizona. He has worked closely with a number of organizations, including the Pima County Regional Transportation Authority, to implement the Oro Valley Wildlife Connectivity Corridor. Probably his most important contribution was helping to develop the close working relationship with the Arizona Department of Transportation, the Federal Highway Administration and other agencies to construct over 20 wildlife crossing structures with funnel fencing on Arizona's roadways. Dr. Schweinsburg has supervised all of the research that has monitored the success of those projects in making highways safer for people and wildlife. Ray has also initiated or supervised to successful completion a wide variety and number of studies relating to, or involving at some point, threatened or endangered species, raptors, NEPA, 404 permitting, roadway ecology, the Migratory Bird Treaty Act, habitat connectivity and fragmentation, animal movements, animal abundance surveys, and wildlife life histories or demographics.

■ MEMBERS continued on page 8

MaineDOT Caribou Route 161 Connector- Interim Wildlife Passage Notes

By Richard Bostwick, MaineDOT Environmental Office

MaineDOT has been monitoring a few culverts installed as part of a Route 161 Connector road around Caribou, Maine (Figure 1). The 3.8-mile long connector, designed to divert heavy traffic from the Caribou business district, was opened to traffic late in 2012. The highway is a 2-lane road with 12-foot travel lanes and 8-foot shoulders. The current traffic volumes on this section of the connector are less than 1,640 VPD.

The crossings were originally designed as round concrete drainage culverts and were increased to 4 feet to accommodate potential wildlife use around the area. MaineDOT monitors two culverts along the bypass, an approximately 100-foot long round concrete culvert that is 4-feet in diameter (Figure 2) and a 70-foot long squat culvert that is 48 by 54 inches with a concrete shelf built in into one side. The squat culvert is located 1,300 feet south of the round culvert.

Around 3 AM on September 23, a Canada lynx was photographed looking around the westerly end of the 4-foot round culvert, but not passing through it. On October 3, a lynx was photographed entering into the west end of the same culvert and detected at the easterly side (Figure 3). The culvert has an 8-foot high chain link fence funneled into it and the right of way adjacent to the highway and culvert is currently cleared to the right of way fence, 50 feet from centerline. The lynx was detected in photos at the other end of the culvert around the same time. MaineDOT has also observed black bear, fisher, raccoon, coyote, fox, and groundhog using this crossing.



Figure 1. Location Map



Figure 2. Culvert location



Figure 3. Canada lynx walking into the Western end of the culvert

A Research Project Launched to Study the Synergistic Effect of Qinghai-Tibet Highway and Railway on Wildlife in Tibetan Plateau

By Yun Wang, Lei Guan, Xinjun Wang, Jiding Chen, and Yaping Kong, China Academy of Transportation Sciences

Qinghai-Tibet highway is a low-volume, narrow highway connecting Golmud and Lhasa that was built in 1950. This highway runs along the western boundary of Kekexili National Nature Reserve and the eastern boundary of Sanjiangyuan National Nature Reserve in the Tibetan plateau, which is home to a large variety of endemic species under Chinese state protection, such as Tibetan antelope (*Pantholops hodgsoni*), Tibetan gazelle (*Procapra picticaudata*), Wild Yak (*Poephagus grunniens*), and Kiang (*Equus kiang*). The Tibetan antelope is of particular concern because it migrates annually between the Kekexili and Sanjiangyuan National Nature Reserves, crossing this highway at least twice within a year. With the economic development of Tibet in recent years, the traffic volume has been growing gradually, so the effect of the highway on Tibetan antelope and other species has become a concern.

In July 2006, a railway was constructed almost in parallel with Qinghai-Tibet highway. The distance between them is variable, but is less than 3km in most sections. Whether there has been a synergistic effect of the railway and highway on wildlife is unclear. According to the expressway network planning documents released by Ministry of Transport of China, a Qinghai-Tibet expressway will be built in the future. Therefore, it is of pressing importance to understand the synergistic effects of the existing railway and highway on wildlife in order to inform the Government's scientific decision-making and protective measures. Our institute initiated a research project granted by Chinese Ministry of Transport and Ministry of Science and Technology in 2014. Here, we present this year's preliminary results.

Tibetan antelope migrate westward in May and move eastward in August, so field investigations along highway were carried out during this time period. In winter, large amounts of snow cause wildlife to move away from the mountains and closer to the highway and railway. Therefore, we elected to investigate wildlife in December as well. Thus, three field investigations were done in 2014. We focused on the 100 km section of highway from Kunlunshankou to Wudaoliang where most wildlife live and are easy to observe while driving. We recorded the species richness, abundance, and frequency of emergence of the four main ungulates. The results showed that Kiang, Wild Yak and Tibetan antelope occur less frequently in the area between the highway and railway than on the roadside (Figures 1, 3). This was especially true of Tibetan antelope, which only once were recorded on the location between highway and railway (Figures 2, 3). However, the frequency of emergence of Tibetan gazelle showed no significant difference between the two locations (Figure 3). In terms of abundance, the number of emerging individuals of the four ungulates at the highway roadside was much higher than the location between highway and railway (Figure 4).



Figure 1. Kiang browsing in the area between Qinghai-Tibet highway and railway

By the monitoring at bridges and culverts along the railway with infra-red cameras from August to December in 2014, Wolf (*Canis lupus*), Grey-tailed rabbit (*Lepus oiostolus*), Corsac fox (*Vulpes corsac*), Tibetan fox (*Vulpes ferrilata*), Tibetan gazelle, and Mustelidae species (undefined) were recorded when crossing the railway by culverts, and Wild Yak, Kiang, Tibetan antelope, Tibetan gazelle, Wolf, Grey-tailed rabbit, Corsac fox, Tibetan fox, Mustelidae species (undefined) and lynx (*Felis lynx*) were observed crossing the railway by bridges (Figure 5). In addition, by visiting the Kekexili Nature Reserve offices and interviewing some of the drivers or workers who maintain the highway, we discovered that dozens of wildlife were killed by vehicles in the highway in 2014, including brown bear (*Ursus arctos*), Kiang, Tibetan antelope, Tibetan gazelle, Corsac fox, Tibetan fox, etc. The collisions mainly happened at dusk, dawn or night.

This is an ongoing research project and we look forward to making more progress in the next year.



Figure 2. Tibetan Antelopes crossing Qinghai-Tibet highway

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■ RESEARCH continued from page 4

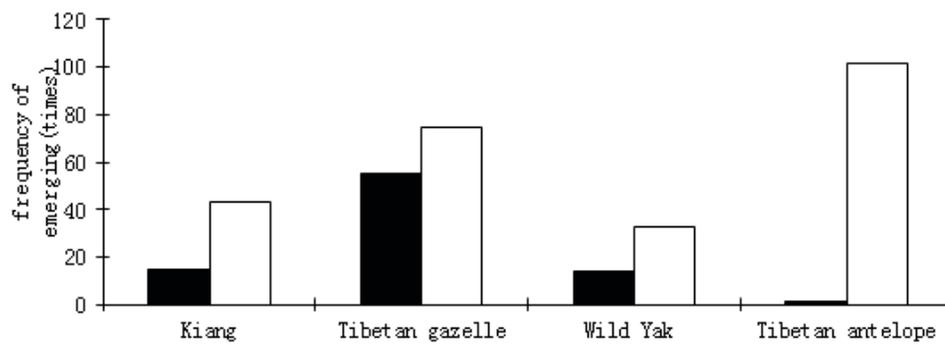


Figure 3. Emergence frequency of four large-sized mammals along Qinghai-Tibet highway and railway (black column indicates emerging location between highway and railway, white column indicates number emerging on highway roadside)

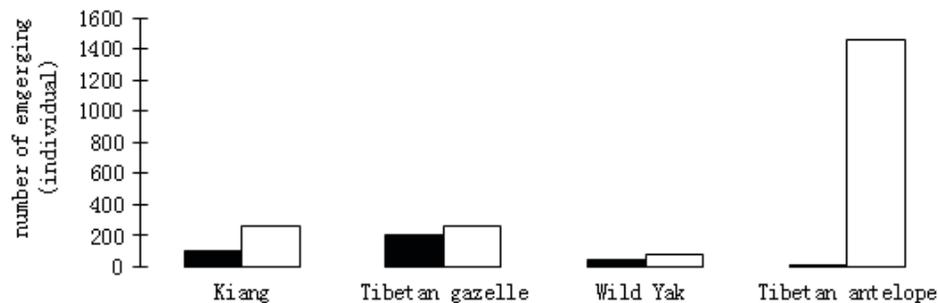


Figure 4. Number of individual emergences of four large-sized mammals along Qinghai-Tibet highway and railway (black column indicates emerging location between highway and railway, white column indicates emerging on roadside of highway)



Figure 5. Wolf crossing the bridge along Qinghai-Tibet railway

Handbook of Road Ecology

Edited by ¹Rodney van der Ree, ²Daniel J. Smith and ³Clara Grilo

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THE PROBLEM

Roads and other linear infrastructure such as railways and utility easements are critical to healthy economies and livelihoods. However, the ecological impacts of linear infrastructure and vehicles are numerous, diverse and mostly negative.

- The 102 million km of roads on earth are enough for ~130 return trips to the moon
- 25 million lane-km to be built by 2050; 90% will be in non-OECD countries
- Number of vehicles will increase from ~1 billion to 1.7 to 2.8 billion by 2050
- Annual vehicular travel will increase from 32 to 105 trillion km per passenger by 2050
- The road-effect zone can extend into adjacent landscapes for 1000's of m, impacting vast areas



HOWEVER

While many impacts are well-understood and cost-effective solutions developed:

- Linear infrastructure is still being constructed in the wrong places
- Linear infrastructure and mitigation is often poorly designed, constructed and maintained
- Planning decisions and designs are not based on the best-available evidence
- Wildlife-vehicle collisions still occur, resulting in loss of human life, injuries and damage to vehicles, as well as massive rates of wildlife death



THE "HANDBOOK OF ROAD ECOLOGY"

- Truly international, written by a team of >100 authors from 25 country's
- This handbook summarises the impacts and provides cost-effective solutions
- Content is relevant to planners, designers, engineers, consultants and communities
- Sections include planning and design; research and monitoring; impacts and mitigation; fauna and landscape issues; regional case studies; and networking
- Information is easily accessible with a simple structure and succinct writing style



EARLY PRAISE...

Professor Richard Forman from Harvard University wrote in the foreword: "The pages in your hand are a *tour-de-force*, a gem, indeed a treasure chest. I find it readable, interesting, practical, useful, and ambitious. The remarkable cast of authors has uncovered a goldmine for us".



DISTRIBUTION AND AVAILABILITY

- To be published by Wiley-Blackwell in early to mid 2015
- Generous sponsorship from The Australian Research Centre for Urban Ecology, Florida Wildlife Federation, Chinese Academy of Transportation Sciences, and ACO Polymer Products has allowed full colour printing, at no extra cost to you
- We want to distribute at least 200 copies of the book to practitioners in developing countries, where the rate of road and rail construction is increasing rapidly. Thanks to sponsorship by the Swedish Road Administration, Animex Fencing, The University of Melbourne, Swiss Confederation and Eco-Kare International, we can distribute 100-120 copies. We are seeking additional sponsorship to fund the purchase and postage of the remainder. If you can help, please contact Rodney van der Ree on rvdr@unimelb.edu.au



New Best Practices for Bridge and Culvert Projects Published by Minnesota Department of Natural Resources

By Peter Leete, *Transportation Hydrologist, MnDNR
Ecological and Water Resources*

The Minnesota Department of Natural Resources (MnDNR) has posted its latest version of their Collection of Best Practices for use on bridge and culvert projects. (http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/gp_2004_0001_manual.html)

The document is organized into three chapters. It is to be utilized as a comprehensive communication tool and implementation guide for the designer, construction manager, on-site contractor, or maintenance personnel. These pages show steps, procedures and examples of how to address various issues and meeting MnDNR regulations. Think of it as a sample plan for MnDNR constraints near a watercourse, lake, wetland or rare feature. During early coordination of a project, the MnDNR will identify practices that should be incorporated into project documentation, design, or construction as guidance to meet regulations. The entire document is not expected to be incorporated into every project. In fact, each Best Practice is written to be utilized as a stand-alone document. The chapters are as follows:

Chapter 1 (Species Protection) provides information about protection of game fish, other aquatic or terrestrial species and sensitive native vegetation. There is also guidance to prevent the spread of invasive species. This chapter contains many options for ecological enhancements and/or protection measure to include in final design or construction methods.

Chapter 2 (Hydraulic and Hydrologic Recommendations) contains illustrations, notes and guidance for Hydraulic and Hydrologic design of structures impacting rivers and streams.

Chapter 3 (Methods of In-Water Construction) offers illustrations, notes, and guidance on best practices for in-water construction work.

The MnDNR anticipates that transportation authorities will use practices in this document as a guide to address regulations associated with the protection of the state's water resources for fisheries, wildlife, rare features, invasive species, ecological connectivity, and recreational opportunity as identified specifically in permit conditions of General Permit 2004-0001 to the 'Minnesota Department of Transportation GP' for replacement or repair of Bridges, Culverts or storm-water outfalls. However, these practices are also applicable to other transportation authorities. The use of these Best Practices provides consistency, reduces uncertainty, and increases the likelihood of environmental compliance for DNR jurisdiction during all phases of a road project (scoping, design, construction, and maintenance).

This is the fourth version of this document. Comments and recommendations for future versions are welcome, and should be sent to the author, Email: peter.leete@state.mn.us; telephone: 651-366-3634

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De Beers Funds New Project To Address The Impact Of Roads On Our Wildlife

*Submitted by Wendy Collinson, Wildlife and Roads Project,
Endangered Wildlife Trust (South Africa)*

DE BEERS
GROUP OF COMPANIES

wildlife in the Greater Mapungubwe Transfrontier Conservation Area (GMTFCA) in the Limpopo Province.

The Endangered Wildlife Trust (EWT) is excited to partner with the De Beers Group of Companies to address the impact of roads on

During Intensive surveys conducted of wildlife killed on the roads traversing the GMTFCA over a 120-day period in 2012/13, approximately 1,121 roadkill carcasses were recorded. This did not account for animals that crawled off the road to die after being hit or that were scavenged by predators. From these surveys in 2012/13, a major roadkill hotspot was identified on one section of the road in the GMTFCA. On days when large trucks were using the road, roadkill numbers also increased. Roadkill continues to be an 'eyesore' to visitors to the area as well as a threat to the wildlife, not

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■ De BEERS continued from page 7

to mention a potential danger to motorists when hitting larger species.

The GMTFCA was declared a World Heritage Site in 2003 and is recognized as an important area for conservation and cultural heritage. In June 2014, a female Leopard was killed on the road in the roadkill hotspot area, with a male Leopard being killed by a truck six weeks later, 25 km away on the original roadkill transect. The elusive and rarely seen Aardvark was also killed on the road in the hotspot area in July 2014, as was a Kudu, causing extensive damage to a vehicle as well as injuring the occupants.

This presented the EWT with an important opportunity to implement the use of signage for motorists and roadside fencing to direct small wildlife to cross the road through existing culverts. This mitigation measure will be implemented in 2015 with support from De Beers in an attempt to reduce the number of roadkill on this road.

There is often conflict between development and conservation objectives in South Africa. South Africa's future economic development requires infrastructure, and the construction of new transport routes is inevitable. It is now becoming widely accepted that roads affect many aspects of ecosystems. Roads and traffic are destructive in two ways to animal populations: directly, where road users collide with wildlife (i.e. roadkill), and indirectly, by fragmenting a population's habitat, with this threat only becoming apparent over a period of time. Roads therefore pose a threat to not just the survival of individual animals but also to populations.

The GMTFCA is rich in species diversity and it is becoming a top destination for wildlife enthusiasts. Currently, of the mammals occurring in the area, six are listed as Endangered and 12 as Vulnerable. Southern Africa is considered to have the highest reptile diversity in Africa and 25% of these reptiles occur in the GMTFCA. Of the 858 species of birds that occur in South Africa, at least 50% of them are found in the GMTFCA.

South Africa is estimated to have the world's fifth-largest mining sector in terms of GDP (18%) and mining accounts for 50% of transportation volume. Mining, particularly diamond and coal mining, is the most significant contributor to the GDP of Limpopo Province with several areas in the GMTFCA currently being mined and many more ear-marked for exploration. This will see an increase in traffic which will have an impact on wildlife. With the GMTFCA having the potential to become a major tourist destination in southern Africa, tourist-borne traffic is also likely to increase. EWT commends De Beers in taking the lead to support conservation work in the GMTFCA.



Aardvark roadkill



Vehicle damage from a collision with a Kudu

■ MEMBERS continued from page 2



Will McGoldrick Jr., Permit Coordinator, South Carolina Department of Transportation

Mr. McGoldrick is our newest committee member with the important role of obtaining relevant natural resource permits for SCDOT projects located in seven counties, including six of the Palmetto State's eight coastal counties. Will oversees coordination with consultants, state and federal regulatory agencies, as well as other participating state and federal stakeholders; manages contracts and consultants to meet financial and project timeframes; conducts field evaluations; and facilitates resolution between environmental needs/concerns and design requirements by helping to resolve inherent conflicts.

Update from Toad NUTS

Submitted by Wendy Collinson, Wildlife and Roads Project, Endangered Wildlife Trust (South Africa)

Why did the toad cross the road? Or more to the point: *How did the toad cross the road and not get run over in the process?* That's the question we at Toad NUTS (Noordhoek's Unpaid Toad Savers) have been scratching our heads over since 2007 when our volunteers first started saving Western Leopard Toads from becoming roadkill.

According to the IUCN List of Species, the Western Leopard Toad (*Amietophrynus Pantherinus*) is listed as Endangered and a dedicated group of volunteers have been working tirelessly for the past eight breeding seasons to save this toad from extinction. This toad is endemic to the coastline of the Western Cape and is still found in significant numbers in areas such as Kommetjie, Noordhoek, Kirstenhof and Constantia. This fist-sized amphibian makes an annual winter migration to lowland breeding ponds, all of which are situated on private lands.

So, to return to our original question: "How do toads cross the roads successfully?" The sad answer is that many toads are crushed by unsuspecting drivers. Despite nightly patrols by trained volunteers during the annual breeding migrations, the roadkill statistics are not encouraging. Obviously road patrols are only partially successful in preventing roadkill – another solution needs to be found which will allow toads to access their breeding ponds in a safe way.

Based on international research, Toad NUTS, with the support of the Table Mountain Fund (WWF) and the Endangered Wildlife Trust will investigate the possibility of modifying existing storm water drains to allow toads to pass under roads, thereby avoiding all traffic while having unimpeded access to their ponds.

The **Toad ROMP** (Road Mitigation Project) testing phase has already begun with the piloting of a temporary barrier and pitfall trap system during the toad migrations of 2013 and 2014. The success of this has led to funding over the next two years by the Table Mountain Fund.

The goal of this project is to identify:

1. If toads would use modified storm-water drains to cross under busy roads. If this is not a viable option, then a toad-specific tunnel will be designed based on international examples.
2. How best to 'lead' toads into the tunnels
3. How to prevent toads crossing elsewhere along the stretch of road. Here the focus would be on toad-kerbs.

A community-led process will kick off early in 2015 for the Noordhoek area in which the needs of all stakeholders who utilize the identified stretch of road will be taken into account. The hope is that a kerb system can be designed which would make the verges safer for pedestrians, cyclists and toads alike.

To find out more information about this project, contact: Alison Faraday, alison@leopardstone.co.za

Toad NUTS, www.toadnuts.co.za



Amietophrynus Pantherinus



Amietophrynus Pantherinus



Female toad waiting behind the barrier



ICOET 2015**International Conference on Ecology & Transportation***Roads to Resilience*

SEPTEMBER 20-24, 2015 | RALEIGH, NORTH CAROLINA, USA

CALL FOR ABSTRACTS**SUBMISSION DEADLINE JANUARY 30, 2015**www.icoet.net/ICOET_2015/abstracts.asp

Plan now to attend the eighth biennial ICOET conference to be held September 20-24, 2015 at the Raleigh Convention Center in Raleigh, North Carolina. The Sheraton Raleigh Hotel will provide principal hotel accommodations.

Abstracts to present technical **papers, posters**, and organized **sessions** are now being accepted. Presentations at ICOET cover a broad range of topics addressing current project or planning activities, research findings, emerging issues, or best practices related to the interface between ecology and transportation.

Program Topic Areas for papers and posters at ICOET 2015 include:

- Sustainability and Resilience in Transportation Systems
- Planning for Transportation Ecology
- Policy and Regulatory Developments in Transportation
- Programmatic and Partnerships for Improving Transportation Ecology
- Mitigation for Transportation Projects
- Vegetation Management within Transportation Corridors
- Stormwater and Water Quality Management in Transportation
- Aquatic Wildlife, Ecosystem and Wetland Interactions with Transportation
- Terrestrial Wildlife and Ecosystem Interactions with Transportation
- Crossing Structures, Reducing Collisions and Increasing Connectivity in Transportation Systems
- Transportation Ecology in Construction, Operations and Maintenance
- Multimodal (Transit, Rail, Aviation, Maritime) Transportation Ecology Issues
- Urban Transportation Ecology Issues
- Emerging Issues and New Directions in Transportation Ecology

Session proposal abstracts are invited from organizers of panel presentations, interactive workshops, and facilitated discussions on topics which explore the interdisciplinary connections within ecology and transportation. Sessions should be designed to engage the audience in balanced discussions and knowledge sharing.

Submit abstracts **online** by **January 30, 2015**. Complete details about the Call for Abstracts and other event information are posted on the **ICOET website**.

2015 Hosts and Lead Support Agencies**Be an ICOET Co-Sponsor**

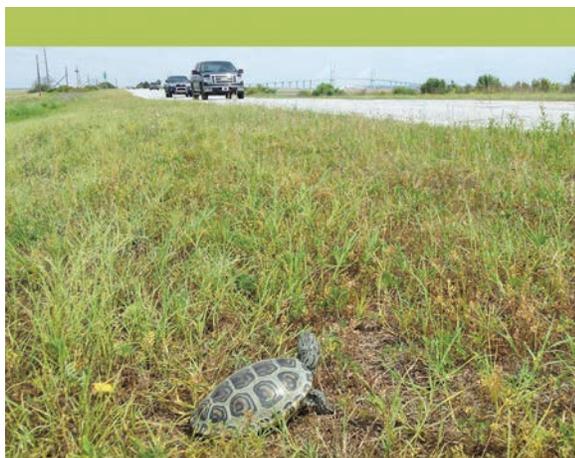
Details to be posted soon on the **ICOET website**.

We look forward to seeing you in Raleigh at ICOET 2015!

About ICOET

Founded in 2001, the biennial International Conference on Ecology and Transportation (ICOET) is the foremost multidisciplinary, interagency supported conference addressing the broad range of ecological issues related to transportation systems. ICOET features presentations for all transportation modes and topics of interest to attendees – researchers, biologists, engineers, planners, project managers, administrators, and policy makers representing government, Tribal, academic, nongovernmental, and private industry organizations. Hundreds of practitioners from across the United States and over 20 countries regularly attend ICOET.

ICOET is organized by the Center for Transportation and the Environment (CTE), a program of the Institute for Transportation Research and Education (ITRE) at North Carolina State University. ICOET is supported by the US DOT Federal Highway Administration (FHWA) and many federal and state government agencies, universities, nongovernmental organizations, and corporate partners which guide the development of the conference program. ICOET 2015 is co-hosted by the North Carolina Department of Transportation (NCDOT) with support from its partner resource agencies and organizations. Learn more about the conference at www.icoet.net.



Roads & Ecological Infrastructure

Concepts and
Applications
for Small Animals

EDITED BY
Kimberly M. Andrews
Priya Nanjappa
and Seth P. D. Riley

Citation:

Andrews, K. M., P. Nanjappa, S. P. D. Riley (eds). 2015. Roads and Ecological Infrastructure: Concepts and Applications for Small Animals. Johns Hopkins University Press, Baltimore, MD.

Brief:

Coming April 2015, transportation and wildlife experts have teamed up to produce a resource book on reducing conflicts between roads and small vertebrates, with particular focus on herpetofauna and small mammals. The first of its kind, this comprehensive guide includes information on the evolution of road ecology applications with these taxa, effects on the animals and their habitats, how to both proactively and retroactively design mitigation approaches, what sorts of structures are appropriate and when, and how to maintain these features over time using an adaptive management approach. This multi-authored volume produced by Johns Hopkins University Press as part of The Wildlife Society book series is designed for the diversity of practitioners from academics to engineers that are involved in the intensive process of building roads while keeping the surrounding landscape and ecological infrastructure in mind.

Link to website for purchase:

<https://jhupbooks.press.jhu.edu/content/roads-and-ecological-infrastructure>

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TRANSPORTATION RESEARCH BOARD

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Put your creative skills to work for ADC30 by producing our semiannual committee newsletter.

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