



Committee on Ecology and Transportation Newsletter

Transportation Research Board Committee ADC30

Summer 2010

ADC30 Kudos

Tom Linkous, Chair

The Ecology and Transportation Committee has had a great record in TRB publications and activities over the last several years. This year is no exception and we have several members and contributors to thank for our continuing excellent success. First of all one of our 2010 peer reviewed papers from the 2010 TRB Annual Meeting was published in the Transportation Research Record (Journal of the Transportation Research Board, No. 2158). Thanks to authors Randy Giles, Scott Golbek, Amanda Sullivan, and Jerry Wood for contributing “I-90 Snoqualmie Pass East Project’s Design Engineering Challenges of Integrating Transportation Needs with Landscape-Level Connectivity and Transportation Corridor-Crossing Objectives in Washington State” to our program and congratulations on its publication.

Congratulations to ADC30 member Bridget Donaldson and her coauthor Ed Wallingford (Chair of ADC60, Waste Management and Resource Efficiency in Transportation) for their

Research Pays Off feature article “Creating Environmentally Sound Specifications for Culvert Rehabilitation” published in the May-June, 2010 issue of TR News. As most members are aware, Bridget’s seminal research on water quality effects of cured-in-place culvert rehabilitation led to Virginia DOT reviewing and modifying this approach and also resulted in several other states investigating and revising their specifications to protect water quality and aquatic life.

Finally ADC30 members Trisha White, Bill Branch and Joe Burns took part in the D.C. Environmental Film Festival along with Christy Gerencher, our TRB Staff Representative. The film “Division Street”, which many of us saw at ICOET in Duluth, was screened as a part of the film festival. Trisha, Joe and Bill were invited by moderator Christy Gerencher to participate as a panel discussing the film with festival attendees. The film depicted the conflict between wildlife connectivity and transportation corridors and showed some of the work being done to address this problem. Their participation in the environmental film festival was a first for TRB and was reported in the previously mentioned May-June, 2010 issue of TR News.



ADC30 committee meeting at the mid-year meeting. Photo credit: Joe Burns

Press-in Pile Drivers Reduce Noise Impacts to Wildlife

Submitted by: Sally Brown, US Fish and Wildlife Service

Transportation construction noise can result in physiological and behavioral effects to birds, including permanent hearing damage, temporary hearing damage/temporary threshold shift, masking of the vocalizations birds use to communicate, impairment of the ability of birds to detect the sounds of predators and/or prey, and other physiological and behavioral responses (Dooling and Popper 2007). In-water construction can result in high underwater sound pressure levels which can result in physiological and behavioral effects to submerged animals such as temporary stunning, injury, internal hemorrhaging and mortality (Cudahy and Ellison 2002, Hastings and Popper 2005, Turnpenny and Nedwell 1994, Turnpenny et al. 1994). Pile drivers can produce substantial noise levels of up to 101 dB(A) 50 feet from the source for impact drivers, and 96 dB(A) 50 feet from the source for sonic drivers (Federal Transit Administration 2006).

Rather than pounding or vibrating piles into the substrate, the Giken Silent Piler and ABI “Z” Pile Pusher use a press-in method whereby reaction force is used to hydraulically jack piles into the ground, producing very little noise. The pilers are also compact and lightweight, which allows work to take place in a limited area, reducing impacts to adjacent sensitive habitats. According to the Giken webpage, different models are available to install sheet pile or tubular pile, on land or over water.

The Orange County Public Works Department used the Giken Silent Piler for emergency repairs to the East-Garden Grove Wintersburg channel. “The work area was very limited on the project. In addition, this project was very close to the sensitive Bolsa Bay area, and using this method was preferred by all the stakeholders,” stated Civil Engineer Setu Upadhy.

The U. S. Army Corps of Engineers will be utilizing these pilers for their Reach 9 Phase 2A project along the Santa Ana River in southern California, where noise is a concern due to the presence of the federally endangered least Bell’s vireo (*Vireo bellii pusillus*) and wildlife corridors in the project area. “The press-in method is preferable over conventional impact



Photo courtesy of OC Public Works

or vibration type installation where there is limited work area due to physical constraints, minimizing environmental impacts, or where noise and vibrations are restricted. For our project area, we have residential homes on one side and the active stream on the other. Our sheetpile alignment will hug the bank of the lowflow stream for much of the way. The Giken crush piler will be used where the pile unsupported height will be less than 10 feet high over water or land where the machine rides along the previously installed pile line. The ABI piler will be used for higher unsupported piles and requires an adjacent crane service road,” stated project Engineer Robert Kwan.

References Cited

- ABI “Z” Pile Pusher: <http://www.hammersteel.com/z-pile-pusher.html>
- Cudahy, E. and W.T. Ellison. 2002. *A review of the potential for in vivo tissue damage by exposure to underwater sound*. Naval Submarine Research Laboratory, Department of the Navy, Groton, Connecticut, March 12, 2002, 6 pp.
- Dooling, R. J. and A. N. Popper. 2007. *The Effects of High-way Noise on Birds*. Contract No. 43A0139, California Department of Transportation Division of Environmental Analysis, September 30, 2007, 74 pp.
- Federal Transit Administration. 2006. *Transit noise and vibration impact assessment*. Washington, D.C. <http://www.fta>.

■ See WILDLIFE, Page 3

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Turnpenny, A., K.P. Thatcher, R. Wood, and J. Nedwell. 1994. *The effects on fish and other marine animals of high-level underwater sound*. Report FRR 127/94. Fawley Aquatic Research Laboratory, Ltd., Marine and Freshwater Biology Unit, Southampton, United Kingdom, 35 pp.

For further information contact Sally Brown, U. S. Fish and Wildlife Service, 6010 Hidden Valley Road, Suite 101, Carlsbad, CA 92011. (760) 431-9440 x278. Sally_Brown@fws.gov

TransWild Alliance Promotes TIGER II For Habitat Connectivity

by Megan Brown, *Defenders of Wildlife*

On Monday, April 26, 2010, the Department of Transportation solicited applications for the Transportation Investment Generating Economic Recover (TIGER) II discretionary grant program. Funds from this program will be awarded on a competitive basis for projects that have significant impact on the nation, a metropolitan area or region. TransWild Alliance members supported four TIGER II grant proposals in Alaska, Washington, Wyoming and Idaho.

In Alaska, the Sterling Highway MP 58-79 Project incorporates wildlife crossing structures into the impending rehabilitation of the Sterling Highway which crosses the Kenai National Wildlife Refuge and is one of the highest moose vehicle collision areas in Alaska. This project would not only protect native wildlife and motorists who use that stretch of road, but it would also help the local communities get access to much needed income. The communities surrounding the refuge are economically distressed and would greatly benefit from the jobs and increased income this project could create.

The I-90 Snoqualmie Pass East project proposal in Washington State improves permeability of the roadway for wildlife and waterways, allowing for increased accessibility in 14 connectivity emphasis areas. This project also includes vital wildlife crossings both at Gold Creek and at Rock Knob. Along with the wildlife connectivity and safety aspects to this project, the construction would also ensure that I-90 remains the critical link connecting the large population centers and busi-

nesses of the Puget Sound with the agricultural and recreational activities of eastern Washington for years to come.

The Wyoming Habitat Connectivity Initiative submitted by the Wyoming Department of Transportation will reduce thousands of accidents involving wildlife and motor vehicles and has the potential to serve as a template for similar highway safety projects across the nation. The wildlife migration corridors in west central Wyoming funnel thousands of pronghorn antelope, mule deer and elk across US 191 and US 189 each year, but still thousands of animals are dying in wildlife vehicle collisions. If awarded the grant money, the Wyoming DOT plans to complete this important project.

The Idaho proposal will provide wildlife safe passage across U.S. Highway 95. The area around McArthur Lake is identified as one of the highest priorities for connectivity conservation in the region. U.S Highway 95 bisects this area and experiences high volumes of wildlife-vehicle collisions causing serious hazards to human safety and a threat to wildlife connectivity. Over the past two decades there have been several attempts to address wildlife safe passages in this area, however, none have been completed. This project will straighten a dangerous curve near Deep Creek and allow for thorough assessment, planning and design of appropriate strategies for reducing wildlife-vehicle collisions.

The grant awards are expected to be announced on September 15, 2010.

For further information contact Megan Brown, Defenders of Wildlife, mbrown@defenders.org

Northeastern Transportation and Wildlife Conference

by Marcia Bowen, *Normandeau Associates*.

The 4th Biennial Northeastern Transportation and Wildlife Conference was held in the University of Massachusetts Amherst campus. The theme was "Sustainability in an Uncertain Landscape". Participants included representatives from the Northeast DOTs (Maine, NH, VT, CT,NY), federal and state regulators, FHWA, advocacy groups such as Nature Conservancy and American Rivers; Consultants, and academics, all with the same mission: to improve how the transportation system can better reduce adverse effects on wildlife and other natural resources. Several papers focused on how to integrate wildlife and other natural resources in the early planning stages of transportation. Other papers reviewed approaches to improving wildlife connectivity and reducing wildlife collisions. A number of papers reviewed research on the success of a variety of wildlife crossings. Several presenters offered a Canadian perspective on these issues. Regional meetings such as this allow practitioners to discuss issues with a more local focus. In addition, reduced travel costs help increase attendance.

ARC Competition Set to Explore the Next Generation of Wildlife Crossings

by Rob Ament, Road Ecology Program Manager, Western Transportation Institute (WTI), Montana State University

Today's transportation challenges are exacerbated by three critical factors: 1) an increasing population and expanding suburban and exurban development, 2) an aging and outmoded infrastructure and 3) a changing climate. Experts acknowledge that these issues must be addressed comprehensively such that transportation systems are (re)designed to safely meet the transportation needs of contemporary society in a manner that maintains ecosystem integrity and connectivity, reduces the carbon footprint, minimizes consumption of non-renewable materials, recycles resources, extends the life cycle of transportation infrastructure and operates efficiently.

ARC: the International Wildlife Crossing Infrastructure Design Competition (ARC) is a first step in addressing these complex design challenges in the context of road infrastructure for motorist and wildlife safety and mobility. The intent of the ARC competition is to generate new solutions that are applicable not only at the site selected for the competition – Interstate Highway 70 near West Vail Pass, Colorado – but which can be incorporated into wildlife crossings designs across the U.S., Canada and around the world. The objectives of the competition include:

- Provide an avenue for international teams of design professionals to address new design challenges in the coalescent issues of road transportation safety, structural engineering, wildlife conservation and landscape ecology;
- Explore creative new approaches, materials, and designs that address the fundamental and emerging issues of transportation engineering and ecology;
- Increase the number and variety of potential solutions for cost efficient, ecologically responsive, safe, innovative crossing designs that can be adapted for widespread use in other locations;
- Consider adaptive infrastructures that offer flexibility and mitigation for wildlife mobility under conditions of climate change;
- Engage design professionals and students in the interdisciplinary nature of road ecology with a real-time, in-situ application; and,
- Address creatively and resolve intelligently the competing site challenges at West Vail Pass in a way that is harmonious with existing policies and programs for the area.

ARC has selected five finalist teams to develop conceptual designs and 3-D models for a wildlife overpass at West Vail Pass along Interstate Highway 70 near Vail, Colorado. The designs are intended to usher in a new generation of wildlife crossing infrastructure using new methods, new materials, and new thinking to reduce structural costs and increase adaptability and ecological function. Leading the finalist teams are:

- Balmori Associates (New York) <http://www.balmori.com/>
- The Olin Studio (Philadelphia) <http://www.theolinstudio.com/>
- Janet Rosenberg & Associates (Toronto) <http://www.jrala.ca/>
- Michael Van Valkenburgh & Associates with HNTB (New York) <http://www.mvva-inc.com/> and <http://www.hntb.com/>
- Zwarts & Jantsma (Amsterdam) <http://www.zwarts.jantsma.nl/index.php?lang=en>

The finalists were chosen from 36 team submissions from nine countries, representing over 100 firms world-wide. The five teams in contention include more than a dozen firms in four countries with the landscape architects, engineers, and architects unique to each team, supported by ecologists, wildlife biologists and other specialists.

An honorarium of \$15,000 will be awarded to each of the finalists who must submit their original concept designs at the beginning of November for adjudication by an internationally-recognized panel of experts. The winning design team will receive \$40,000 at a public recognition ceremony concurrent with the Transportation Research Board's Annual Conference in Washington, D.C., in January 2011. In addition, the ADC 30 Committee is sponsoring a conference workshop to review the ARC competition and its novel designs.

To select the winner of the competition, ARC has engaged a distinguished jury chaired by Professor Charles Waldheim, Chair of Landscape Architecture at Harvard University's Graduate School of Design.

There is broad-based support for the ARC competition, with over 20 sponsors including the FHWA, federal land management agencies, AASHTO, Colorado DOT, the Western Transportation Institute – Montana State University, the Woodcock Foundation, other private funders, non-profit conservation organizations and other professional organizations.



For further information about the ARC Competition visit www.arc-competition.com

Threatened Species Habitat Management Along the MD 30 Hampstead Bypass:

Tracking Environmental Commitments and Stewardship Initiatives

by William Branch, Maryland State Highway Administration

Building roads is more complicated than it used to be and more rewarding too. Environmental considerations have provided layers of new challenges to the planners, designers, and contractors who are tasked with providing safe, efficient transportation systems for the traveling public. However, as transportation agencies try to build an environmental compliance strategy into their planning and design process, it is also important to recognize opportunities for going beyond compliance and toward environmental stewardship. Such an opportunity presented itself as the Maryland State Highway Administration approached the design completion of the Maryland Route 30 bypass at the town of Hampstead in Carroll County Maryland.

Completed in 2009, the Hampstead bypass was a long awaited safety and congestion relief project. Hopes for this project dimmed late in the design process when a small turtle (the bog turtle) was listed as a federally threatened species and given protection under the Endangered Species Act. The rural residential and agricultural lands surrounding Hampstead provide areas of essential habitat for this rare turtle. While many saw this as a potential threat to the project, others saw this as an opportunity for a creative approach for habitat and species protection.



After initiating site specific research to determine the presence and movement activities of the bog turtle in several wetlands along the proposed road corridor, an interactive and multidisciplinary study group was established to track the research findings and propose modifications to the road design. Led by the MDSHA Office of Environmental Design, this group included federal and state regulatory resource personnel, county and local officials, highway design and hydraulics engineers, university researchers, and property owners. All became stakeholders in developing a roadway design that not only met the needs of the town's traffic congestion problems but also met the needs of the turtle and its habitat. Design modifications were undertaken to shift the roadway away from occupied wetland sites yet left it close

enough so that acquisition of these wetlands could be included in the right of way needs for the roadway. The state highway administration also proposed a plan which provides a variety of habitat management techniques meant to sustain and enhance the continued existence of this rare and threatened species.

One of the major efforts which ultimately won regulatory approval for this road project was the commitment made by the MDSHA to monitor the compliance and habitat management activities that were included in the federal and state permits for our project to protect the bog turtle. Regarding the specific management efforts implemented to insure protection and enhancement of the habitats that support the bog turtle MDSHA proposed to:

1. Purchase and protect in perpetuity the uplands and wetlands which support the turtle populations.

MDSHA has acquired and protected 255 acres of forest, farm fields, and wetlands that serve as critical habitat for this threatened species. Covenants plats and deed restrictions have been issued and recorded which limit all future activities to only those which are consistent with the continued health of the habitat. The retention of this property provides MDSHA with numerous environmental stewardship projects for the benefit of forest resources and wildlife at virtually no cost.

2. Monitor the hydrologic resources which support the wetland habitats for the turtle.

Monitoring devices have been installed that automatically record groundwater elevations and surface stream flow volumes which provide the critical hydrologic balance for the wetland habitat. This data has been collected on a regular basis since before the highway project was constructed. MDSHA continues to monitor these hydrologic resources to insure that no changes in volume or flow rates occur which could be attributed to the presence of the roadway.

3. Provide a vegetation management strategy which will create and support the preferred cover for the turtle.

The bog turtle prefers a wet open meadow habitat of sedges, grasses, and some native shrubs. One of the sites which MDSHA acquired had been abandoned for a sufficient period of time so that invasive vines, shrubs and trees were beginning to dominate the site. A unique vegetative management strategy has been employed which uses livestock as a conservation grazing tool to gradually return the site to the preferred cover favored by the turtle. This procedure is more sensitive to the habitat and results in significant cost savings over traditional mechanical control. Through annual aerial photography and field observations we are able to measure the effectiveness of this conservation strategy.

4. Monitor the turtle population to determine if habitat management is increasing the numbers and age classes of individuals within the population.

MDSHA is engaged in an active partnership with the state's Department of Natural Resources to conduct annual surveys of the wetland sites to determine the numbers and health of the individuals within the habitat. Particular interest is placed on

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determining whether predatory animals such as raccoons, skunk, opossum, or fox are influencing the population trends. If so, a trapping and removal strategy can be employed. This and other partnership efforts utilizing the expertise of other state agencies has resulted in the best possible oversight of the project at little or no cost to MDSHA.



5. Provide teaching and learning opportunities which will increase the public's understanding of natural resource conservation and environmental stewardship.

MDSHA is providing opportunities for schools to visit and learn about some of the unique and important resources that are being protected in their own neighborhood. While cost is not a factor in the public outreach efforts at MDSHA, the benefits, as you can see, are priceless.

This project and the monitoring tools that have been employed show that environmental issues and processes need not be a wedge driven between competing interests. Inclusion and dialog throughout the design, construction and monitoring process shows that consensus and trust can be built that not only results in a better project but also serves to insure the long term viability of a valuable natural resource. This "green" highway approach may provide a blueprint for resolving similar conflicts in the future.

For more information, contact Bill Branch, Maryland State Highway Administration, Office of Environmental Design, 707 N. Calvert St. C-306, Baltimore MD 21202, (410) 545-8626. wbranch@sha.state.md.us

The End



**Liaison Notes from Lars Carlson, Bridget Donaldson and Marcia Bowen
Marine Environment Committee**

The Committee is updating the strategic plan to include climate change, biofouling, marine debris, arctic transport, sustainability). The strategic plan plus research conference will help shape new research needs statements, which currently include dredging time of year windows and ballast water treatment.

The Committee is launching a website that uses a Google platform, currently available to members only.

The marine mid year conference entitled "Transforming the Marine Transportation System: A Vision for Research and Development" was designed to explore progress in scientific and technical solutions to challenges in the areas of marine transportation and waterway management; examine potential research and technology needs in the MTS; and help foster potential partnerships between federal, state, private, and academic institutions to address MTS issues. Themes included environmental stewardship (Invasive species, ballast and hull fouling issues, a national marine enhancement/research institute; cross cutting issues (greening the Marine Transportation System; impacts of climate change, improving intermodal transportation; marine spatial planning).

Air Quality issues are currently significant for members of the committee, in part because of heavy use of diesel, contributing 2.7% of GHG; 40 US ports are in non attainment areas. EPA has been instituting clean diesel programs including the smartway program, which will be expanding to marine sources. Conversion to low sulfur fuels can be costly, but some fleets have successfully made the conversion.

USCG continues to evaluate ballast water treatment programs and is working on performance standards.

Arlene Dietz mentioned the 4 month closure of marine traffic on Snake/Columbia Rivers and wondered about environmental effects of moving marine transport to rail/road. This could be a good research topic.

The Great Lakes Maritime Research center is doing a number of research projects including environmental management best practices for small ports; dredged materials reuse in the Great Lakes and ballast free tankers.

COMMITTEE ON ENVIRONMENTAL IMPACTS ON AVIATION (AV030):

The Committee's Subcommittees hold periodic telephone/web conferences. Those interested in participating in those calls or otherwise supporting the activities of our subcommittees, please contact:

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- Sustainability Subcommittee, AV030(1): Burr Stewart
- Climate Subcommittee, AV030(2): John Putnam
- Water Resources Subcommittee, AV030(3): Thomas Klin
- Noise Subcommittee, ADC40(3): Natalia Sizov

The newly updated AV030 e-circular: , Critical Issues in Aviation and the Environment, is almost ready to be published. Sections include Noise Air Quality Airports, Non-aircraft Emissions, and Climate Change; Water Quality; Aviation Alternative Fuels Development and Deployment; Sustainability; Environmental Review Process; and Aviation Environmental Modeling Tool Suite.

ACRP Updates: The FY11 Project list is out and includes several projects of interest to the Committee.

- 2-28: Sustainability for Airports: Best Practices, Success Metrics, and Beyond
- 02-29: Evaluating Treatment of Runoff from Deicing at Airports
- 02-30: Enhancing the Airport-Industry Database of Sustainable Practices
- 02-32: Understanding and Controlling Nuisance Bacteria in Airport Storm Water Outfalls

TRB Staff (Christy Gerencher and Marci Greenberger) are creating summary reports for each of the aviation committees containing TRB CRP reports of interest to them. The reports contain abstracts of project results and links to final documents for all CRP projects that should be of interest to the committee.

Communication Subcommittee Update

In addition to their website, AV030 activities can be followed through their LinkedIn AV030 Group. Christy Gerencher has also created a TRB Aviation Group fan page on facebook.

Climate Subcommittee Update

The Climate Subcommittee held a webinar on Adaption to Climate Change. The session included an update to the informative session held at the 2009 TRB Annual Meeting.

Water Resources Subcommittee Update

The Subcommittee is currently working on additional structure to frame the issues; this will be provided as ideas develop. The first cut at a structure looks at differentiating between ground water and surface water; the subcommittee will also be looking at issues related to: storm water, potable water, surface water, ground water, wetlands, aquatic resources, and impacts to facilities. The subcommittee is soliciting concrete ideas of hot topics that need to be addressed and the focus of subcommittee work. This will drive decisions about the work product, frequency of meet-

ings, etc. The first deliverable for the subcommittee will be a paper to contribute to the Critical Issues e-circular.

COMMITTEE ON HYDROLOGY, HYDRAULICS, AND WATER QUALITY COMMITTEE (AFB 60)

Main items discussed at annual meeting:

- 2010 AFB 60 Summer Meeting in Park City, Utah (8/31/10 – 9/3/10), which is a joint meeting with FHWA National Hydraulics Engineering Conference and the AASHTO Technical Committee on Hydrology and Hydraulics. The Conference theme is “Highway Hydrology and Hydraulics: Where Water Meets the Road.” Sessions of possible interest to ADC 30 will include:
 - Highway Stream Crossings and Stream Restoration Principles
 - Water Quality
 - Climate Change
 - Fish Passage
- Announcements of additional Meetings and Conferences possible interest to ADC 30 included:
 - ASCE LID Conference in San Francisco, CA April 11-14, 2010.
 - The ASCE Water Resources Annual Conference in Providence, RI on May 16-20, 2010.
 - The 10th International Conference on “Low Volume Roads” will be held in Lake Buena Vista, FL on July 24-27, 2011. Michael Long, Chair of this conference, is in the Design Section of TRB.
 - The ASCE-EWRI Watershed Management Conference will be held in Madison, WI on August 23-27, 2010
 - The International Conference on Scour and Erosion (ICSE) in San Francisco, CA on November 8-10, 2010.
 - Green Highways Conference in Denver, CO November 14-17, 2010.
- The Committee has a new web site, which can be accessed at: <http://sites.google.com/site/trbcommitteeafb60/Welcome/membership>.
- The Committee is actively working in Research Needs Statements. Statements have been developed by the Hydrology (7) & Hydraulics (6) Subcommittees.
- Subcommittee Reports with items of possible interest to ADC 30 included:
 - The Hydrology Subcommittee will sponsor a session at the January 2011 Annual Meeting on “Uncertainty in Extreme Events with Climate Change”.
 - The Water-Quality Subcommittee is working on 13 problem statements.

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WASTE MANAGEMENT AND RESOURCE EFFICIENCY (ADC 60) COMMITTEE

Main items discussed at annual meeting:

- Annual work plan
 - Each year the committee creates an annual work plan. They create a spreadsheet of work plan topics and the progress in terms achieving each of those work plan objections (using a red, yellow, green system)
 - Their biggest shortfall in terms of meeting their objectives was in creating Research Needs Statements. The committee agreed to dedicate a conference call to this topic in the near future.

Overlapping issues with our ADC30 committee:

- Water quality contamination and its ecological effects (from pipe maintenance/rehabilitation, bridge washing, runoff, etc.)
- Roadkill disposal (Virginia Transportation Research Council is doing a composting pilot project)

PEER PRESSURE (PROGRAMS SUBCOMMITTEE REPORT)

by Alex Levy, Arcadis

In preparation for the 2011 Annual meeting, the Ecology and Transportation Committee issued our call for papers on June 1st. By the August 1st submission deadline we received three submitted papers. Two covered specific themes on wildlife habitat fragmentation and connectivity practices. These included subjects literally from opposite sides of the United States (the Pacific Northwest and the Deep South), as well as nearly opposite ends of the animal kingdom (rare insects and large carnivores). The third paper exemplified the emerging theme that values holistic conservation and transportation capacity decision-making through a framework for ecological assessment and credit [trading] systems that strategically leverage conservation priorities.

Because we've actually had a surplus of willing reviewers, some had to be placed in a "stand-by" status as alternate reviewers! An incredible testament to the dedication and enthusiasm of our members and friends, this year, the Ecology and Transportation Committee has a record 26 voluntarily engaged in reviewing and making presentation and publication recommendations for these entries.

In addition to an important pre-conference workshop that stands as a testimonial to the applied research advanced by ADC30 (see ARC article on page 4), be on the lookout for these submitted papers to be part of the sessions our committee sponsors/co-sponsors. In addition, we've been approached by several researchers to consider presentations related to the environmental effects of dust-suppressants in rural road maintenance, as well as more research on the passage of non-game fish species through roadway drainage structures. So, keep your eyes on these and more themes to be invited as part of our Committee's offerings at the January meeting.