Task Force on Ecology and Transportation Newsletter

Transportation Research Board Task Force ADC30T Fall 2004

Notes from the Chair

by Tom Linkous

Thomas E. Linkous

We have had a very successful first year as a Task Force. The Midyear Meeting went exceptionally well thanks to Alison Berry, Sandra Jacobson and Sheila Mone. What a dedicated group they have been and all three are also working on next years ICOET program as well. We are headed back to San Diego and for those who didn't make this year's meeting, you will enjoy it. CTE has reserved a great hotel in a resort area and closer to the beach. This will be a meeting to bring the family along and enjoy a few days before or after the conference.

The Annual meeting in January also promises to be a good one. You have seen our sessions and there are details in this newsletter to remind you and help you plan a busy 4 days in Washington. The TRB interactive program is available to facilitate that process. Trisha White and Doug Smith put our sessions together, but other members have also contributed in a big way. Don't forget the Task Force meeting on Wednesday, 2:30 to 6. And look for our poster at the Mega Poster Session on Tuesday, 9:30 -12, Amanda Hardy, Bridget Donaldson and several others worked on our new logo and the poster. We will have several members at or near the poster to help let people know who we are and what we are trying to accomplish. Finally, Sunday's invasive species workshop should prove to be extremely interesting. I did not mention all who contributed, but you know who you are and THANKS!

Now for a little personal news: I have recently accepted a new position with the Ohio Department of Natural Resources as the Chief of the Division of Natural Areas and Preserves. DNAP manages Ohio's State Nature Preserves and Scenic Rivers. It also manages the Natural Heritage Database, which is a GIS database for endangered and rare species, natural plant communities and unique geologic features. I am excited and pleased to get this opportunity to work with an excellent and professional staff and to help preserve Ohio's natural heritage. I have known all of the former Chiefs of this organization and I feel very honored to be joining a group I have always respected and admired. By the way, I plan to hang in there with the Task Force and to keep working with all of you to accomplish our collective goals.

Task Force on Ecology and Transportation Liaison News

By Liaison Subcommittee Chair, Amanda Hardy, Western Transportation Institute at Montana State University

Transportation and ecology affect our quality of life. These two unique fields of study are intertwined at all scales, from the microscopic to macroscopic. By understanding interrelationships between transportation and the natural, physical, socio-economic and political sciences, we can improve the sustainability and efficiency of transportation systems and reduce negative effects that infrastructure can have on animals, plants, invertebrates, soils, water, and air. The Task Force on Ecology and Transportation's liaison activities are essential to is bringing these interdisciplinary fields together.

Communication between committees and subcommittees will help Task Force grow and set roots as a subcommittee of our parent committee (ADC10 Committee on Environmental Analysis in Transportation). The role of a liaison is to share information between TRB committees via email, newsletters, and/or by presenting a short overview of the other committees' activities and upcoming events. Liaisons need not be Task Force members or committee members. If you are a regular attendee of committee meetings or follower of groups with overlapping interests with the Task Force, it is simply a matter of conveying information between the two groups. I encourage you all to think about connecting with another TRB group in order to cast our web far and wide in the TRB community and to bring "intelligence" to the Task Force.

On to liaison news. Thank you to Marcia Bowen, Brian Smith, and Alex Levy for their contributions.

- The task force's parent committee, Environmental Analysis in Transportation (ADC10) will have their annual business meeting on Tuesday, January 11th from 7:30pm to 9:30pm at the Hilton (room TBD).

- The Natural Resources and Stewardship Subcommittee (ADC10[1]) will hold their annual business meeting Tuesday, January 11th from 3:45-5:30 in the Hilton (room TBD).
- Look for these topics at the annual meeting: Noise and Emissions Inter-relationships; Environmental processing, Wildlife and Wetlands Management, and Natural Soundscapes, Bioengineering in Transportation Infrastructure.

• There has been a lot of excitement in the Committee on Environmental Effects of Aviation (AV030) about the newly created Aviation Cooperative Research Program. The committee has been focusing on its six critical issues in aviation and the environment: noise, environmental process, technology development, methodology/tools, water quality and air quality. The committee has completed a preliminary draft report summarizing these issues that will be a springboard for research topics, soon to be published as a TRB e-circular. Other news: the recently-published FAA Order 1050.0 contains new NEPA guidance. FWWA has been intensively studying HAP (hazardous air pollutants) at airports. FHWA's Carl Ma recently completed a source document entitled, "Source resource materials and annotated bibliography on the topic of Hazardous Air Pollutants (HAPs) associated with aircraft, airports, and aviation." FHWA has gathered existing air emissions and air monitoring data, which are scarce and inconsistently collected, making it difficult to pinpoint emissions sources. However, analysis confirmed that there are about 20 HAPs, 10 of which are responsible for most of the HAPs. FHWA is working towards collecting more data, developing a consistent assessment methodology and fine tuning dispersion models so that the Emissions and Dispersion Modeling System (EDMS) can be updated. The goal is to develop guidelines for testing and assessment by 2005. Future research will focus on refining the assessment methodology and evaluating HAPs health risks. The report is available at http://www.aee.faa.gov/emissions/airindex.htm. NASA and other agencies are continuing the research on HAP emissions, with a November workshop to present results.

- The newly formed Task force on Marine Environmental is also working on research priorities, which include the following:
  - Marine transportation and biodiversity
  - Marine transportation interactions with physical habitats and chemical environment;
  - Methods and standards for impact assessment and regulatory thresholds;
  - Environmental economics;
  - Tools for mitigation;

The task force will continue to define and prioritize these areas. Look on their webboard for more details (http://webboard.trb.org/~AW030T/guests)

Other News Items:

- Invasive species continue to be a challenge on both coasts and in the Great Lakes. The day long workshop on Invasive Species and Transportation (Sunday January 9, 8:30am-5 pm) will include marine and terrestrial species.
- The subcommittee on Animal-Vehicle Collisions (ANB20-2) will be having their business meeting on Wednesday, January 12th from 8am-12:00pm in the Marriott (room TBD). Agenda items will include the following:
  - Update on animal-vehicle collision paper submittals and reviews
  - Discussion of sponsorship/co-sponsorships of 2006 TRB sessions.
  - State DOT endorsements for the (re)submission of the research problem statement on "animal-vehicle collision data collection and standards" to NCHRP 20-05 Synthesis Topics.
  - Keith Knapp of the Midwest Regional University Transportation Center at University of Wisconsin-Madison will provide an informal presentation on recent activities of the Deer Vehicle Crash Clearinghouse.
  - David Jared of the Georgia DOT will provide an informal presentation of their research on deer-vehicle collision safety data and deer behavioral responses to mitigation measures.
  - Amanda Hardy of the Western Transportation Institute (WTI) at Montana State University will provide a demonstration of a hand-held PC/GPS unit and custom software to collect animal-vehicle collision data; WTI is soliciting interest from state DOTs to conduct a pilot field study to evaluate and customize this tool for DOT use and adaptation to other spatial data applications.
  - Washington DC deer-vehicle collision taskforce report on multi-jurisdictional public awareness campaign to decrease deer-vehicle collisions (tentative).

Thank you to all who were able to contribute liaison reports. See you in January!

Amanda Hardy, Research Ecologist ,Western Transportation Institute, PO Box 174250. Montana State University, Bozeman, MT 59717-4250, ahardy@coe.montana.edu.

Software for Pocket PC to Collect Road-Kill Data

by Marcel Huijser, Western Transportation Institute at Montana State University

Animal-vehicle collisions are an important issue in North America. Accidents are numerous and result in human deaths, human fatalities, property damage, and the death or injury of the animal concerned. Some animal species may be affected at the population level and face increased risk of local or regional extinction due to the high number of road-kills and other negative effects of roads and traffic. Systematically collected road-kill data can help quantify the magnitude of this problem and potential changes in road-kill occurrences and "hot spots" over time. Such data allows for prioritization and focusing of mitigation efforts to avoid or reduce collisions. However, not all DOT's or DOT districts record animal-vehicle collisions, and the DOT's that do record road-kill data often use different methods. A national standard and tool for the recording of animal-vehicle collisions would not only stimulate DOT's and other organizations to collect animal-vehicle collision data, but would also allow for more effective analyses and application of the data.

The Western Transportation Institute at Montana State University (WTI-MSU) has developed software that allows for easy, standardized and spatially precise collection of animal-vehicle collision data. The software runs on a pocket PC that is linked to a GPS (Global Positioning System) (see photo). The software distinguishes between "monitoring" and "incidental observation" mode and tracks the route of the observer. Road kill data, including species as well as optional parameters such as the sex of the animal, are stored in a separate file.

WTI-MSU would like to test the user friendliness of the soft- and hardware and is looking for transportation agencies that may be interested in the testing and further development of this tool. The software can be customized and modified based on feedback. In addition, WTI-MSU would like to develop procedures and software that allow for easy data management and analyses and eliminate labor intensive manual data entry. The data format will also allow for integration with other spatial data in a Geographical Information System (GIS).

For more information or to order a CD-ROM that demonstrates the software contact:

Marcel Huijser, phone: 406-543-2377, E-mail: mhuijser@coe.montana.edu or

Doug Galarus, phone: 406-994-5268, E-mail: dgalarus@coe.montana.edu

The pocket PC is integrated with a GPS unit. The software allows for easy, standardized and spatially precise collection of road-kill data.

Defenders Of Wildlife Report, *Second Nature*, Wins Best Publication Award From National Conservation Group

A report by Defenders of Wildlife, *Second Nature: Improving Transportation Without Putting Nature Second,* was named best publication by the Natural Resources Council of America (NRCA) at its 20th Annual Conservation Community Awards ceremony. NRCA recognized the report for its groundbreaking and influential approach to reduce the impact roads and highways have on wildlife and habitat.

"We are truly honored that *Second Nature* has been recognized, and hopefully this award will also gain recognition for an important subject that is so often overlooked," stated Patricia White, Task Force member, co-author of the report and Director of the Habitat & Highways Campaign at Defenders of Wildlife. "Loss of habitat to roads and development is one of the most pervasive and preventable threats to our wildlife. *Second Nature* builds bridges between transportation and resource agencies, and we're seeing real progress in states that are using the recommendations to reduce impacts of highways on natural areas."

Second Nature was a joint project by Defenders of Wildlife and the Surface Transportation Policy Project. The report defines the problems caused by highways and then outlines realistic, workable recommendations that factor in growth while protecting wildlife and their habitat. Since its release in April, recommendations in *Second Nature* have been incorporated into Congressional transportation reauthorization bills. If enacted, the policies will protect millions of acres of habitat from unplanned development, restore habitat connectivity, relieve traffic pressure and prevent the spread of roadside invasive species.

A copy of the report can be found online at

http://www.defenders.org/habitat/highways/secondnature.html

Task Force Member Trish White accepts best publication award from Natural Resources Council of America.

Underpass Effectiveness Research Project

by Bridget Donaldson, VDOT.

Virginia Transportation Research Council, a research facility that operates as a joint partnership between Virginia Department of Transportation (VDOT) and University of Virginia, began a one-year study in June 2004 evaluating various underpass structures throughout Virginia to determine their use by large mammals and their effectiveness in reducing animal-vehicle collisions. The structural, landscape, and environmental factors that might influence their use will be analyzed, as well as the locations of animal-vehicle accidents relative to structure locations.

The underpasses, most of which were not specifically designed as wildlife crossings, consist of box culverts and bridges of varying sizes. Remote cameras, triggered by heat and motion, are installed at each site. To date, cameras have recorded 743 white-tailed deer crossings and 95 deer turnaround events in the three most heavily-used underpass structures. Other structures have received little to no use by deer. Cameras have captured numerous other species regularly using the structures, including coyote, red fox, raccoon, groundhog, and opossum. While photos have captured black bears approaching an underpass, no bears have completely crossed through.

Based on findings from the literature and the results of the fieldwork, this report will provide VDOT guidance in choosing design and location features of crossings that are necessary to consider for increasing habitat connectivity and motorist safety. It will also serve as a foundation for future research that will enable VDOT to take proactive measures in facilitating wildlife movement.

For further information, contact Bridget Donaldson, Virginia Transportation Research Council, Charlottesville, VA 22903. Email: Bridget.Donaldson@VDOT.Virginia.gov, Phone: 434-293-1922, Fax: 434-293-1990

Photo 1: White-tailed deer crossing through a 10' x 12' x 189' box culvert beneath a major highway in central Virginia.

Photo 2: White-tailed deer crossing through a 20' x 15' x 192' culvert in northern Virginia.

Photo 3: Black bear approaching a box culvert in central Virginia.

Photo 4: Research scientist Bridget Donaldson downloading images from a remote camera.

Hot off the Press:

Highway Research Program 2005 Topic Selection for Synthesis of Highway Practice (Project 20-05)

TRB is beginning the process of selecting new topics for the FY 2005

Synthesis Program. They are requesting assistance in identifying topics to be studied. These topics will be reviewed by the synthesis project committee and a prioritized program will

be developed. Our suggestions need to be sent in no later than January 31, 2005. Therefore, let's all put our thinking caps on and get our ideas to Doug Smith, for consideration at our annual business meeting. The NCHRP Research Results Digest No. 292 provides assistance in identifying new topics, along with updates of published syntheses.

The Topics chosen for the FY 2004 program include:

36-01 Bridge Rating Practices and Policies for Overweight Vehicles

36-02 Practices for Monitoring Scour Critical Bridges

36-03 New Technologies for Improving Safety Data

36-04 Visualization for Project Development

36-05 Control of Invasive Species

36-06 Pavement Markings- Design and Layout Details

36-07 Training Program Needs, Policies, and Practices

36-08 Use of Geophysics for Transportation Projects

36-09 Statewide Travel Forecasting Models

36-10 Impact of Intermodal Freight Terminal Closures

36-11 Estimating Toll Road Demand and Feasibility

36-12 Use of Rock-Socketed Shafts for Highway Bridge Foundations

36-13 Baby Boomer Population and Transportation Decision Making

36-14 Computer Aided Tomography for Civil and Construction Application

36-15 Outsourcing Equipment Fleet Operations

Remember, one of the Task Force goals is to put the "research" into TRB.

New Chief Named for the ODNR Division of Natural Areas & Preserves

Thomas E. Linkous, a long-time ecologist with the Ohio Department of Transportation, has been appointed chief of the Ohio Department of Natural Resources (ODNR) Division of Natural Areas & Preserves.

Linkous comes to the agency following a 29-year career with the Ohio Department of Transportation (ODOT), where he most recently served as the agency's environmental liaison, responsible for coordinating projects and contacts with state and federal environmental agencies. He will join ODNR on December 13, replacing Nancy Strayer, who will resume her former position as assistant chief.

"Tom Linkous brings a wealth of environmental knowledge and experience to ODNR," ODNR Director Sam Speck said. "We are delighted to have recruited a natural resources professional of this caliber."

As chief of the ODNR Division of Natural Areas & Preserves, Linkous will oversee Ohio's system of 128 state nature preserves and 20 state scenic river segments, which protect the state's natural features such as native vegetation, unique geologic formations, and rare and endangered species.

In addition to his career with ODOT, Linkous has also worked for the U.S. Fish & Wildlife Service and was a high school biology teacher in the Cincinnati area. He holds a bachelors degree in life science from Otterbein College and a masters degree in fisheries management from The Ohio State University.

His professional associations include memberships in the American Fisheries Society and the National Society of Wetland Scientists. Linkous also serves as chair of the Ecology and Transportation Task Force of the Transportation Research Board.

Linkous and his wife Marilyn, are the parents of one son, David. They reside in the Columbus suburb of Westerville.

Northeast Ecology & Transportation Workshop

A very successful first annual Northeast Ecology & Transportation workshop was held in Fairlee Vermont. The conference attracted approximately 125 people, including the Vermont Secretaries of Transportation and Fish & Game. Dr. Richard Forman, Task Force member, gave an inspiring keynote address. The workshop goals were first, to build regional network of people working on transportation-conservation issues and lay groundwork for a regional vision and strategy, and second, to define the scope of issues (both scientific/technical and policy/institutional issues) that the group collectively faces.

TRB Annual Meeting: Sessions sponsored by ADC30T - Task Force on Ecology and Transportation

Paper or Conference Sessions

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Monday, January 10, 2005, 3:45pm- 5:30pm, Hilton, Georgetown West

Banking on Conservation: Proactive Mitigation for the 21st Century

Patricia White, Defenders of Wildlife, presiding

Sponsored by Committee on Task Force on Ecology and Transportation (ADC30T)

How to Use U.S. Fish and Wildlife Service Guidance on Conservation Banking (P05-0767)
Deborah Mead, U.S. Fish and Wildlife Service

New Strategy for Protecting Rare Species (P05-0775)
Jessica Fox, EPRIsolutions Environmental Division

Case Study: Alabama Department of Transportation Gopher Tortoise Bank (P05-0778)
William Van Luchene, Alabama Department of Transportation

Conservation Banking for Listed Species (P05-0779)
Marie Venner, Venner Consulting, Inc.

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Monday, January 10, 2005, 1:30pm- 3:15pm, Hilton, Georgetown West

Ecology and Transportation: Recent Innovations

Douglas L. Smith, Parsons Brinckerhoff, presiding

Sponsored by Committee on Task Force on Ecology and Transportation (ADC30T)

This session presents papers on new and emerging tachnologies to address environmental and engineering aspects of transportaion projects and provides information on a programmatic approach to addressing ecological mitigation needs for transportation programs.

Pile Driving and Barotrauma Effects (05-2242)
Sara Hardyniec, Michigan Technological University
Sarah Skeen, Federal Highway Administration

North Carolina's Ecosystem Enhancement Program: Mitigation for the Future (05-1242)
Janet D'Ignazio, North Carolina State University

Engineered Logjams: Emerging Technology for Protecting Infrastructure and Restoring Riverine Ecosystems (P05-0804)
Tim Abbe, Herrera Environmental Consultants, Inc.
Michael Spillane, Herrera Environmental Consultants, Inc.
Mark Ewbank, Herrera Environmental Consultants, Inc.
Jennifer Black-Goldsmith, Herrera Environmental Consultants, Inc.
Jose Carrasquero-Verde, Herrera Environmental Consultants, Inc.
Jim Park, Washington State Department of Transportation

Published Meetings

ADC30T

Wednesday, January 12, 2005, 2:30pm- 6:00pm, Hilton, Exhibit Hall 2

ADC30T

Thomas E. Linkous, Ohio Department of Transportation, presiding

Sponsored by Committee on Task Force on Ecology and Transportation (ADC30T)

ADC30T Cosponsored Sessions (only editable by the primary committee sponsor)

CFS05-034

Tuesday, January 11, 2005, 8:00am- 9:45am, Hilton, International West

Toward a Sustainable Future: Findings of Specialty Conference on Sustainability in Transportation Planning Practice

David L. Greene, Oak Ridge National Laboratory, presiding

Sponsored by Committee on Task Force on Transportation and Sustainability (ADD40T); Committee on Task Force on Ecology and Transportation (ADC30T)

Technology Initiatives for Sustainability Planning (P05-1002)
Daniel Sperling, University of California, Davis

Sustainable Transportation Planning Initiatives (P05-1003)
John P. Poorman, Capital District Transportation Committee

Institutional and Cultural Change for Sustainability Planning (P05-1004)
Thomas M. Downs, Eno Transportation Foundation Inc

KFP05-002

Tuesday, January 11, 2005, 9:30am-12:00pm, Hilton, International Center

Environmental Mega Poster Session

Sponsored by Committee on Planning and Environment Group (AD000); Committee on Environmental Analysis in Transportation (ADC10); Committee on Transportation and Air Quality (ADC20); Committee on Task Force on Ecology and Transportation (ADC30T); Committee on Transportation-Related Noise and Vibration (ADC40); Committee on Historic and Archeological Preservation in Transportation (ADC50); Committee on Waste Management in Transportation (ADC60); Committee on Transportation Energy (ADC70); Committee on Alternative Transportation Fuels (ADC80)

KFS05-004

Monday, January 10, 2005, 7:30pm- 9:30pm, Hilton, Lincoln West

Planning Input into Environmental Process

Kenneth J. Leonard, Wisconsin Department of Transportation, presiding

Sponsored by Committee on Statewide Multimodal Transportation Planning (ADA10); Committee on Environmental Analysis in Transportation (ADC10); Committee on Task Force on Ecology and Transportation (ADC30T); Committee on Historic and Archeological Preservation in Transportation (ADC50)

Laying the Foundation for National Environmental Policy Act in Planning: Why and How? (P05-0102)
Cynthia J. Burbank, Federal Highway Administration

Florida's Experience with Integrating Planning and Environmental Considerations (P05-0103)
Ysela Llort, Florida Department of Transportation

Environmental Considerations in System Planning (P05-0104)
Janet D'Ignazio, North Carolina State University

Cleveland's Metropolitan Planning Organization Approach to Addressing Water Quality Issues in Transportation Planning and Project Review (P05-0105)
John Beeker, Northeast Ohio Areawide Coordinating Agency

Considering Environmental Factors Earlier: Standing Transportation Planning on Its Head? (05-1695)
Michael D. Meyer, Georgia Institute of Technology

KFW05-011

Sunday, January 9, 2005, 8:30am- 5:00pm, Hilton, Monroe West

Invasive Species and Transportation: Issues and Challenges

Carlos Braceras, Utah Department of Transportation; Arnold Konheim, U.S. Department of Transportation; Lynne H Irwin, Cornell Local Roads Program; A Gordon Brown, U.S. Department of the Interior, presiding

Sponsored by Committee on Task Force on the Transportation Needs for National Parks and Public Lands (ADA40T); Committee on Environmental Analysis in Transportation (ADC10); Committee on Task Force on Ecology and Transportation (ADC30T); Committee on Low-Volume Roads (AFB30); Committee on Landscape and Environmental Design (AFB40); Committee on Maintenance and Operations Management (AHD10); Committee on Roadside Maintenance (AHD50); Committee on Ports and Channels (AW010); Committee on Marine Environmental Task Force (AW030T)

The purpose of this workshop is to provide background information about invasive species, present solutions for invasive-species management and address future opportunities for the air, water, and land transportation communities to work together on invasive-species issues.

Invasive Species: They Use Our Transportation Network (P05-0910)
Faith Campbell, The Nature Conservancy

Socioeconomic and Ecological Costs of Invasive Species (P05-0911)
James H Miller, U.S. Forest Service

National and Global Efforts to Meet Invasive-Species Challenge (P05-0912)
Alan V. Tasker, Animal Plant Health Inspection Service

What Is and Isn't Being Done with Air, Land, and Water (P05-0914)
Arnold Konheim, U.S. Department of Transportation

Prevention and Control Begin with Mapping (P05-0915)
Ira Brickford, Utah Department of Transportation

Public Awareness and Partnerships (P05-0919)
Sheilah Kennedy, Okanogan County Noxious Weed Control Board
Raymond G. Willard, Washington State Department of Transportation

Ballast Water Regulation and Technology (P05-0921)
Kathy Moore, U.S. Coast Guard

State Solutions: Working Together to Meet a Common Need (P05-0922)
Bonnie L. Harper-Lore, Federal Highway Administration

Risk Reduction in Shipment of Military Equipment (P05-0923)
Al F. Cofrancresco, U.S. Army Corps of Engineers

Ballast Water Management (P05-0924)
Kathy Metcalf, Chamber of Shipping of America

Future Opportunities for Transportation and Conservation (P05-0925)
Patricia White, Defenders of Wildlife

Early Detection Rapid Response (P05-0926)
Senior Scientist, U.S. Forest Service

Adirondack Park Invasive-Plant Program and Importance of Restoration (P05-0927)
Kyle Williams, New York State Department of Transportation

Also of interest:

SESSION #: 725. Wednesday, January 12, 2005, TIME: 7:30pm- 9:30pm, LOCATION: Marriott, Virginia A. TITLE: **Bioengineering in Transportation Infrastructure**.

SPONSORED BY: Physicochemical Phenomena in Soils PRESIDING OFFICER: Brian L. Smith, Federal Highway Administration.

- Bioengineering Design within the Context of Natural and Conventional Engineering Demands. Marty Rye, Inter-Fluve, Inc.
- Stabilizing and Restoring Highly Steepened Sites Using Integrated Technology Robbin B. Sotir, Robbin B. Sotir & Associates, Inc.
- Right of Way Remediation Potential of Closed and Open Drainage Systems .David W. Ostendorf, University of Massachusetts
- Use of Biosealants in Crack Remediation .Sookie Bang, South Dakota School of Mines & Technology
- Microbiological Influences on Soil Properties and Geotechnical Behavior.James K. Mitchell, Virginia Polytechnic University & State University.

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