



Challenge X 2007 Outreach Program Report # __1

***Instructions:** Use this template to provide your team's outreach program updates. The following are the dates that your outreach reports are due. Report #1: November 26, 2006; Report #2: March 29, 2007; Final Report: May 30, 2007 (please note, a revised template may be provided for the final report). Each of these reports must be posted as a PDF or Word document to your team website by the due date.*

Team: UW-Madison Hybrid Vehicle Team

Name of Outreach Coordinator: Lehla Vakili

Phone number and email of Coordinator: (608)206-3066, vakili@wisc.edu

Dedicated Outreach Coordinator (Y/N): Y

If no, please list other role the O.C. has on your team:

Date posted: November 21, 2006



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I. Outreach Plan

- *Please report on any changes or updates your team has made to your Outreach Plan since it was submitted on November 2, 2006.*
- *If none, please write “No changes.”*

II. Outreach Activity Detail

A. Media Relations (Requirement of 5 media hits)

Please list each media hit or event since your last outreach report. Please number your events below. Please provide copies of any media clips in the Appendix.

Media Type <i>(Television, Radio, Print)</i>	Media Outlet and Reporter’s Name	Date	Location	Coverage Origin <i>(List name of News Release or Event)</i>
Internet	Smart Economy,	June 09, 2006	World	Challenge X Competition
Internet	TG Daily, Wolfgang Gruener	June 09, 2006	Word	
Internet	Roland Piquepaille's Technology Trends, Roland Piquepaille	June 09, 2006	world	Hybridfest
Print	Wisconsin State Journal, Ron Seely	June 11, 2006	Wisconsin	Challenge X Competition
Press	PR Leap	June 18, 2006	Wisconsin	Hybridfest
Internet	UW-Madison	June 20,		Challenge X

	Communications, Niki Fritz	2006	World	Competition
Television	NBC Channel 15 News	July 10, 2006	Wisconsin	E10 Alternative fuels (Part 1)
Television	NBC Channel 15 News	July 11, 2006	Wisconsin	E10 Alternative Fuels (Part 2)
Radio	Air America 92.1	July 20, 2006	National	
Print	GM today, Kyle Zwieg	September 29, 2006	World	
Internet	Hot Butter Rum	October 24, 2006	World	Alternative Fuel Show

Photos:

B. Youth Outreach (Requirement of 3 events)

Please use the chart to provide a list of all of your youth outreach activities since your last outreach report. Also provide a written description below with additional details for each youth outreach activity listed. Please number your events below.

Activity	Date	Location	Audience	Participants <i>(Briefly describe which team members participated)</i>
Science FunFest	October 17, 2006	Ottawa, Ontario	School Class, Grade 7, approximate 20 kids	Team Leader: Becky Gunn
Seymour High School Tour	November 2, 2006	Garage; Madison, WI	Seymour high school students	Advisor, Glenn Bower; Team Leader, Becky Gunn

1. **Youth activity name:** Science FunFest
2006/one hour

Date/Time: October 17,

Location: Ottawa, Ontario

Team participants: Outreach Coordinator, Becky Gunn

Audience: School Class, Grade 7, approximate 20 kids

Activity description/details: Show off the vehicles in the garage and explain the Challenge X competition to the middle school students.

Key Messages Covered: Opportunities available to children when they go to college and the Challenge X competition's ability to help students learn more about hybrid vehicles.

Any measurable results: Some students seemed interested in the cars and the possibility of engineering for college. There were a few questions from the students and the teacher too.

Photos:



Figure 1: Youths learning about the Moovada at Funfest.



Figure 2: A team member speaks about the Moovada and Challenge X.

Youth Activity name: Seymour High School Tour

Date/Time: November 2, 2006 11 am

Location: Garage

Team participants: Glenn Bower, Becky Gunn

Audience: Seymour high school students

Activity description/details: Tour of the automotive projects.

Key Messages Covered: Importance of hands on research. Also described the advantages of having a Challenge X competition vehicle and how the experience helps the students learn in a fun environment

Any measurable results: Some students seemed interested in going to college in engineering.

Photos:



Figure 3: Advisor Glenn Bower makes learning about Hybrid cars fun.



Figure 4: Advisor Glenn Bower shows youths the underbody of the Moovada and talks about Challenge X.

C. Community Outreach (Requirement of 3 events)

Please use the chart to provide a list of all of your community outreach activities since your last outreach report. Also provide a written description below with additional details for each community outreach activity listed. Please number your events below.

Activity	Date	Location	Audience	Participants <i>(Briefly describe which team members participated)</i>
Wisconsin Clean Cities Biodiesel Awareness Reception	July 08, 2006	Milwaukee, WI Hot water bar	Guster fans,	Dean Wilkenson, Nick Matthias, Matt Coyne, Lehla Vakili, and Glenn Bower
Engineering Bash	September 09, 2006	Madison, WI (Engineering Hall)	UW-Madison freshman students	Controls Leader, Steve Erlen; Team Leader, Becky Gunn; Outreach Leader, Lehla Vakili, Joshua Royalty, Matt Machalack; RADAR, Dan Mehr, Danny Bocci
Fall team kick-off Event	September 13, 2006	Madison, WI (1610 Engineering Hall)	UW-Madison Students	Advisor, Glenn Bower; Outreach Leader, Lehla Vakili; Drivetrain Leader, Dean Wilkenson, Nick Matthias; Outreach Leader, Lehla Vakili, Steve Erlen; Team Leader, Becky Gunn, Dave; Mechanical Leader, Ben Fjellanger, Kevin Stutenberg; RADAR, Dan Mehr, 70+ prospective members
Argonne National Laboratory Open House	October 7, 2006	Chicago, IL	Illinois Public	Team Leader, Becky Gunn; Radar, Dan Mehr; Drivetrain Leader, Dean Wilkinson, Danny Bocci; Advisor, Glenn Bower
Homecoming	October 14, 2006	State Street	Madison	Matt Coyne, Matt Simonini,

Parade		Madison, WI	public	Matt Michlak, Nick Matthias; Drive Train Leader, Dean Wilkenson, Charles Alhands; Team Leader, Becky Gunn
Canadian Air Resource Center Open House	October 15, 2006	Ottawa, Ontario		Team Leader, Becky Gunn; Radar, Dan Mehr; Nick Matthias; Advisor, Glenn Bower, Matt Simonini
Alternative Fuel car show	October 24, 2006	Madison, WI	UW-Madison Students	Advisor, Glenn Bower; Outreach Coordinator, Lehla Vakili; Team Leader, Becky Gunn, Matt Coyne, Kevin Stutenberg; Controls Leader, Steve Erlen

1. Community event name: Engineering Bash

Date/Time: September 9, 2006 from 10:30AM-3:00PM

Location: Madison, WI, in front of Engineering Hall

Team participants: Controls Leader, Steve Erlen; Team Leader, Becky Gunn; Outreach Leader, Lehla Vakili, Joshua Royalty, Matt Machalack; RADAR, Dan Mehr, Danny Bocci

Audience: UW-Madison freshman students

Activity description/details: The Engineering Bash is an annual event held in the first week before classes. It's an event where freshmen engineering students, and transfer students get a chance to become more familiar with the Engineering Campus by meeting other students, and hearing about different ways of getting involved in engineering student organizations. The Bash starts with a welcome speech from the Engineering General Resources Dean, Don Woolston. Then each organization gives a brief multimedia presentation about their organization. Once all the organizations have spoken all the students are encouraged to have some free food and talk to any of the organizations that may have interested them during the speeches. These organizations are stationed all over Engineering Mall, each with tables of information on how to get involved and contact information.

Key Messages Covered: Emphasis was put on the benefits of joining UW-Madison Hybrid Vehicle such as learning how to retrofit in cars, learning about new technologies, making friends, getting real world experience including designing.



Any measurable results: Team members stood in front of the Moovada with their team shirts to greet interested students and answer their questions. Several students wrote their name and email address for the kick-off meeting reminder email. There were students that mentioned that they had heard of the Hybrid Vehicle Team through fellow engineering students and through the reports in the newspaper. Many students said they were interested in joining the Hybrid Vehicle Team because they were interested in helping the environment.

Photos:

2. **Community event name:** Fall team kick-off Event

Date/Time: September 13, 2006/ 7:00PM-11:00PM

Location: Madison, WI (1610 Engineering Hall)

Team participants: Advisor, Glenn Bower; Outreach Leader, Lehla Vakili; Drivetrain Leader, Dean Wilkenson, Nick Matthias; Outreach Leader, Lehla Vakili, Steve Erlien; Team Leader, Becky Gunn, Dave; Mechanical Leader, Ben Fjellanger, Kevin Stutenberg; RADAR, Dan Mehr, 70+ prospective members

Audience: UW-Madison Students interested in joining the hybrid team

Activity description/details: The Fall kickoff is an event meant for students interested in the Hybrid Vehicle Team to get more in depth information about it and consider joining the team. Included in the event was a powerpoint about the vehicle, presentations by group leaders, and a tour of the garage area.

Key Messages Covered:

Any measurable results: We gained approximately 10 new core members to our team who are enthusiastic and hardworking. They are all very interested in learning new technology and working on the vehicle.

Photos:

3. **Community event name:** Argonne National Laboratory Open House

Date/Time: October 7, 2006/ 8:30AM-4:30PM

Location: Chicago, IL

Team participants: Team Leader, Becky Gunn; Radar, Dan Mehr; Drivetrain Leader, Dean Wilkinson, Danny Bocci; Advisor, Glenn Bower

Audience: Illinois Public

Activity description/details: The Moovada was displayed at Argonne National Lab to show an example of a vehicle modified for the Challenge X competition which is sponsored by Argonne.

Key Messages Covered: Students discussed the Challenge X competition, the role of Argonne, the team's goals and the team's vehicle configuration.

Any measurable results: The public seemed to ask good questions about the future of alternative fuels, asked about the vehicle architecture and appeared to be interested in the project.

Photos:



Figure 5:Danny Bocci shows attendees the Moovada's engine compartment.



Figure 6: Presentation of the Moovada and information about it at Argonne National Lab.



Figure 7: Kevin answers a question from an attendee.



Figure 8: Dan Mehr explains Challenge X to attendee.

4. **Community event name:** Homecoming Parade

Date/Time: October 14, 2006

Location: State Street Madison, WI

Team participants: Matt Coyne, Matt Simonini, Matt Michlak, Nick Matthias; Drive Train Leader, Dean Wilkenson, Charles Allhands; Team Leader, Becky Gunn

Audience: Madison public

Activity description/details: The UW-Madison Hybrid Vehicle Team participated in the annual Homecoming parade organized by the University. The vehicle was paraded around downtown Madison where the general public was exposed to the vehicle. Students involved in the team sat inside the paraded vehicle while waving, smiling, and throwing candy at the enthusiastic crowd. Having smiles on their faces, the team members looked friendly.

Key Messages Covered: The UW-Madison Hybrid Vehicle team is interested in maintaining interest in school pride as well as promoting alternative fuels and the Challenge X competition.

Any measurable results: Some people recognized the Hybrid Vehicle Team's older vehicle and called out to the team while others became aware of our project through this parade. Also, this event was a good opportunity to recruit interested members since many university students attend the parade.

Photos:



Figure 9: View from the front window of the Moolander in the Homecoming Parade.



Figure 10: Team members ready to leave for the Homecoming Parade

5. Community event name: Canadian Air Resource Center Open House

Date/Time: October 15, 2006 (11-1pm)

Location: Ottawa, Ontario

Team participants: Team Leader, Becky Gunn; Radar, Dan Mehr; Nick Matthias; Advisor, Glenn Bower, Matt Simonini

Audience: people of Ottawa, Canada.

Activity description/details: Presented the vehicle, on display in a tent shared with the University of Waterloo's vehicle. Answered questions for everyone from government officials to small children.

Key Messages Covered: Our school's vehicle architecture for the Challenge X competition, mainly focusing on the bio-diesel electric hybrid configuration. Our interest in the Challenge X competition and our team's plans for this year's modifications were also discussed.

Any measurable results: Some people learned more about the Challenge X competition and the focus on alternative fuels. Others learned about the configuration that UW-Madison chose for its vehicle and how bio-diesel works.

Photos:



Figure 11: Interested attendees listen to a team member speak about the Moovada and Challenge X at Canadian Air Resource Center Open House.

6. Community event name: Alternative Fuel car show

Date/Time: October 24, 2006/ 11:AM-2:00PM

Location: Madison, WI (in front of Engineering Hall)

Team participants: Advisor, Glenn Bower; Outreach Coordinator, Lehla Vakili; Team Leader, Becky Gunn, Matt Coyne, Kevin Stutenberg; Controls Leader, Steve Erlen

Audience: UW-Madison Students

Activity description/details: Showed car off with a bio-diesel & vegetable oil fueled bus owned by the band Hot Buttered Rum and with the Madison area Bio-Diesel Co-op. The vehicle was on display for individuals interested in alternative fuels and environmentally friendly issues to ask questions about the work done on campus.

Key Messages Covered: UW-Madison discussed the importance of moving toward alternative fuels with vehicles and the dedication of the students to creating research vehicles like the Moovada for helping move to the future of automotive technology.

Any measurable results: The students received a lot of questions and interest and some students who seemed to want to join the team. Others learned more about alternative fuels and reasons why our school chose bio-diesel.

Photos:



Figure 12: The Moovada in front of the biodiesel running bus.



Figure 13: Dan Mehr responds to one interested student's questions.

D. Sponsor Outreach (Requirement of 1 event)

Please use the chart to provide a list of your sponsor activities since your last outreach report. Also provide a written description below with additional details for each sponsor outreach activity listed. Please number your events below.

Activity	Date	Location	Audience	Participants <i>(Briefly describe which team members participated)</i>
Dana	October 26, 2006	Detroit, MI	Sponsors	Advisor, Glenn Bower; RADAR, Dan Mehr
Ballard	October 26, 2006	Detroit, MI	Sponsors	Advisor, Glenn Bower; RADAR, Dan Mehr
Ford	October 26, 2006	Detroit, MI	Sponsors	Advisor, Glenn Bower; RADAR, Dan Mehr

E. Website

- There have been continuous updates for Recent Event on the Team's homepage
- The sponsors have been updated and links to all of the sponsor's homepages have been added



- Media events for the past year up to present have been up dated in the Media Events link on the homepage
- There are continual Updates for the mover and shaker award on the challenge X link from the homepage. The Mover and Shaker Award is given to team members that have dedicated a lot of their time and the recipients are usually new members.
- A few of the aesthetic aspects of the webpage have been altered, such as the motion W's on the menu on the front page. Also, tables, separators, and nice fonts have been updated.
- All the links in the links page have been update so that they all work
- In the challenge X page the competition results, listing all of the team awards, has been added
- New pictures have been added to the photo gallery of all the newest events
- An interactive link has been added so that visitors can give their input on what they would like in their Equinox
- The new Quarterly Cow has been added to the Quarterly Newsletter link from the home page



F. Other

Please provide any other information on your team's outreach program developments not covered above.

Reported by: Lehla Vakili

Date:

Appendix: Copies of Media Clips

1. Smart Economy

(http://smarteconomy.typepad.com/smart_economy/2006/06/index.html)

June 09, 2006 in [Smart Design](#) | [Permalink](#) | [Comments \(0\)](#) | [TrackBack \(0\)](#)

Smart High Performance High Fuel Efficiency & Low Emissions SUV, no it's not an oxymoron; Challenge X: Crossover to Sustainable Mobility



The Darpa Grand Challenge, the driverless desert car race might get more attention and be more well known, but no less important is the Challenge X: Crossover to Sustainable Mobility engineering competition, sponsored by General Motors (GM) and the U.S. Department of Energy (DOE).

When you think SUV, good gas mileage and low emissions are not the first things that come to mind.



17 universities from across North America took part developing advanced propulsion technology solutions with the goal of improving on-road fuel economy and reducing emissions in SUV's. The student teams are each re-engineering a Chevy Equinox with their technology solutions. The competition challenged students to revamp their Chevrolet Equinox, maintaining the SUV's performance while enhancing its fuel efficiency by 50 percent and decreasing tail-pipe emissions.



The top 3 winner were announced yesterday. The winning team from Virginia Polytechnic Institute and State University, reengineered a 2005 Chevrolet Equinox as a split parallel hybrid that uses two electric motors and runs on E85 - an ethanol/gas blend that reduces the vehicle's well-to-wheels petroleum use by 74 percent.

The second place vehicle, designed by students at the University of Wisconsin-Madison, is a through-the-road parallel biodiesel electric hybrid with a diesel 1.9-L turbo charged engine.

Mississippi State University was awarded third place overall with a split parallel, through-the-road hybrid electric vehicle that runs on B20 biodiesel.

Last year a team from the University of Waterloo won the competition.

"Developing the advanced technologies that reduce U.S. dependence on imported oil is critical to the future prosperity of our country. Challenge X shows that the cooperation of industry, government and academia is an excellent approach to developing more energy-efficient and 'greener' automotive technologies," said Ed Wall, program manager for the FreedomCAR and Vehicle Technologies Office of the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy.

Dan Hancock, vice president of GM Powertrain Engineering, said the Challenge X teams are working on the same real-world goals that GM engineers are marching toward on a daily basis. "These students are working on the same challenges that our GM engineers continually work on every day - high-efficiency, high performance vehicles that consume less fuel and produce fewer emissions from the well to the wheel," Hancock said. "This hands-on learning is providing them the necessary skills to embark on a career in engineering with a competitive advantage."

The second-place UW-Madison hybrid-vehicle, appropriately named the "Moovada," gets approximately 35 miles per gallon (mpg) - 20 mpg better than the 15 mpg that a regular SUV averages

The power train is a through-the-road, parallel diesel-electric hybrid design. It basically means that the electric motor powers the rear wheels while the engine powers the front wheels.



In the future, the principles of the Moovada and other participating vehicles could one day be incorporated into regular SUVs. The team explains that if gas prices were greater than \$4 per gallon, the Moovada would pay for itself.

"The Moovada is a highly hybridized vehicle," say the team. "It would be a \$3,000 to \$5,000 cost premium to add this to a stock vehicle. Fuel prices would need to be around \$4 per gallon for consumers to recapture their investment."

Challenge X is good for the future of the SUV - and for the future of the student participants. Organizers explain that the event trains students in hybrid automotive concepts, skills that make graduating students extremely attractive to recruiters from the automotive industry.

Additional information about Challenge X is available on the Web at <http://www.challengex.org>.

High-resolution photos of this event are available [online here](#) and at <http://digitalrailroad.net/royfel/>
For access to the digitalrailroad site: Enter Username: GM Enter Password: Challengex2 Click on MESA

My only remaining question is: If students can do it today, then why aren't car manufacturing engineers doing it today?

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Walter Derzko

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.....Strategy without action is a day-dream; action without strategy is a nightmare"

- old Japanese proverb

P. S. if this is your first visit to my blog, please go to our [Welcome page](#)

2. TG Daily, Wolfgang Gruener
(http://www.tgdaily.com/2006/06/09/hybrid_diesel_suv/)



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ARTICLE

University of Wisconsin creates diesel-hybrid SUV

[Wolfgang Gruener](#)

June 9, 2006 14:00

Madison (WI) - Americans are in love with their SUVs and even gas prices topping \$3 per gallon aren't convincing enough for many to consider more fuel efficient cars. And probably they don't have to, if a research project at the University of Wisconsin-Madison makes its way into mass-production.

Roland Piquepaille has picked up in his [Technology Trends blog](#) a press release about a Chevrolet Equinox small SUV that has been modified as part of the [Challenge X](#), which interestingly has been sponsored by Chevrolet - a company that is not really known to build the most fuel efficient cars around. What is special about this Equinox is that it is a hybrid vehicle, which combines an electrical engine to power the rear wheels and a diesel engine powering the front wheels.

Hybrids aren't new, but the concept of the University of Wisconsin-Madison has a few unique approaches. First, instead of a regular gasoline engine that is used, for example, in the Ford Escape Hybrid or Lexus RX400h Hybrid it uses a diesel engine that provides not only more torque but are also more fuel efficient at higher speeds - a discipline where today's available hybrid cars still disappoint. The first diesel-hybrid concept was shown last year by French auto maker Citroen, which promised to bring the car to the European market in the 2008 time frame.



Second, while electric engines in today's hybrids are often used to just start the car (a concept shown by Audi), to boost torque and to be active mainly at slower speeds, the electric motor Challenge X concept's Equinox runs all the time.

The creators of the vehicle, named "Moovada," claim that the new powertrain increases the Equinox' fuel efficiency by more than 50% to about 35 mpg, up from 15-20mpg. The cost to install the system into a stock car would be about \$3000 - \$5000, according to Liz Casson, team leader for the engineering student group. "Fuel prices would need to be around \$4 per gallon for consumers to recapture their investment," she said.

Combining the most fuel-efficient engine out there today with the benefits appears to be a no-brainer these days. But car makers still have to invest lots of time and money into educating the US mainstream buyer that diesel engines aren't as bad as 20 years ago. And perhaps, car makers will also find out that hybrid technology may not just be great for enhancing a V6 engine to get V8 power at V6 fuel efficiency, but to create a vehicle with today's horsepower range and tomorrow's fuel efficiency requirements as well.

[Print View](#) [HOME](#)

3. Roland Piquepaille's Technology Trends, Roland Piquepaille
(<http://www.primidi.com/2006/06/09.html#a153>)



📅 vendredi 9 juin 2006

[Riding the Moovada](#)

Would you drive a sport utility vehicle (SUV) if you could get 35 miles per gallon -- less than 7 liters per 100 km? [This is the level of efficiency reached by the Moovada](#), a SUV modified by engineers at the University of Wisconsin-Madison for the Challenge X sponsored by General Motors. With the parallel diesel-electric hybrid battery system they've put into a Chevrolet Equinox, "the electric motor powers the rear wheels while the engine powers the front wheels." If the price of gasoline continues to increase, the extra cost of this system could easily be absorbed by the owners of such cars in a couple of years. Read more...

Here is the introduction of the University of Wisconsin-Madison news release.

A group of engineering students at the University of Wisconsin-Madison has spent the last three years building one of the cleanest and most fuel-efficient SUVs in North America. The principles behind the vehicle, appropriately named the "Moovada," could one day be incorporated into mass-production hybrid SUVs.

The effort is part of a contest, "[Challenge X](#): Crossover to Sustainable Mobility," sponsored by General Motors and U.S. Department of Energy.

Below is a picture of the Moovada painted in Wisconsin colors, red and black (Credit: University of Wisconsin-Madison).



But why this SUV is so efficient?

According to Liz Casson, one of the leaders of the [UW Hybrid](#)

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[Vehicle Team](#), the Moovada is unique because of the vehicle's power train. This is probably why "the UW-Madison team was awarded second place in the competition, coming in just behind a team from Virginia Tech University," but ahead of 15 other teams.

"The power train is a through-the-road, parallel diesel-electric hybrid design," Casson explains. "It basically means that the electric motor powers the rear wheels while the engine powers the front wheels." It is a design that maintains the Equinox's handling and performance, but improves its fuel efficiency and emissions. Casson says the Moovada gets approximately 35 miles per gallon (mpg) -- 20 mpg better than the 15 mpg that a regular SUV averages.

Does this mean this kind of vehicles will be commercially sold anytime soon?

In the future, the principles of the Moovada and other participating vehicles could one day be incorporated into regular SUVs. [Glenn Bower, the team's adviser,] explains that if gas prices were greater than \$4 per gallon, the Moovada would pay for itself.

"The Moovada is a highly hybridized vehicle," says Bower. "It would be a \$3,000 to \$5,000 cost premium to add this to a stock vehicle. Fuel prices would need to be around \$4 per gallon for consumers to recapture their investment."

For more information about the Moovada, you can read the March 2006 issue of [Quarterly Cow](#) (Volume 7, Issue 1, PDF format, 4 pages, 4.23 MB) from which the above picture has been extracted, or [this Challenge X 2006 technical report](#) (PDF format, 13 pages, 2.34 MB).

Sources: University of Wisconsin-Madison news release, June 8, 2006; and various web sites

You'll find related stories by following the links below.

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4. Wisconsin State Journal, Ron Seely
(<http://www.madison.com/archives/read.php?ref=/wsj/2006/06/11/0606100203.php>)

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Wolves Credited With Bringing More Balance To Ecosystem

Wisconsin State Journal :: LOCAL :: D7

Sunday, June 11, 2006
Ron Seely

Most news reports about the latest update on Wisconsin's wolf recovery program focused on increasing depredation that has come with the growth in the state's gray wolf population.

But hidden in the report from the state Department of Natural Resources were some interesting results of research conducted over the years on the impact of the growing wolf population on the state's landscape. That research shows some glimmer of the ancient balance that used to exist between the wolf and the rest of the ecosystem.

Adrian Wydeven, a conservation biologist and wolf specialist with the DNR's Bureau of Endangered Resources, said the number of wolves in the state has grown impressively from the last count between 435 and 465 wolves to as many as 485 wolves. That's about 100 wolves above the management plan's goal, Wydeven added.

With such large numbers, depredation has become a problem, Wydeven added. In 2005, wolves preyed on livestock at 25 farms, an increase from 22 farms the year before.

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But at the same time, research is showing the return of the wolf has had some interesting benefits, according to Wydeven.

Biologists and foresters, for example, report an increase in number and kind of forest floor plants in some areas where wolves have either reduced or controlled deer numbers or have caused deer to disperse over a wider area. Reduced browsing by deer has allowed some deer-preferred plants to recover and that has meant a more normal balance of plant types.

Elsewhere, wolves have brought beaver populations into better balance and that has reduced flooding caused by dam building. The control of beaver populations by wolves in some areas also improved the flow of water in many trout streams.

UW team second

An innovative powertrain invented by student engineers at UW-Madison allowed the team of students to place second in a national competition aimed at demonstrating practical advances in fuel efficiency.

The contest, called "Challenge X: Crossover to Sustainable Mobility," is sponsored by General Motors and the U.S. Department of Energy. Thursday, the UW-Madison team was awarded second place in the competition in Mesa, Ariz., coming in just behind a team from Virginia Tech University.

The SUV built by the team was named "Moovada."

The students revamped a Chevrolet Equinox, maintaining the SUV's performance while boosting fuel efficiency by 50 percent and decreasing tail-pipe emissions.

The unique drivetrain created by the students allowed the hybrid's electric motor to power the rear wheels while the engine powered the front wheels. The design maintained the Equinox's handling and performance but improved its fuel efficiency and emissions. The Moovada gets about 35 mpg per gallon, 20 mpg better than the 15 mpg that a regular SUV averages.



5. PR Leap (<http://www.prleap.com/pr/38624/>)

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See All 10 Hybrid Cars on the Market Today, All In One Place: Hybridfest 2006! Also See the New Plug-In Hybrids and a Working General Motors EV1 Electric Car! - Hybridfest, Inc.

News Released: June 18, 2006

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(PRLEAP.COM) MADISON, WI—There are no easy answers to American oil dependency and global warming issues. However, America has the ability and the technology to begin addressing these urgent issues immediately. Hybridfest 2006 will show consumers how hybrid technology can impact their personal lives, the environment, and the global oil economy—right now. Come to Hybridfest 2006, and see how hybrid vehicles can help the U.S. build a secure energy future.

More and more hybrid vehicles are entering the marketplace. Consumers need the knowledge to make the best decision to suit their needs. Hybridfest 2006 will display almost every hybrid vehicle currently available to the public. Most will also be available for test drives. You'll also see new models not yet in the showroom. Auto experts and real-life owners will be on hand to answer your questions on the benefits of hybrid vehicles.

Attendees will see the progression of the EV (electric vehicle) to the HEV (hybrid electric vehicle) to the PHEV (plug-in hybrid electric vehicle) at Hybridfest 2006.

Vehicles on display at Hybridfest 2006 include:

General Motors EV1: Long thought gone, this all-electric 1997 EV1 "Patriot Car" from GM was reconstructed by the Challenge X crew at UW-Madison. It is one of the few drivable EV1s in existence today.

Chevrolet Equinox Diesel Hybrid Electric SUV: This vehicle is University of Wisconsin Hybrid Electric



Vehicle Team's entry in the nationwide Challenge X competition for 2006. This HEV can also run on 20% biodiesel fuel.

Hymotion Plug-In Toyota Prius: Coming to us from Canada, this PHEV uses lithium ion battery technology and a charger powered by a household AC plug to increase mileage to more than 100 MPG.

MIMA Honda Insight: This HEV uses the Modified Integrated Motor Assist system designed by Mike Dabrowski, and allows the driver to make decisions about electric power needs, thus raising the potential for better fuel economy and performance. Mike is also working on plug-in capabilities.

Saturn VUE Green Line: Even though this all-new 2007 hybrid will not be released until later this summer, Hybridfest is pleased to have two Saturn VUE Green Lines available. Hybridfest will be the first time ever that consumers will have the chance to experience these hybrid electric SUVs.

Honda: The complete line of all HEVs, including the Insight, Civic Hybrid, and Accord Hybrid, will be on display.

-continues on next page-

Toyota: The complete line of HEVs, including the Prius, Highlander Hybrid, and Camry Hybrid, will be on display.

Ford: Escape Hybrid

Mercury: Mariner Hybrid

Lexus: RX400h

Plus, there will be many other owner-modified vehicles on display as part of the Hybridfest Auto Show.

Hybridfest 2006 will be held in Madison, WI, on Saturday July 22, 2006, from 9 A.M. to 5 P.M. on the grounds of the Alliant Energy Center, as part of the Dane County Fair. There will be hybrid electric vehicles from all over the U.S. and Canada on display. Hybridfest activities are free and open to the public, with free parking.

Attendees will be able to:



- test drive hybrid vehicles
- meet auto dealers
- view interactive exhibits
- listen to industry and environmental experts
- talk with hybrid owners

Registered Hybridfest attendees and enthusiasts will have access to special activities that include:

- the Hybridfest MPG Challenge
- seminars on advanced driving techniques, current and future hybrid technology
- seminars on global warming and sustainable energy
- awards dinner with keynote speaker
- discounted hotel rate

Pre-registration is \$25. For more information, or to register before July 12, visit hybridfest.com.

Hybridfest, Inc. is a non-profit organization run entirely by volunteers. Hybridfest promotes awareness and understanding of hybrid electric vehicles and their positive impact on the environment.

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News by Date

UW-Madison hybrid-vehicle team places second nationally

Niki Fritz • Published 06/10/06

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MADISON - Tired of high gas costs and poor sport utility vehicle (SUV) fuel efficiency?

A group of engineering students at the University of Wisconsin-Madison has spent the last three years building one of the cleanest and most fuel-efficient SUVs in North America. The principles behind the vehicle, appropriately named the "Moovada," could one day be incorporated into mass-production hybrid SUVs.

The effort is part of a contest, "Challenge X: Crossover to Sustainable Mobility," sponsored by General Motors and U.S. Department of Energy.

June 8th, in Mesa, Ariz., the UW-Madison team was awarded second place in the competition, coming in just behind a team from Virginia Tech University. Third place went to a team from Mississippi State University.

"We wanted to place in the top three, and we did that," says Glenn Bower, the team's adviser and a faculty associate in the College of Engineering.

The UW-Madison team will bring home \$6,000 in prize money and 10 individual awards.

For the past week, UW-Madison engineering students put their vehicle to the test at a proving ground in Mesa during the final round of the competition.

The competition challenged students to revamp a Chevrolet Equinox,

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maintaining the SUV's performance while enhancing its fuel efficiency by 50 percent and decreasing tail-pipe emissions. UW-Madison is one of 17 colleges from the United States and Canada competing in the challenge to make the best hybrid SUV.

2005
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According to Liz Casson, team leader and UW-Madison student, the Moovada is unique because of the vehicle's power train, the design that transmits power to the vehicle.

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"The power train is a through-the-road, parallel diesel-electric hybrid design," Casson explains. "It basically means that the electric motor powers the rear wheels while the engine powers the front wheels."

It is a design that maintains the Equinox's handling and performance, but improves its fuel efficiency and emissions. Casson says the Moovada gets approximately 35 miles per gallon (mpg) - 20 mpg better than the 15 mpg that a regular SUV averages.

In addition to fuel economy, events tested the vehicle's brakes and handling, its ability to tow a trailer and its emissions.

UW-Madison has competed in events similar to Challenge X since 1992, winning five first-place finishes.

In the future, the principles of the Moovada and other participating vehicles could one day be incorporated into regular SUVs. Bower explains that if gas prices were greater than \$4 per gallon, the Moovada would pay for itself.

"The Moovada is a highly hybridized vehicle," says Bower. "It would be a \$3,000 to \$5,000 cost premium to add this to a stock vehicle. Fuel prices would need to be around \$4 per gallon for consumers to recapture their investment."

Challenge X is good for the future of the SUV - and for the future of the student participants. Bower explains that the event trains students in hybrid automotive concepts, skills that make graduating students extremely attractive to recruiters from the automotive industry.



As for the students, although they admit the competition has been time-consuming, it has also been rewarding.

"I've probably spent too much time on this project," says Casson. "[But] for me, it was a place for me to do something constructive, do something with my hands, learn something new - all while being with my friends. It was just where I wanted to be."

Niki Fritz writes for UW-Madison Communications and can be reached at nfritz@wisc.edu

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7. GM Today, Kyle Zwieg

(http://www.gmtoday.com/news/local_stories/2006/Sept_06/09292006_03.asp)

Driving Toward A Better SUV

West Bend native helps UW-Madison place 2nd in SUV fuel-efficiency contest

By KYLE ZWIEG - GM Today Staff

September 29, 2006

MADISON - Like most people, Matt Coyne keeps a keen eye on fuel efficiency. Coyne, however, pays a little more attention than most.

Coyne, a West Bend native and junior in the University of Wisconsin-Madison School of Engineering's mechanical engineering program, is a member of the UW Hybrid Vehicle Team.

The team is in the final year of the three-year engineering competition Challenge X: Crossover to Sustainable Mobility.

This past summer, the team took second place in the second-year competition to build a cleaner, more fuel-efficient SUV.

Seventeen teams from across the country are participating in the competition, which runs through the end of the 2006-2007 academic year with each participating team responsible for redesigning a 2005 Chevrolet Equinox.

UW-Madison's second-place vehicle was a through-the-road parallel biodiesel electric hybrid with a diesel 1.9 liter turbo-charged engine.

The team's Equinox, dubbed the "Moovada," gets approximately 36 miles per gallon, a 60 percent increase, and cuts down on noxious emissions by 90 percent.

UW's Hybrid Vehicle Team is comprised mostly of undergraduate engineering students. Like most of the team's roughly 40 members, Coyne didn't have a lot of practical experience working with cars. He joined last fall.

"I just kind of jumped into it," Coyne said. "They had a vehicle from a previous project sitting outside one of my lecture halls, so I went to their first meeting. They didn't have any tryouts."

The team is composed of a mix of veteran members and new recruits, who learn under the tutelage of returning team members.

Participating students are split into five different groups based on area of expertise: mechanical, drivetrain, controls, electrical and outreach.



UW Hybrid Vehicle Team member Matt Coyne, far right, of West Bend, discusses the design of the 2005 Chevrolet Equinox "Moovada" with, right to left, Mesa, Ariz. Mayor Keno Hawker and teammates Josh Royalty and Matt Michalek.



The 2005 Chevrolet Equinox "Moovada" designed by the University of Wisconsin-Madison Hybrid Vehicle Team during the Challenge X competition. The team, whose aim was to create a cleaner, more fuel-efficient SUV, took second place in year two of the national competition.

modifications and alterations to the car's suspension and breaking system.

"We were responsible for modifying any part of the vehicle to fit in any (new) components," Coyne said. "We had to make modifications to the frame and fit our new electrical motor in. That was the biggest thing."

According to Coyne, the first year of competition - which occurred before he was a member - involved developing a feasible design and pitching it to a panel of judges. Year two involved constructing what Coyne called a "mule vehicle."

"That means it's operational, but not necessarily ready for the roadways," Coyne said.

In the third year the team will fine-tune its current design to make it more road friendly. The team will primarily work to reduce noise and vibrations.

But making these necessary modifications required a lot of time and commitment. Coyne said he worked on the project anywhere from five to six hours a week up to 40 hours a week. Top that off with regular school work and a part-time job, it adds up to a busy semester. Luckily, Coyne was able to get independent study credit for one of his two semesters of work on the project.

"It was definitely a big commitment," Coyne said. "We also worked throughout the summer."

Ben Fjellanger, leader of the mechanical team, said Coyne often put in some of the longest hours on the team.

"Matt has been one of the more dedicated members of the team since he started," Fjellanger said. "He has spent more than his share of late nights in the garage working on last-minute things before the competition last May, sometimes staying until 3 or 4 in the morning."

Coyne's mother Karen attributes his work ethic to an interest in mechanics that has been brewing since he was a young boy.

"He has always had an interest in how things are put together and how they work," Karen Coyne said. "He built a catapult in one of his classes (and) did some work with electrical engineering in high school. He even built Pinewood Derby cars in Cub Scouts."

"He kind of has this idea I call the Wisconsin spirit," said Glenn Bower, a UW-Madison engineering professor and faculty advisor for the Hybrid Vehicle Team. "We will machine and modify and bolt sometimes until noon the next day, and he's always there. The day before a deadline he makes time, he's in the shop."

"It was a great experience. I'm really glad I did it," Coyne said, who hopes to get into a job that combines designing and building of prototypes after he graduates.

"It's a big contrast doing hands-on learning and getting practical experience versus sitting in a classroom or reading."

Coyne's dedication to better gas-mileage even extends outside the academic realm. Coyne drives a fuel-efficient 1982 Yamaha Maxim 650 motorcycle to school and work.

"I can park it a lot easier than I can park a car," Coyne said of the space-starved UW-Madison campus. "It's that and (it's better) fuel efficiency"

The final competition will be held at the end of the 2007 school year in Milford, Mich.

"We have as good a chance as any," Bower said. "We should be top three very easily."

The winning team, which hailed from Virginia Tech, created a split parallel hybrid that runs on two electric motors and E85 ethanol-based gasoline.

Judging for this year's Challenge X: Crossover to Sustainable Mobility took place in Mesa, Ariz. from May 30 to June 8 as judges looked at how effectively the vehicle maintained high performance levels while enhancing fuel efficiency by 50 percent and decreasing tailpipe emissions.

Challenge X is devoted to developing an advanced propulsion technology solution to improve on-road fuel economy, eliminate dependency on foreign oil and reduce emissions from SUV's on America's highways. It is sponsored by the U.S. Department of Energy and General Motors.

Students were tested in a combination of dynamic events - driving, performance, acceleration, trailer pull, fuel economy and traction pull - and static events like group presentations and written papers and reports.

Matt Coyne and his UW Hybrid Vehicle teammates were concerned the Arizona heat may cause the car, built in Wisconsin, to overheat.

"We were able to avert that by blowing cold air from a window air conditioner over the engine and battery pack between events," Coyne said.

8. Hot Buttered Rum, (<http://www.hotbutteredrum.net/content/view/252/1/>)

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We want YOU... to join the growing ranks of Butter Spreaders. To help us

Alt Fuel Car Show in Madison, WI.

Here's some photos from the Alt Fuel Car show we were in at the University of Wisconsin, Madison on October 23. It's so inspiring to see people across the country organizing at the grassroots level.

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NEWSLETTER



TALES FROM THE ROAD

- [Alt Fuel Car Show in Madison, WI.](#)
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#1. Here are the student campus organizers for the 20/20 Vision project (2020vision.org). They're doing a great job of raising awareness of energy solutions on campus. Keep it up!



#2. UM Engineering Department was given the task of developing a more fuel-efficient SUV from the U.S. Department of Energy. They came up with several versions of a hybrid diesel-electric engine shown here. Good use of government funds? Guns or Butter?

COUSINS

- [HERE WE GO AGAIN!](#)

ALTERNATIVE FUEL INTERVIEW



#3. Our charismatic bass player Bryan Horne demonstrating Seana's veggie oil system. We were impressed with the hardy character of these Wisconsinites; even in the 20 degree snowy weather, folks were still hanging outside.

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