**Dinosaurs Taller Thanks to Thick Cartilage**

The thick layers of cartilage in their limbs would have given dinosaurs a big boost in height.

By Jennifer Viegas
Thu Sep 30, 2010 05:00 PM ET

**THE GIST**

- All dinosaurs were likely taller -- up to a foot more in height -- than previously thought.
- The additional height came from limb cartilage, which was about 4 inches thick in places for some dinosaurs.
- Plant-eating dinosaurs appear to have had more cartilage, and therefore extra height.
Dinosaurs were much taller than previously thought, according to a new study that found cartilage extended the limbs of these animals by up to a foot in length.

The discovery has implications for the posture, flexibility, total body length, speed and feeding habits of dinosaurs, some of which are now believed to have grown to about the same height as a three-story building.

Museum curators may have to remount their dinosaur skeletons.

"Most estimates of dinosaur height simply stack the limb elements on top of one another without accounting for the soft tissues that were once present in the living animal," lead author Casey Holliday told Discovery News.

Holliday, an anatomy professor at the University of Missouri-Columbia, and colleagues Ryan Ridgely, Jayc Sedlmayr and Lawrence Witmer made the determination after analyzing the cartilage present in ostriches and alligators, close modern-day relatives of dinosaurs. They also analyzed the fossilized limbs of different dinosaurs, including *Tyrannosaurus rex*, *Allosaurus*, *Brachiosaurus* and *Triceratops*.

The scientists discovered that cartilage accounted for about 10 percent of the lengths of ostrich and alligator limbs. Using a "cartilage correction factor," they now believe carnivorous dinosaurs like *Tyrannosaurus* were only modestly taller when fleshed out. Herbivorous giants, such as *Triceratops* and *Brachiosaurus*, were likely a full foot more in height.

The findings are published in the latest issue of the journal *PLoS ONE*.

"We only see cartilages this big (today) maybe in some whale flippers, maybe some sea turtles," Holliday said. "So regardless of *Brachiosaurus* being a foot taller overall, this animal had really, really thick cartilage caps -- thicker than 3 to 4 inches."

He and other paleontologists still theorize that sauropods stood upright with column-like legs. Meat-eating predators like *T. rex*, however, ran on two legs and had a crouched stance, which could explain why this species had less cartilage in its limbs than the plant-eaters.
"It take huge muscles to maintain that crouched posture, but even bigger muscles to move the animal at significant speeds," Holliday explained. "So in a crouched animal, the longer the limbs, the bigger the muscles. Muscles are expensive tissues -- heavy, high physiology, vascular -- and they may result in having a slower animal."

Even without a sauropod level of cartilage, *T. rex* grew to at least 13 feet tall. Scientists aren't entirely sure why many dinosaurs were taller than today's animals, but more plants, different atmospheric concentrations of oxygen and carbon dioxide, and lighter body structures have all been proposed as possible explanations, according to Holliday.

Thomas Holtz, Jr., a senior lecturer on vertebrate paleontology at the University of Maryland, told Discovery News that he believes the conclusions in the new paper "are sound."

"The major important points are that, just like you see when carving a turkey or chicken leg, the bones themselves are not in direct contact, but there is sometimes a fair amount of cartilage between them," Holtz said. "So in order to correctly figure out the lengths and shapes of the different limbs of dinosaurs, we need to estimate the amount of cartilage."

John Hutchinson, a reader in evolutionary biomechanics at the University of London's Royal Veterinary College, told Discovery News that he agrees cartilage needs to be accounted for.

"Some researchers tend to focus just on the skeletal remains of fossils and forget that dinosaurs had soft tissues that influenced almost every aspect of their biology," Hutchinson said.

Witmer concluded, "We now have to go back to the drawing board and re-evaluate what we thought we knew about how dinosaurs worked, from walking and running to reaching and grasping. We need to start looking for new and different evidence."
MU researchers get to the 'heart' of SMA therapy

By Michelle Markelz
September 30, 2010 | 5:57 p.m. CDT

COLUMBIA — **New developments in Spinal Muscular Atrophy research at MU are pointing toward big changes in treatment.**

**Spinal Muscular Atrophy is a genetic disorder that affects between 2.5 and 3.3 percent of people, according to an MU news release. According to the Spinal Muscular Atrophy Foundation, people affected by the disorder are missing a gene that produces SMN-1, a protein necessary for healthy motor neurons. Motor neurons send the signal to muscles that make them move. When there is not enough SMN-1 in the body, the neurons die, leading to loss of mobility.**

Christian Lorson is a professor of veterinary pathobiology and molecular microbiology and immunology at MU. Working with a team of scientists, he has found that the disorder affects the heart and neurons separately.

Research on animals has shown that, even as embryos, mice with Spinal Muscular Atrophy can show heart defects before neuron damage, said Monir Shababi, the research scientist heading the project. This discovery shook the foundation of the treatment knowledge base.

"[Clinicians] always thought the heart failure was a consequence of neurodegeneration, which is known as the major defect in SMA patients," Shababi said of the heart defects.

This research would suggest that heart failure is a direct result of the disorder, rather than a link in the chain of events.
"If you have a genetic defect, it's something that happened before conception," said Jennifer Kussmann, a genetic counselor at MU. "So we can't go back in time and rebuild the muscle."

However, the knowledge of a heart defect in a person with Spinal Muscular Atrophy would allow clinicians to treat defects before they become life-threatening, Shababi said.

"As soon as the patient is diagnosed with SMA, [clinicians] will look at the heart and possibly give some medication to delay the heart failure," Shababi said. "It just creates an awareness that something is going wrong with the heart."

This awareness could encourage a change in treatment of the disorder.

"With new, SMA-specific therapeutics on the horizon, it will be important to address the entire disease, such as motor neurons and cardiac issues," Lorson said.

People with Spinal Muscular Atrophy also have the option of replacing that missing gene — a process that has worked with animal models. However, researchers realize the experiments are not conclusive enough to guarantee success in humans.

"Models of disease are just that — they're models and therefore only present part of the human condition," Lorson said. When working with Spinal Muscular Atrophy in animals, "you're doing a new experiment, you're not verifying the animal results," he said.

Replacing the SMN protein like a supplement is also an option, but it's challenging because it requires crossing the blood-brain barrier, which is the body's natural defense of the central nervous system, Lorson said.

Lorson and his team's discovery is not a cure, but a step toward better treatment and better quality of life for people living with the disorder, he said.
COLUMBIA MISSOURIAN

MU's internal medicine residency program makes changes after May probation

By Megan Cassidy
September 30, 2010 | 9:36 p.m. CDT

COLUMBIA — Looking to lift a yearlong probation, MU's internal medicine residency program is beefing up staff numbers and tightening regulations on scheduled shifts.

After a review in May, the Accreditation Council for Graduate Medical Education deemed that the program did not meet national requirements.

The internal medicine program was one of 55 in the country to fall short of ACGME standards. The council currently reviews 8,856 programs.

Richard Gleba, director of communication and innovation at the School of Medicine, said the primary reason for the probation was "duty hour concerns."

"Residents are required to have 10 hours off in between shifts," Gleba said, giving an example. "That wasn't happening all the time."

Gleba went on to explain how a discrepancy between patient obligations and ACGME standards accounted for some of the program's shortcomings.

"We're adjusting to an increased volume of patients," Gleba said. "It can be difficult for a resident to simply leave a patient right when the shift ends."

Gleba said program director Caroline Kerber has begun instating changes to the program such as hiring new physician assistants and nurse practitioners and readjusting the residents's hours on the clock.
Accreditation is necessary for residency programs to be eligible to get federal graduate medical education funding. Residents need to complete an accredited program to become board certified.

Although ACGME cannot discuss the specific reasons for probations, Manager of Communications Julie Jacob said residency programs on probation can request an appointment for a re-evaluation at any point before the year is up.

However, with new ACGME standards surfacing this week and further anticipated hiring, Gleba says the program is fine waiting it out until May 2011 to ensure everything is in order.

“We have 1,400 applications for 15 new residency slots opening in July,” Gleba said, noting that the application numbers are on par with previous years. “We fully expect to have the probation lifted in May.”
Residency program placed on probation

Thursday, September 30, 2010

The Accreditation Council for Graduate Medical Education placed the University of Missouri School of Medicine’s internal medicine residency program on one-year probation May 13, school spokesman Rich Gleba said.

The school’s orthopedic surgery residency program has been on probation since July 2009. The council conducted a site visit for that program this summer, and Gleba said he expects the probation on orthopedic surgery residency program to be lifted by the end of this year.

Those are the only two of 38 total programs accredited by ACGM that are on probation.

The internal medicine residency sanction isn’t a matter of program quality, Gleba said, rather the school wasn’t meeting a requirement that residents have 10 hours off between shifts. Administrators have hired staff and are in the process of adjusting schedules to correct that, he said.

The School of Medicine’s residency education program was fully accredited in January after its administrative component spent nine months on probation.
Graduate report shows rankings are complicated

Many criteria go into study.
By Janese Silvey

Thursday, September 30, 2010

If there’s one take-away from a new national report assessing university doctoral programs, it’s that ranking academia is a lot more complicated than it might seem from the Top 100 lists found in national magazines every year.

The National Research Council earlier this week released a long-awaited report on doctoral education in the United States. The assessment has been five years in the making and uses data from the 2005-06 school year.

The University of Missouri is one of 212 universities included in the report, but don’t expect to scan a simple list to see how MU fared. Instead, the report shows where 5,000 individual doctoral programs land in a range of top, middle and bottom programs based on a number of criteria. The result includes some 250,000 data points.

The complexity of the report underscores what MU administrators say every time U.S. News & World Report’s Best College list comes out — the methodology used to meaningfully evaluate education is too complex to narrow down to a single score.

“This is a good example of why we don’t promote rankings, period,” MU spokesman Christian Basi said.

Although some universities have attempted to use the National Research Council report to tout programs, MU won’t because the data are too complex, graduate school Dean George Justice said.

“You can’t rank universities,” he said. “People who are going to try to crunch the numbers to be able to draw broad distinctions among universities — the data just don’t allow it.”

That doesn’t mean the council’s report isn’t a useful tool for students considering graduate programs, though. The report provides pages of information specific to a certain field of study.

For instance, MU’s graduate-level animal sciences program, according to the report, scores above the median value in publications per faculty member, percent of faculty with grants, time
it takes to earn a degree and the number of doctorate students who graduate annually. On the flip side, the program in 2005 fell below the median in percentage of female students and faculty, awards per faculty members and number of graduates who went on to work in academia.

That means students interested in animal sciences can review those demographics and decide which characteristics are most important to them.

"I really believe this compilation of information is helpful for universities to understand themselves," Justice said, "and for perspective graduate students to have a deeper and richer picture as to what might make a good fit for them in graduate education."

Reach Janese Silvey at 573-815-1705 or e-mail jsilvey@columbiatribune.com.
If you’re an employee, a student or just a friend of our university, the past week’s headlines must have seemed even grimmer than usual. "Funding woes at heart of UM curators' concerns" was big news Thursday night. Friday evening we were told, "Forsee primes UM curators for tuition hikes."

The curators appear primed for not only a tuition hike but for a whack at a retirement system that already ranks 15th of 15 Midwest peer institutions. If they have a plan to do anything about faculty salaries, which currently rank last among a national group of peers, they’re keeping that to themselves.

Oddly, President Forsee has not yet asked my advice. If he did, I’d suggest that he be bold with a tuition hike and cautious with any pension changes.

Currently, a typical in-state undergraduate student on the Columbia campus pays $5,894 a year in tuition, according to the university website. That buys 24 credits. We have more than 30,000 students. The website also tells me that about half of those students are getting some sort of financial aid other than loans.

President Forsee told the curators last week that he’s expecting a cut in next year’s state appropriation of about 10 percent. So the tuition freeze deal he made with the governor – a deal that probably made more sense politically than fiscally anyway – will be thawed.

The state’s contribution to the campus general operating budget (that’s the part that pays such things as salaries and benefits) is $179 million this year. That’s down from
$189 million last year. A 10 percent cut, then, would be either $18 or $19 million, depending on your starting point.

My suggestion: Raise tuition by at least $1,500 a year. That would produce more than $45 million in new revenue. Give half of that back to the students in financial aid. Now we've covered the state reduction, protected needy students and even have a few million to spend on raises for faculty and staff.

Of course, there might be one or two objections to what I'll generously call the Forsee Plan. One might predictably come from the parents of students who pay the full fare. To them, President Forsee could say, if you want the best public education in the state -- and that's what we provide -- you've got to pay for it. Besides, it's still a bargain. Look at what Wash U. would charge.

Then there's the matter of the law. As you recall, the legislature has decreed that tuition must not increase by more than the inflation rate unless the Coordinating Board for Higher Education approves. That should be an easy sell. Surely the board would see higher tuition as preferable to the continued erosion in quality of the state's flagship university. "World class," the aspiration that's often voiced about MU, has a price tag.

And now about those pensions. Clearly, the direction university planners are headed is away from our traditional defined benefit pension toward a defined contribution model for future hires. The No. 1 objective is described as "mitigation of long-term risks to the institution."

The preferred model would shift those risks to the individual. Those most at risk would be those least able to afford it, those most dependent on their pensions and least equipped to make the investment decisions that would be required by a 401(k) or similar plan.

So I hope President Forsee looks long and hard for ways to keep at least a modified version of our present plan, even if that requires a bigger contribution from employees in the future.

That should be tolerable. After all, under the Forsee Plan for tuition, they'd be getting a raise.
MU 'Recruit Back' program has proved successful

By Janese Silvey

Thursday, September 30, 2010

A four-year-old program aimed to get former University of Missouri students back on track to earning degrees is proving successful.

The Recruit Back program charges administrators to find students who left MU just shy of graduation, said Ted Tarkow, associate dean of the College of Arts and Science. Advisors then help those students determine what they still need to complete their studies and earn degrees.

Since it began, 25 adults have successfully returned and graduated and another 22 are headed toward graduation. That’s exactly half of the 94 students recruited back to date. “We think that success rate is really pretty darn good,” Tarkow said.

MU has tweaked some academic policies to make earning a degree easier for these students. For instance, now students are allowed to take six of their final 36 hours at another accredited institution. That’s a change from the previous policy that required all of a student’s final 30 hours to be taken at MU. In some cases, MU administrators are finding former students who have completed college courses elsewhere, earning enough credit hours to complete a degree, Tarkow said.

In other cases, MU’s Center for Distance and Independent Studies and online course options are giving adults access to college credits without having to disrupt work or personal lives.

Missourians should expect to see more of these efforts in the future as state and higher education leaders work toward increasing the number of residents with college degrees. Last month, Gov. Jay Nixon outlined a statewide plan that mirrors the Lumina Foundation’s goal to increase the number of Americans with degrees from around 40 percent to 60 percent by 2025. In Missouri, that will require 461,886 more citizens to obtain degrees — a goal that can’t be met with traditional students alone.

University of Missouri St. Louis also has been working to find former students, Chancellor Tom George told the Board of Curators last week in Springfield.
UMSL recently identified 1,500 students who attained 100 or more credit hours in the past five years but left without degrees. The university surveyed those students and found that financial barriers, work or family demands or poor academic performance were key factors in students’ decisions to drop out.

Students picking majors not right for them or lacking the skills to complete mandatory math credits also are among reasons students drop out, George said, problems that could be corrected earlier with better advising and instruction.

Reach Janese Silvey at 573-815-1705 or e-mail jsilvey@columbiatribune.com.
University Hospital performs 1,000th kidney transplant

By T.J. Greaney

Thursday, September 30, 2010

Ethan Russell, 8, doesn’t flinch these days when he finds himself in the doctor’s office and needs to have blood drawn.

Surgeon Venkataraman Ramachandran, right, gets a hug from Ethan as Ted Groshong, left, watches after the news conference Wednesday.

“He’s a total pro,” said his father, Emmett, as Ethan stood nearby with his arms wrapped around his sister in a hug. “He just sticks his arm out there, and he’s ready to go. He’s awesome.”

Fortunately, Ethan’s days of extended hospital stays and endless blood tests might be behind him. Last month, Ethan, who suffers from a rare degenerative condition that causes scarring inside his kidneys, received a transplant.

His mother, Nancy, had tested as a match and immediately decided to make the enormous gift to her son.

“We just looked at the positive side,” she said. “It could have been a lot worse. There’s kids dying of things every day. He just needed a new kidney.”

Now Ethan is back to his favorite activities, such as playing Nintendo Wii and riding on his dad’s lap on board the family’s four-wheeler. Doctors hope the kidney will remain functional for at least 15 years, but they say some have been known to continue functioning for 30 years or more.

And, though this transplant was life-altering for Ethan, it was hardly unusual. Hospital surgeons perform about 35 such kidney transplants each year, and in every case, the situation is dire, with little or no kidney function remaining in a patient.

But Ethan’s transplant was special for another reason. It marked the 1,000th kidney transplant at University Hospital since doctors performed the first one in 1972.

At a ceremony yesterday, doctors celebrated the milestone and the great strides they said they’ve made at transplantation.
“If you have a company that’s been in business since 1972, there develops some institutional memory,” said Venkataraman Ramachandran, a surgeon who performed the transplant on Ethan. “The protocols and the things that are going on have been fine-tuned and made better and better. So if you’ve been around for a long time, you know your system works.”

The statistics speak for themselves. When University Hospital first began performing transplants, 50 percent to 70 percent of transplant recipients rejected their new kidneys. Now, because of improved medications and techniques, the acute rejection rate has dropped below 5 percent.

According to Tribune archives, on Feb. 8, 1972, a team of 12 doctors performed a four-hour operation to transplant a new kidney into each of two adult male patients. The two kidneys both came from a cadaver.

Both of the men had been on dialysis for about two years and had virtually no kidney function.

A quote in the newspaper from the doctor demonstrated just how difficult the procedure was in the days when little was known about immunosuppression and rejection rates were high.

“The chances of a perfect match are 100,000 to one,” the doctor, John Maher, told the Tribune in 1972. “It could take 10 years to find a perfect match.”

Since then, major strides have been made. But there is still often a long wait for patients in need.

At any given moment, about 100 patients are waiting for a transplant through University Hospital.

“There is the number of people waiting both in our area and nationally is going up,” said Mark Wakefield, associate professor of surgery and director of the renal transplant program. “Some of it is that the criteria for transplants has become more broad. It used to be only the youngest and healthiest were candidates. That’s not the case anymore.”

Reach T.J. Greaney at 573-815-1719 or e-mail tigreaney@columbiatribune.com.
Football game times affect Columbia restaurants

By Amanda Stevenson-Grund
September 30, 2010 | 6:05 p.m. CDT

COLUMBIA MISSOURIAN

Evening football games can be a financial boon to the MU athletics department, but they often mean less business for Columbia bars and restaurants.

And though athletics officials understand the impact on Columbia businesses, they say that television contracts often dictate game times and that there is little they can do.

MU is scheduled to play Colorado at 6 p.m. Oct. 9 at Memorial Stadium. That will be the third of four home games to start at 6 p.m. The game is scheduled to be televised by Fox Sports Net.

Dick Walls Sr., owner of Boone Tavern in downtown Columbia, said games with evening start times are "terrible for business."

"If I was scheduling games, I would schedule them all for mid-afternoon," Walls said. "Night games don't help. By the time games are over, it's too late for dinner. They are not very good for our business, though I would rather have a night game here than in St. Louis or Kansas City."

"I am not talking about what is good or bad for the football team, but for my restaurant," Walls added.

Chad Moller of the athletics department said MU's hands often are tied when it comes to scheduling kickoffs.

"The first thing to understand is that nine times out of 10, times are dictated by TV. You take when TV asks you to," Moller said. "You're not going to turn down a TV appearance. There is a $250,000 minimum each TV appearance."
Moller said that if a game is not chosen for regular television, the athletics department has the option of showing the game on pay-per-view.

"The only options through Fox Sports Net would be evening games. We chose to do two pay-per-view and one not," Moller said. "You certainly can't please everybody. We are very aware that the majority of businesses prefer afternoon games. A majority of our fans like to go to evening games. We always try to be sensitive to businesses as much as possible, so we chose the last one to be an afternoon game."

"We try to offer a balance for people," Moller said.

Kenny Townsend owns McNally's Pub on Sixth Street. He said business is better for day games, but he sees less effect than restaurants do. He said business at his bar has more to do with MU's opponent than with what time the game starts.

"The weaker the opponent, the weaker the business," Townsend said. "The better the opponent, the better the business."

Townsend said the pay-per-view games with McNeese State and San Diego State were great for his bar. "Nobody wanted to pay for the game, so they came here to watch it."

Matthew Jenne of Sophia's said business during a home football game with a late start is about one-tenth what he would see during an afternoon game.

"You have to be creative. We've been doing this for about 10 years now. We have a pretty good handle on how to plan around those," Jenne said. "We wouldn't be inclined to take a large-party reservation on a normal Friday or Saturday night, but are more likely to during 6 o'clock games."

"I would add that we understand that 6 o'clock games are inevitable," Jenne said. "We appreciate that they made the most recent game a 1 o'clock start and gave businesses that revenue. But we'd always like more."
Locally harvested prawns join Campus Dining menus

By Lydia Mulvany
September 30, 2010 | 11:03 p.m. CDT

Alongside the burgers, pastas and vegetables of the day, MU students have lately dined on locally harvested prawns.

Researchers at MU’s Bradford Research Farm began an experiment three years ago raising juvenile Southeast Asian prawns farmed in Texas. The prawns grow from June to September in ponds and ultimately end up on MU students’ plates poached in butter, barbecued, grilled in chipotle honey or served up tandoori-style.

The yellow-gray creatures with long blue pincers are sweeter than lobster and softer than shrimp, said Eric Cartwright, executive chef of MU’s Campus Dining Services. Eighty pounds of the shellfish were harvested Wednesday and delivered to the dining halls in blue coolers packed with ice Thursday morning.

“I grew up on the Chesapeake Bay in Virginia, and fresh seafood’s a part of life,” Cartwright said. "Here there are trout farms and catfish farms, but to get fresh shellfish is a real treat.”

MU Campus Dining is trying to increase the amount of local food on its tables. Cartwright said around 11 percent of produce, including dairy and meat, is locally grown, and the goal is to push that number to 15 percent.

The residential dining facilities serve more than 2.5 million meals a year to more than 6,000 students. Campus Dining is the Bradford Research Farm’s main buyer.

“It’s about providing the best tasting product, and you can’t beat (locally grown foods),” Cartwright said.
There are pitfalls, like the fact that there are few crops in winter and many types of produce ripen in August, when Campus Dining is closed. Cartwright said Campus Dining has to maximize local produce purchases during the fall and spring months.

During an eight-week period last fall, Campus Dining purchased more than 16,000 pounds of local food. While this year’s numbers haven’t been tabulated, Cartwright said that figure might double.

Although it’s more expensive to buy locally when comparing individual items, Cartwright said Campus Dining has not had to increase its prices, and he views the shift to incorporate local foods as financially neutral.

Two explanations Cartwright gave were that local produce is fresher and less likely to go bad before it’s used and that customers may also like the taste of the food better, and won’t discard it and consume other foods instead.

The effort has paid off so far: Customer satisfaction scores have jumped tremendously for quality and taste, Cartwright said.

At the Bradford Research Farm, researchers harvest the prawns by draining water from the ponds. Farm superintendent Tim Reinbott said he thought prawn farming could take off in Missouri, saying the main market for prawns would be restaurants. He plans to expand the number of ponds at Bradford from two to seven, which would allow researchers to carry out more projects.

“You get so many more pounds of food compared to feed with aquaculture,” Reinbott said.

Reinbott said he read about farming prawns in a magazine and thought the climate in Missouri might be better than that of the South for raising them, as they “don’t like it real hot all the time.”

Since presenting the research at the Missouri State Fair, a handful of farmers have indeed started farming prawns.

“What’s important is to find your market,” Reinbott said. "There’s a lot of interest gathering out there.”
The research project has had its pitfalls. Previously, researchers didn’t feed the prawns enough, so they started eating each other.

Reinbott said he hoped continued research would improve stocking rates and yield the larger prawns that restaurants prefer. In the most recent harvest, the prawns were about 19 to a pound, and Reinbott is hoping to reach 15 to a pound.

MU students aren’t the only ones who have feasted on the prawns.

Raccoon prints and a few bullfrogs lingered in two waterless, 100-square-foot beds at the Bradford farm.

“There were bullfrogs with prawns sticking out of their mouths,” Reinbott said. “One ate two, and he just floated there all day. You could see the two of them in his stomach.”
WASHINGTON -- In past seasons, the villains have been Wall Street swindlers and terrorists hiding in caves.

As this session of Congress winds up, a primary focus of Missourians in Washington seems to be the Environmental Protection Agency and anti-pollution efforts interpreted as harming rather than helping the Midwest.

Following a congressional forum yesterday on perceived EPA threats, Rep. Blaine Luetkemeyer, R-St. Elizabeth, referred to recent EPA proposals as an "ongoing assault on rural America...from mud puddles to dust."

Luetkemeyer isn't alone.

Sen. Christopher "Kit" Bond, R-Mo., fought this week to force a floor vote on legislation for a two-year postponement on regulating the greenhouses gases blamed for global warming.

He was blocked by in that effort by Sen. Dick Durbin, D-Ill.

Meanwhile, Rep. Jo Ann Emerson, R-Cape Girardeau, has been complaining, among other things, about EPA consideration of a ban on lead fishing sinkers.

Democrats, too, are players. Rep. Ike Skelton, D-Lexington, takes pot shots at the EPA and sponsored legislation to delay efforts to combat climate change.

And Sen. Claire McCaskill is a leader in the congressional drive that has succeeded thus far in preventing tougher smog rules from the nation's anti-pollution agency.

Taken together, Missourians in Congress have been one of the most anti-EPA delegations from any state. And Luetkemeyer, though still in his first term, has emerged as one of the most persistent critics in the House.
In an interview, Luetkemeyer said he is motivated because Missouri’s economy is heavily dependant on agriculture. His district alone has 22,000 farms he said.

He argued this week against potential EPA expansion of the Clean Water Act and new curbs on atrazine, farm dust and drifting pesticides from chemical spraying.

"Agriculture is what underpins the local business community. If you destroy the farming community, you have destroyed rural Missouri," he said.

The EPA began considering new restrictions on atrazine after studies associated the weedkiller with birth defects from tainted drinking water. The University of Missouri reported last spring that atrazine was causing harm to aquatic life -- but not humans -- in the Goodwater Creek watershed in Luetkemeyer’s district.

Luetkemeyer said the aim should be minimizing atrazine pollution rather than restricting the herbicide, which he said would be costly to farmers.

If Republicans recapture control of the House in November -- a strong possibility -- Luetkemeyer said he and others would have a stronger hand in "reining in those folks in EPA."

Luetkemeyer has been in the forefront of trying to strip U.S. funding from the UN-sponsored Intergovernmental Panel on Climate Change -- the collection of scientists that has issued dire warnings about the effects of human-caused global warming.

If the GOP runs the House next year, he said, he and others on his Oversight and Government Reform Committee would seek to cut funding for EPA programs.

"On that committee alone, we can force them to come out and defend what they’re doing and see if it’s just the whims of this administration trying to see if they can push people out of business," he said.