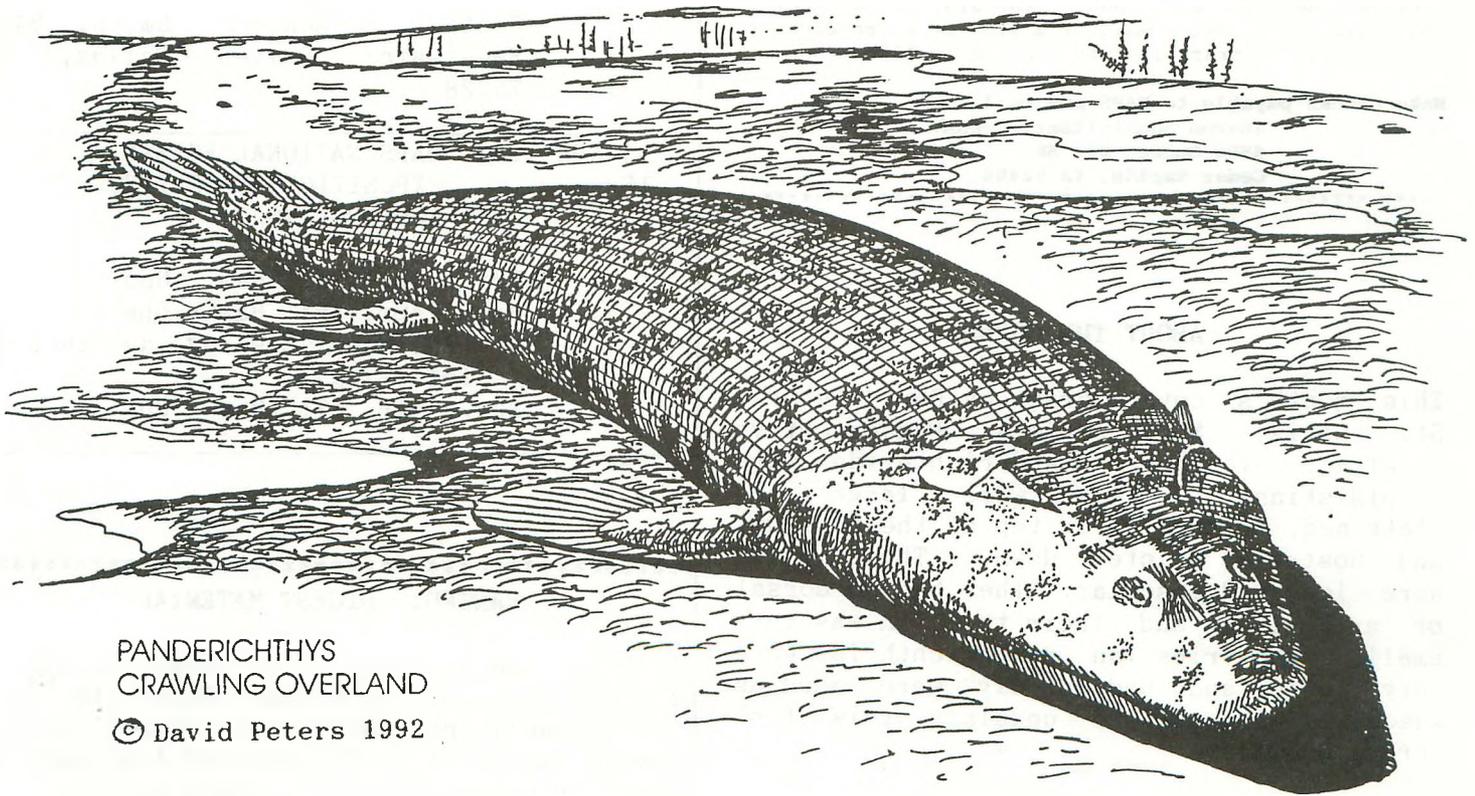


# M.A.P.S. *Digest*

Official Publication of  
Mid-America Paleontology Society

Volume 15 Number 7  
October, 1992



PANDERICHTHYS  
CRAWLING OVERLAND

© David Peters 1992

**MARK YOUR CALENDARS**

<p>3 OCT MAPS MEETING. Augustana College, Rock Island, IL.  1:00 Board &amp; General Meeting combined.</p>	<p>2 OCT 9th ANNUAL BVFS FLORIDA FOSSIL FAIR: "ICE AGE MAMMALS OF FLORIDA, WINTER HAVEN COMPLEX  210 Cypress Gardens Blvd., S.E. corner of Cypress gardens Blvd., &amp; U.S. 17.  Fri.--10 am to 7 pm Sat.--9 am to 7 pm Lecture at 3 pm by Dave Letasi Auction around the clock Sun.--9 am to 5 pm</p>
<p>7 NOV MAPS MEETING. Augustana College, Rock Island, IL.  1:00 Board &amp; General Meeting combined.</p>	<p>Contact: Eric S. Kendrew 4436 Tevalo Drive Valrico, FL 33594-7343 813/681-4350 or Marcia Kehler, 813/644-3778</p>

**\*\*\* 92/10 DUES ARE DUE \*\*\***

Are your dues due? You can tell by checking your mailing label. The top line gives the expiration date in the form of year followed by month--92/10 means 1992/Oct. Dues cover the issue of the *Digest* for the month in which they expire.

We do not send notices but will let you know if you are overdue by highlighting your mailing label on your *Digest*. We carry overdues for two months before dropping them from our mailing list.

Please include your due date and name exactly as it appears on your mailing label--or include a label.

Dues are \$15 per U.S./Canadian household per year. Overseas members may choose the \$15 fee to receive the *Digest* by surface mail or a \$25 fee to receive it by air mail. Library/Institution fee is \$25.

Make checks payable to MAPS and mail to:  
Sharon Somleitner, Treas.  
4800 Sunset Dr. SW  
Cedar Rapids, IA 52404

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**ABOUT THE COVER**

This month's cover, drawn by David Peters, St. Louis, MO, depicts Panderichthys crawling overland. Panderichthyids were rhipidistians. They were large and flattened, with eyes on top of their heads, and nostrils pointed down. Their tails were long and muscular. They had no dorsal or anal fins and their tail fin was very small. The ribs on panderichthyids were very large and undoubtedly were used as muscular levers to undulate this fish across mud flats.

See pages 3-5 for a related story

<p>31 OCT FOSSILMANIA X, OAKDALE PARK, GLEN 1 NOV ROSE, TX 2</p>	<p>Fri.--10 am to 6 pm Sat.-- 9 am to 6 pm Sun.-- 9 am to 2 pm</p> <p>Contact: Kenneth Smith, 8449 Sweetwater Drive, Dallas, TX 75228</p>
<p>15 APR 1993 MAPS NATIONAL FOSSIL 16 EXPOSITION XV--EXTINCT 17 ECHINODERMS</p>	<p>Fri., Apr. 15: 8am - 6pm Sat., Apr. 16: 8am - 5pm (Business meeting and auction following) Sun., Apr. 17: 8am - 3pm</p>

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**WANTED: DIGEST MATERIAL**  
Articles and covers are once again needed for the *Digest*. Any subject that interests you probably interests other members, too. Covers can be drawings (pen and ink copy best) or clear photographs with good contrast. Please include at least basic information with cover subjects.  
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**IT'S NOT TOO SOON TO START THINKING EXPO**

Although it's only September and April's EXPO seems a long way off, time has a way of slipping by unnoticed. So... if you're planning to write an article on Extinct Echinoderms, the theme for EXPO XV, or if you're planning to take an exhibit to EXPO, it's not too soon to start firming up your plans. **Maggie Kahrs**, Seymour, IN, is the EXPO Digest editor. Registration and other EXPO information will be in the January issue of the Digest.

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**BURGESS SHALE DISPLAY/LECTURE**

MAPS member **Dr. Desmond Collins**, from the Royal Ontario Museum, Canada, will be taking a display of Burgess Shale material to the Greater Detroit Gem and Mineral Show, October 9-11. He will also be presenting a lecture on the Burgess Shale at the show on Saturday, October 10, at 2 pm.

Many of you will remember Dr. Collins from our 1991 EXPO, where he was the keynote speaker. If you have the opportunity to attend his lecture, you're in for a treat.

The show is held at the Detroit Light Guard Armory, 4400 E. 8 Mile Rd., Detroit, MI. Contact person is Mildred Hurt (313) 398-6693.

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**MAPS MEMBERS EXHIBIT AT FIELD MUSEUM**

Seventeen amateur paleontologists from across the country displayed over 200 fossils from their personal collections in the Mid America Paleontological Society Fossil Exhibition at Chicago's Field Museum. The exhibit was held in association with the Fifth North American Paleontological Convention held at the Field Museum from June 27 through July 1. The exhibits remained on display through July 27. Field Museum personnel said there were always people looking at the exhibits. Several MAPS members also attended the Convention.

**SUCCESSFUL STAMP CAMPAIGN**

As many of you know, **Tony Verdi**, Hinckley, OH, has been waging a campaign to get the U.S. Post Office to issue a set of stamps commemorating our fossil heritage. Although the Post Office did issue a set of 4 prehistoric animal stamps in 1989, Tony would like to see an issue featuring earlier fossils, which more fossil collectors are likely to be able to collect.

In breaking the rule that MAPS is an organization that considers only fossils, I will mention minerals only to point out that while Tony has not yet been successful in getting a fossil issue, he *has* been successful in his campaign to get a mineral issue. He writes that he *was involved in the unveiling of the new mineral stamps to be issued on September 17.*

*I was in charge of the unveiling of four new mineral stamps. Assistant Postmaster General Gordon Morison from Washington, D.C., was present for the unveiling. The unveiling took place at the AFMS/MWF Show at Brunswick, Ohio.*

If you would like to help in the campaign for a fossil issue, send a letter encouraging the Post Office to issue a set of stamps of earlier, more common fossils to:

U.S. Postal Service  
Citizens Stamp Advisory Committee  
Room 5670  
475 L'Enfant Plaza West, SW  
Washington, DC 20260-6753

**SAMPLE LETTER:**

Sirs:

Over the years, the U.S. has issued more than 260 stamps depicting animals and plants and only ten stamps featuring minerals, fossils, and prehistoric animals.

These numbers indicate that we are top heavy on the living world and almost nil on the non-living world.

Although I am pleased with the 1989 issue of four stamps featuring prehistoric animals, I believe that we are due for a block of four stamps showing more common representative U.S. fossils. We have a rich fossil heritage.

Fossils tell us about the plants and animals that once covered the earth. I suggest that common fossils such as ferns, trilobites, fish, crinoids, ammonites and brachiopods be considered.

Thank you,  
(Your signature)

## CONFESSIONS OF A CYNODONT

by David Peters

1208 DuBois Ct., St. Louis, MO 63122-5518

### PART I

Human evolution. Are you for it or against it?

Today almost half of all Americans are against it. According to a December 1991 Gallup poll, 47% accept that "God created man pretty much in his present form at one time within the last 10,000 years." Less than 10% accept evolution without any supernatural design. The remainder would like to see religion and science reconciled by suggesting that God directed evolution and/or Genesis days were roughly equivalent to geological periods.

The Creationist viewpoint has gained in popularity by three percentage points in the last decade. That's ironic because in the same time frame some of the most wanted "missing links" in human ancestry have been discovered. Unfortunately, most of these discoveries have not made news, partly because they have aroused no controversy, partly because they are typically quite plain-looking, and partly because they hold a more ancient place in mankind's pedigree than the more human-like primates.

Recently scientists have also opted for a new way to label and categorize living things, including humans. The original system, devised by Carolus Linnaeus (Carl von Linné), involved ranking a hierarchy of categories such as kingdom, phylum, order, family, and species. Ranking worked well for the living animals. However, the recent deluge of fossil discoveries has exposed weaknesses in this system. Patch categories such as superkingdom, infraorder, and subfamily work about as well as most patches do.

Now, as in the world at large, hierarchy is being phased out; nested relationships are in. Although scientists will never fully discard the Linnean system, some are trying to break free from its shortcomings. Here is an example.

Reptilia and Aves (birds) both hold the rank of Class. Scientists once presumed

that there were great gaps between classes. Then along came *Archaeopteryx*. Even today some people ask: Is it a bird or a reptile? Or something in between? Actually it is a theropod dinosaur with feathers. Can a class (Aves) be a subset of a suborder (Theropoda)? No, that would upset the system. If a dinosaur is a reptile, is a bird also a reptile? No. And for this reason:: The work "reptile" has a meaning that most people cannot unlearn. To them the word will always conjure up an image of something scaly, sprawling and cold-blooded, with claws, teeth and a long tail. In recent years scientists are scrubbing the term "reptile" in favor of the easier to define term "amniote" (see below).

Names are applied to living things in recognition of their unique characteristics. Names are also applied to groups of living things sharing a set of unique characteristics. Smaller groups can be nested within larger groups. The various members of each group are presumed to have acquired the characteristics they share by way of a common ancestor (known or unknown) through whom they are related.

Once unique features appear, most persist forever, usually with modifications. These can often be traced through the fossil record. Modification may also include reduction and disappearance of a feature.

Reexamining living (or once living) things in this new light has brought us to the realization that birds are, in fact, living dinosaurs. Crocodiles are living thecodonts. And humans are living cynodonts.

The rest of this essay is devoted to listing most of the labels with which humans can now tag themselves, along with the most important features that diagnose the label. You'll find old familiar labels here mixed in with new ones.

Have this article handy when dealing with

Creationists. If they'll sit still long enough, take them through it point by point. It virtually destroys the myth of the undiscoverable "missing link." We'll start with the basics.

#### A human is a material object.

Here is probably the most controversial statement of the whole essay. Creationists have reminded me that humans are spiritual beings. Science says if it can't be measured in some way it goes into religion's court. I agree. In addition to being spiritual beings, I think it can be argued that humans are also material objects. In other words, they are made up of atoms and molecules arranged in simple to complex forms.

#### A human is a living thing.

Here's someone's definition of life: Anything that can take in nutrients, cast out wastes, grow, reproduce on its own, respond to stimuli and evolve. This definition excludes viruses, which do everything but reproduce on their own. The simplest material object that fits the definition above is a bacterium. The most ancient bacteria known in the fossil record lived around 3 billion years ago.

#### A human is a eukaryote.

A eukaryote is a living thing whose cell(s) contain a nucleus. a number of other small cell bodies, such as mitochondria and flagella, are also typically found in eukaryotes. Experimental and observational evidence indicates that eukaryotes are households composed of a variety of different types of bacteria living together symbiotically. Some parts even have their own DNA. The earliest known eukaryote in the fossil record lived 1.5 billion years ago.

#### A human is an animal.

Even most Creationists agree with this one. Animals are eukaryotes that are able to move and to take in and digest food. They reproduce via a sperm and an egg cell and at some point in their development form a blastula, or a hollow sphere of cells. The sensory and muscle connections between the cells of animals set them apart from other eukaryotes. No animals contain chlorophyll or cellulose (unless they are digesting plants or fungi at the time).

The earliest known animals in the fossil record lived over 700 million years ago. Undoubtedly simpler animals appeared much earlier.

#### A human is a metazoan.

Metazoans are animals made up of many different kinds of cells. In the simplest forms, the outer skin cells are different from the interior digestive cells. Sponges are not metazoans, jellyfish are. The earliest known metazoan in the fossil record lived 600 million years ago.

#### A human is a bilateral.

Bilaterals are metazoans with identical left and right halves. Usually bilaterals travel in one direction, so they are said to have a "head" and a "tail." Flatworms are the simplest living bilaterals. They have but a single opening for both food and waste. The opening may lead into a hollow gut or to nothing more than a pack of roving digestive cells. No one has identified a flatworm in the fossil record as yet. They are made chiefly of water, so there may be no fossil flatworms, or they may be too small and indistinct to identify.

#### A human is a deuterostomate.

A deuterostomate (or "secondary mouth") is a bilateral animal in which the anus appears before the mouth during embryonic development. That describes chordates (see below), echinoderms and a few smaller phyla. Arthropods, molluscs and most types of worms develop a mouth first, hence they are protostomates (which means, "first mouth").

#### A human is a eucoelomate.

A eucoelomate has three layers to its body: an outer skin layer, an inner intestinal layer, and a middle layer from which many of the other organs and skin layers arise. A coelom (or "cavity") is the space enclosed by the middle cell layers. Both deuterostomates and protostomates have independently given rise to animals with a coelom.

#### A human is a chordate.

A chordate is a eucoelomate with a notochord, a dorsal nerve chord and gill pouches at some time during its life. In humans the notochord is preserved as

segments, or disks, between vertebrae. The gill pouches appear and disappear during embryonic development. The earliest known chordate in the fossil record, the lancelet *Pikaia*, lived 530 million years ago.

A human is a craniate.

A craniate is a chordate with a head packed with sensory apparatus such as eyes, nostrils, taste buds, balancing organs, a lateral line and electrical sensors. A central processing unit, the brain, tells the tail where to push the mouth. The earliest known craniate in the fossil record, the jawless fish *Arandaspis*, lived 510 million years ago.

A human is a vertebrate.

You're familiar with this one. A vertebrate is a craniate with a backbone made of cartilage and/or bone. Interestingly, a bony skeleton covered the skin long before one appeared inside the body. A lamprey (especially its larva) is a good example of a living primitive vertebrate.

A human is a gnathostome.

A gnathostome, as its name implies, is a vertebrate with jaws. Jaws are modified gill arch bones. Teeth, almost always associated with jaws, originated as sharp scales along the edges. The earliest known gnathostomes in the fossil record, spiny sharks and placoderms, lived 425 million years ago.

A human is a choanate.

A choanate is a gnathostome with nasal passages leading into the mouth and lungs (yes, lungs preceded the air bladder). A choanate is able to smell and breathe through its nostrils. Most fish, including the lobe-finned lungfish and coelocanths, are not choanates. Only rhipidistians, lobe-fins with sharp teeth, strong skeletons and broad lobes, include choanates among their number. The earliest known choanate, *Osteolepis*, lived 380 million years ago.

A human is a tetrapod.

A tetrapod is a choanate with four limbs ending in digits, not fins. It was not as big a change as most evolution books indicate. The recently discovered panderichthyids bridge this gap. Panderichthyids were rhipidistians like the previously mentioned *Osteolepis*. They were large and flattened, with eyes on top of their heads, and nostrils pointed down in the manner of the earliest amphibians. Although other rhipidistians had two dorsal fins and one anal fin, panderichthyids had none of these. The tail was long and muscular, as in amphibians, and the tail fin was very small. Unlike other Devonian fish, the ribs on panderichthyids were very large and undoubtedly were used as muscular levers to undulate this fish across mud flats. The earliest known tetrapods from the fossil record, *Ichthyosthand* *Acanthostega*, lived 360 million years ago.

**LOOK FOR PART II IN NEXT MONTH'S ISSUE**

**SENATE BILL 3107**

**"THE VERTEBRATE PALEONTOLOGICAL RESOURCES (FOSSIL) PROTECTION ACT"**

OR

**"THE GOVERNMENTAL PALEONTOLOGIST WELFARE ACT"**

**Statement by Peter L. Larson, Science Officer, American Assoc. of Paleontological Suppliers: Pres., Black Hills Institute of Geological Research, Inc., P.O. Box 643, Hill City, SD 57745**

*The opinions included in this article are those of the author. As a nonprofit organization, MAPS, as a society, cannot lobby for or against political issues.*

On 30 July, 1992, Senator Max Baucus (D. MT) introduced a bill in the United States Senate (S-3107) which will affect every American. (All citations are from Senate Bill 3107.)

If Senate Bill 3107 passes, the American taxpayer will be assessed millions of dollars each year to: 1. Pay for a new layer of bureaucracy to administer this

bill; 2. Pay for the prosecutions of fossil collectors; 3. Pay for contract paleontologists who will make no contributions to science. In fact, the science of paleontology will suffer drastically and, without private and amateur collectors, I suspect it may die completely. (What major archaeological discoveries have been made in the United States since the adoption of the Archaeological Resources

Protection Act in 1979?) Private collectors, after all, make virtually all the discoveries in paleontology.

**TAXPAYERS:** Your tax dollars will be used to subsidize a select group of paleontologists to perform government contracts for surveying and inventorying the vast acres of public lands for fossils [P.(page)29,L.(line)17-23; P.30,L.1-7]. States, Tribes and Federal Land Agencies are asked to create new positions (more dollars) for paleontologists [P.3,L.24; P.4,L.1-7; P.12,L.3-4].

**U.S. CITIZENS:** Your rights of access to public lands will be even further limited. If you or your child picks up a fossil, both of you may face felony criminal and civil charges [P.16,L.23-25; P.17,L.7-20]. These could result in UNREASONABLE penalties of \$10,000.00 and one year in prison for each violation (Fossil) [P.19,L.12-13], for moving a fossil [P.18,L.12-18] and \$100,000.00 in fines and five years in prison for subsequent violations. Land managers have already assumed law enforcement powers--now they will receive powers of subpoena and seizure as well [P.22,L.24-25; P.23,L.1-4; P.25,L.4-12].

**AMATEUR COLLECTORS:** The definition of "paleontological resources" includes modern vertebrates [P.7,L.12-13] and potentially invertebrates [P.6,L.24-25]. All fossils from public land will remain public property [P.5,L.1-5]. You will not be allowed to transport fossils on federal highways [P.18,L.12-18]. Only persons affiliated with a "suitable institution" will be allowed to look for fossils [P.6,L.4]. Fossils may not be sold or exchanged and commercial collection is outlawed [P.5,L.3-5; P.17-20].

**RESEARCHERS:** Only those "qualifies" [P.10,L.24] and affiliated with "suitable institutions" will be allowed to collect fossils. Researchers who receive a permit will not be allowed to publish the results of their research [p.25,l.14-25]. Fossils "shall remain in the vicinity of the site" [P.15,L.12-13].

**MUSEUMS AND UNIVERSITIES:** Very few museums and universities will qualify as "suitable institutions" [P.8,L.13-25; P.9,L.1-15]. Museums and universities which are allowed to collect will not won the fossils collected [P.5,L.1-5; P.16,L.19-22] and thus may be held liable for damage during preparation or storage [P.17,L.2-3; P.20,L.4-5 & L.15-20].

**INDUSTRY:** This bill is parallel to the 1979 Archaeological Resource Protection Act. Like ARPA, it will require contractors, oil and mining companies, telephone and power companies, developers and virtually anyone who puts a shovel or drill into the ground to PAY a 'paleontologist' to survey the area and assess potential damage to any paleontological resources present or possibly present [P.2,L.4-8; P.29,L.17-23; P.30,L.1-7]. (Bear in mind that fossils are many millions of times more abundant than human remains and sites due to paleontology's more than three billion year history of life and the innumerable species of plants and animals involved.) In addition, industry personnel may be required to pay fines and serve prison terms for damages fossils [P.17-20].

**CONSUMER:** The consumer of any of the above services or products will, or course, pay additional costs assessed to industry.

Senate Bill 3107 completely ignores the three year study, the findings and the recommendations of the National Academy of Science's *Committee on Paleontological Collecting*. The 1987 NAS report

states: "After much discussion and soul-searching, the Committee adopted the following statement of principle as a basis for its detailed recommendations: In general, the science of paleontology is best served by unimpeded access to fossils and fossil-bearing rocks in the field. Paleontology's need for unimpeded access is in sharp contrast to the prevailing situation in archaeology. In this report, 'access' is defined to include all collecting and removal of fossiliferous material for study and preservation. Generally, no scientific purpose is served by special systems of notification before collecting and reporting after collecting because these functions are performed well by existing mechanisms of scientific communication. From a scientific viewpoint, the role of the land manager should be to facilitate exploration for, and collection of, paleontological materials."

Senate Bill 3107 threatens all Americans. Senate Bill 3107 may, in fact, make all fossil collectors vulnerable to search and seizure action by Federal Agencies and personnel. We cannot afford to sit by and allow the erosion of more of our rights. Please call and write to your United States Senators and request that this bill be defeated, preferably in Committee.

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#### LETTER TO THE EDITOR

Dear Friends:

Recently, Senator Max Baucus (D-Montana) introduced a bill in the U.S. Senate, titled the *Vertebrate Paleontological Resources Protection Act*. (S-3107). This pending legislation should be of grave concern to all people interested in the earth sciences. The primary purpose of the bill appears to be to eliminate vertebrate fossil collecting on public lands to all persons except those individuals and institutions who are "qualified" to obtain a permit. However, **the bill is lengthy and complex and will affect the fossil collecting activities of amateurs, earth science clubs, commercial fossil collectors, and scientists.**

This legislation, as proposed, would do the following:

1. Give Federal Land Managers the power to designate all vertebrate fossils (could also include invertebrate and plant fossils) in their jurisdiction, a "paleontological resource," therefore making it illegal to collect said fossils.

2. The bill identifies an amateur fossil collector as someone who collects paleontological resources for personal enjoyment, recreation and educational purposes AND is affiliated with a suitable institution for the purpose of collecting paleontological resources. Very few, if any, amateur collectors will qualify for a permit! Also, even if a permit is obtained, any fossils collected do not belong to the amateur collector; they remain the property of the U.S. Government. severe fines and imprisonment may result if these provisions of the legislation are violated.

3. The bill parallels the 1979 Archeological Resource Protection Act. Like the ARPA, it will require all contractors, oil and mining companies, telephone and power companies, developers and virtually anyone who puts a shovel or drill into the ground (on public land) to PAY a "paleontologist" to

survey the area and assess the potential damage to any likely paleontological resource. The cost of this additional requirement will be added to your utility bill, gasoline price, etc.

4. This bill will take the "science" our of fossil discoveries on public land because it would make it a criminal offense to reveal the location of any fossil discovery. This will eliminate the scientific publication of paleontological discoveries.

5. The bill mandates a new level of bureaucracy within the Department of Interior. It calls for hiring of numerous contract paleontologists to do a survey and reconnaissance of millions of square miles of federal land. The cost to the taxpayer will be astronomical.

6. The bill mandates that no person (including amateur collectors) may sell, purchase, exchange, transport, receive, or offer to sell, purchase or exchange a paleontological resource found on public land. A "paleontological resource" includes all vertebrate fossils and may include invertebrate and plant fossils. Also, "public land" includes roadcuts along federal and interstate highways and federal lakes, reservoirs, rivers, streams and ocean beaches. This bill could eliminate most amateur fossil collecting locations.

We urge everyone to call and write the Senators on the Senate subcommittee that is reviewing Senate Bill

3107. ... They need to hear your opinion on this legislation. We can defeat this bill if all amateur, commercial and professional people call and write to express their opposition. You can make a difference. **DO IT TODAY!**

Glenn and Barbara Rockers  
P.O. Box 621, Hays KS 67601  
(913) 625-2240

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**BILL S-3107 SUBCOMMITTEE MEMBER ADDRESS**

If you want to express an opinion on the Senate Bill under consideration, comments can be addressed to the Subcommittee Chair:

**The Honorable Dale Bumpers, Chair**  
**U.S. Senator for Arkansas**  
**229 senate Dirksen Office Bldg**  
**Washington, DC 20510-0401**  
**Phone: (202) 224-4843**

You can also contact other members of the Subcommittee: Wycbe Fowler, Jr. (D-GA), Paul Wellstone (D-MN), Timothy E. Wirth (D-CO), Jeff Bingaman (D-NM), Kent Conrad (D-ND), Daniel K. Akaka (D-HI), Conrad Burns (R-MT), Mark O. Hatfield (R-OR), Jake Garn (R-UT), Pete V. Domenici (R-NM), Frank H. Murkowski (R-AK), Larry E. Craig (R-ID), and John Seymour (R-CA).

**Please ADD the Following NEW OR REJOINING MEMBERS to Your Directory:**

Foss & Esther Corley  
10733 Itzamna Road  
La Mesa CA 91941

Wants to learn about fossils and go on field trips.

Robert Erdin  
809 Hillcrest Dr.  
High Point NC 27262  
H: 919-885-6168  
Wk: 919-885-6168

Curator. Major interest invertebrate paleontology. Will not trade. Interested in scientific value of fossils; care and preservation of fossils; informal education using museum collections.

Julia Golden  
Department of Geology  
University of Iowa  
Iowa City IA 52242-1379  
319-335-1822

Jeffery A. Goodson  
P.O. Box 272  
St. Paul VA 24283

Michael K. Hammer  
Jeffrey S. Hammer  
260 Dutchman Dr.  
Jacksonville OR 97530  
503-899-1864

David F. Hess  
143 Harmony Lane  
Macomb IL 61455  
309-837-0362

Geologist. Will possibly trade (trading stock is small). Major interest fossil molluscs esp. Neogene; modern Florida-Caribbean molluscs; modern North Am. pearl mussels; Illinois and Pennsylvanian Penn. age plants and Mazon Creek-type concretions. Has for trade a few Caloosahatchee-Pine Crest mollusc duplicates; a few Caribbean modern molluscs.

Edwin G. Letscher  
4532 Meadow Dr.  
Nazareth PA 18064  
215-759-4293

Foreman-Bethlehem Steel. Major interest Trilobites, Crinoids. Interested in trading Franklin, NJ, minerals for fossils. Wants to build collection through contact and trade with other collectors.

Roger J. Lipscomb  
2315 Bischoff Drive, #7  
Beech Grove IN 46107  
317-787-2964

Alex Rostocki  
69 Silo Way  
Bloomfield CT 06002  
203-726-1906

Lawyer. Just starting; will trade when he develops a collection. Major interest South Dakota fossils, fossils in Eastern U.S., Western U.S., Midwest. Wants to learn more about fossils and their collection, to participate in field trips.

Dr. Marc A. Zimmer  
27 Barrington Place  
Dix Hills NY 11747  
516-825-5005

Doctor-Private practice. Will trade. Interested in all fossils. Wants to expand his knowledge.

**PLEASE NOTE THE FOLLOWING CHANGES OF ADDRESS OR CORRECTIONS:**

Larry French  
6306 N. Koemer Rd.  
Peoria IL 61615-9528

Larry & Joy Walker  
Rt. 2 Box 160A  
Gays Mills WI 54631  
608-872-2466

Cabinet Maker/Teacher. Will trade. Newly interested and like to hunt as a family.

## ADVERTISING SECTION

Ads are \$5.00 per inch (6 lines x 1 column--43 spaces). Send information and checks payable to MAPS to: Mrs. Gerry Norris, 2623 34th Avenue Ct., Rock Island, IL 61201. Phone: (309) 786-6505. This space is a \$5.00 size.

To extend currently running ads, please send request and remittance to **Editor** by the 15th of the month. We do not bill. Ads do not run in the EXPO issue (April). Ads up to 8 lines by 54 spaces can be printed in smaller type to fit a 1" space.

**AUBURN CALIFORNIA Fossil Shop** just off Interstate 80 Old Town. Wide variety of fossils from all over the world. Special request and trade invited. **NATURE'S ART**, 1568 Lincoln Way, Old Town Auburn, CA 95603; (916) 887-8710

**FOSSIL BOOKS** and fossil collection, preparation and display supplies. Over 100 paleo titles-including many state collecting guides. Air tools, flexible shaft machine, etc. Retail only. Catalog US \$2.00/Canada \$3.00. We ship only to US/Canadian addresses. **PALEO BOOKS & PREP SUPPLIES**, P.O. Box 542MD, Hot Springs, SD 57747. Tel 605/745-5446.

**FOSSILS ON DISPLAY:** Directory of Fossil Exhibits in North America. Includes University and museum exhibits. Listed are address, phone, hours, what they have, and "MUST SEE" items. Available only on IBM computer disk (specify 5 1/4, or 3 1/2); read and print only what you want. \$9.95.  
Al Copley, 17 Leisure Drive, Kirksville, MO 63501

### FOSSIL BOOKS OLD & NEW

**INDEX FOSSILS OF NORTH AMERICA** (We found some more) Usual price \$90.00; our price (while they last) \$69.95 postpaid.

**EARTH TREASURES--Northwestern Quadrant** (out of print). We have a few prices @ \$18.95 postpaid.

**WATER REPTILES OF THE PAST AND PRESENT** (1914 edit). Soiled but good cond. \$100.00 postpaid. (Call before ordering out-of-print books).

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