

American Federation of Mineralogical Societies



AFMS Approved Reference List of Classifications and Common Names for Fossils

Updated 2009

AFMS Publications Committee
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AFMS FOSSIL LIST

This list is intended as a guide to help the exhibitor select those taxonomic classification terms and common names that are acceptable for labeling requirements in AFMS and Regional Fossil Competition under the AFMS Uniform Rules. The exhibitor must still use other sources to identify his specimens to genus and species.

Because classifications differ from one source to another, it is not intended that this should be considered the only correct one; therefore lists of alternate and additional classifications from some of the more popular references may be used. If the exhibitor chooses to use a different classification, he must cite his reference(s) for the use of the judges. This information should include the author(s), year, title of publication and page number where the information is found. This written information should be given to the Judging Director at the time the display is set up or may be included in the Reference List.

This list includes the phyla which will be used to determine variety in a general fossil display. Any alternate lists may provide alternate systems and include additional phyla represented by fossils.

Common names are required on labels for the benefit of the viewer who is not familiar with fossil nomenclature. Therefore the word clam would be the best choice for most fossils from the class Pelecypoda. Oyster would also be easily recognized by most people (but all clams are not oysters). The use of common names is somewhat arbitrary, as many fossils-especially the Paleozoic and Mesozoic ones--do not have a truly common name; many are merely anglicized versions of the taxon. It is impossible to be consistent in their use. The common name in the right hand column applies to the taxon to its left; the word or words under which it is indented could also be appropriate. A Busycon may properly be called a welk, yet it is also a snail, a sea snail or a gastropod. While it is also a mollusk it would be preferable to use a name that is a little more specific. Should the exhibitor choose to use a name that is not on the list, the judges will use their discretion as to whether the choice is a proper one.

When a fossil has no truly common name it may be necessary to use an anglicized version of the subclass, order, family, etc., alone or in combination. Additional information is permissible on labels and one might want to make some distinction between his brachiopods by referring to them as inarticulate brachiopod and articulate brachiopod; or he might prefer to call them strophomenid brachiopod, spiriferid brachiopod, rhynchonellid brachiopod, etc. This kind of information would be helpful to fossil collectors, but not to the general public. Sometimes adjectives used with the common name can be very informative. Examples might be freshwater snail, juvenile dinosaur, marine reptile, flying reptile, immature trilobites carnivorous dinosaur and perching bird.

When a single part of a fossil is used, the common name shall include that part. Examples: trilobite pygidium, shark tooth, elm leaf or elm tree leaf, sponge spicule, etc.

When trace fossils are displayed, the common name shall include that term. Examples: sponge borings, arthropod trail, bird tracks, worm burrow or mammal coprolite.

The term "incertae sedis" is sometimes used when the specimen is of uncertain taxonomic position above the genus. As an example, some paleontologists include Receptaculites in the Porifera but do not place it within a class. It is therefore proper to use either incertae sedis or uncertain in lieu of the class name to indicate the uncertainty. Another term used in similar circumstances is Problematica.

Classification below is designated by the following abbreviations:

KING: Kingdom

DIV: Division Note: Division is a term generally used for the broadest plant and unicellular classification; phylum for animal.

PHY: Phylum

SBPHY: Subphyllum Note: used to divide some phyla for better grouping.

SUBDIV: Subdivision

SUPERCL: Superclass Note: grouping of several related classes, used occasionally.

CLASS: Class

SUBCL: Subclass Note: used to divide some classes, not necessary all.

INFRACL: Infraclass

SUPERORD: Superorder Note: important in some vertebrate classes.

ORD: Order Note: may be used to differentiate between specimens of same class.

SUBORD: Suborder

SUPFAM: Superfamily

INFRAORD: Infraorder

FAM: Family

<u>CLASSIFICATION</u> (OF FOSSIL FORMS)	<u>COMMON NAME</u>
KING: Animalia	animal
(Invertebrate:)	invertebrate animals
(Note: Invertebrate is not a classification term, but is used in exhibits as a group label when the exhibit contains only invertebrates. The phyla below are invertebrates up to the phylum Chordata, which begins the vertebrate classifications.)	
PHY: Archaeocyatha	archaeocyathan
CLASS: Regulares	
CLASS: Irregulares	
PHY: Porifera	sponge
CLASS: Demospongia	demosponge
CLASS: Hexactinellida	hexactinellid sponge
CLASS: Calcarea	calcareous sponge
CLASS: Sclerospongia	sclerosponge; chaetetid
CLASS: Stromatoporida	stromatoporoid
PHY: Cnidaria	cnidarian (formerly called coelenterates)
CLASS: Protomedusae	jellyfish
CLASS: Hydrozoa	hydrozoan
CLASS: Scyphozoa	scyphozoan (conularids are questionable scyphozoans)
CLASS: Anthozoa	anthozoan
SUBCL: Ceriantipatharia	coral
SUBCL: Octocorallia	octocoral, soft coral (sea pen, sea fan, sea whip)
SUBCL: Zoantharia	coral, sea anemone
ORD: Actinaria	sea anemone
ORD: Cothoniida	coral
ORD: Tabulata	tabulate coral
ORD: Heliolitida	heliolitid coral
ORD: Rugosa	rugose coral
ORD: Heterocorallia	heterocoral
ORD: Scleractinia	hexacoral

<u>CLASSIFICATION</u> (OF FOSSIL FORMS)	<u>COMMON NAME</u>
PHY: Bryozoa	bryozoan; moss animal
CLASS: Stenolaemata	bryozoan
CLASS: Gymnolaemata	bryozoan
PHY: Brachiopoda	brachiopod
CLASS: Inarticulata	inarticulate brachiopod
ORD: Lingulida	lingulid brachiopod
ORD: Acrotretida	inarticulate brachiopod
ORD: Obolellida	inarticulate brachiopod
ORD: Paterinida	inarticulate brachiopod
CLASS: Articulata	articulate brachiopod
ORD: Orthida	(above general term or any
ORD: Strophomenida	anglicized version of the
ORD: Pentamerida	order name - Ex.: spiriferid
ORD: Rhynchonellida	brachiopod - may be used)
ORD: Spiriferida	
ORD: Terebratulida	
CLASS: Uncertain	articulates
ORD: Kutorginida	articulates
PHY: Mollusca	mollusk
CLASS: Polyplacophora	chiton
CLASS: Monoplacophora	monoplacophoran (or one of
	the order names anglicized)
CLASS: Gastropoda	gastropod
ORD: Archaeogastropoda	gastropod; snail
ORD: Mesogastropoda	snail or living form name such
ORD: Neogastropoda	as periwinkle, cowrie, helmet
	shell, turritella, etc.
SUBCL: Opisthobranchia	nudibranch and its kin freshwater snail; land snail
SUBCL: Pulmonata	
CLASS: Cephalopoda	cephalopod
SUBCL: Nautiloidea	nautiloid cephalopod
SUBCL: Actinoceratoidea	cephalopod
SUBCL: Ammonoidea	ammonoid cephalopod (ammonite, ceratite,
	goniatite, refer to suture marking types)
SUBCL: Coleoidea	belemnoid; squid, etc.
SUBCL: Bactritoidea	bactritoid cephalopod
CLASS: Cricoconarida	cricoconarid; tentaculitid
CLASS: Rostroconchia	rostromonch (conocariums are included in this class)
CLASS: Scaphopoda	scaphopod; tusk shell; dentalioid
CLASS: Bivalvia (or Pelecypoda)	bivalve; pelecypod
SUBCL: Palaeotaxodonta	bivalve; pelecypod; clam
SUBCL: Isofilibranchia	bivalve; pelecypod; clam
SUBCL: Heteroconchia	clam; cockle (or modern shell book name)
SUBCL: Pteriomorphia	bivalve; oyster; scallop, etc.
SUBCL: Anomalodesmata	bivalve; pelecypod, etc.

PHY: Hyolitha

hyolith; hyolithid

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CLASSIFICATION (OF FOSSIL FORMS)

COMMON NAME

PHY: Annelida

worm

CLASS: Polychaeta

polychaete worm; marine worm;
scolecodont, etc.

CLASS: Oligochaeta

worm; earthworm

CLASS: Hirudinea

leech

PHY: Arthropoda

arthropod

SUPERCLS: Trilobiomorpha

trilobite; trilobitomorph

CLASS: Trilobita

trilobite

ORD: Agnostida

trilobite (or the appropriate

ORD: Eodisciida

anglicized version of the

ORD: Redlichiida

particular order name)

ORD: Ptychopariida

ORD: Phacopiida

ORD: Odontopleuriida

SUPERCL: Crustacea

crustacean

CLASS: Ostracoda

ostracod

CLASS: Malacostraca

malacostracan

SUBCL: Phyllocarida

phyllocarid crustacean

SUBCL: Eumalacostraca

crustacean

ORD: Decapoda

decapod

CLASS: Branchiopoda

branchiopod; phyllopod

CLASS: Cirripedia

barnacle

SUPERCL: Chelicerata

arthropod

CLASS: Merostomata

merostome

ORD: Eurypterida

eurypterid

ORD: Xiphosurida

horseshoe crab

CLASS: Arachnida

arachnid; spider; tick; mite

SUPERCL: Myriapoda

myriapod

CLASS: Archipolypoda

millipede

CLASS: Arthropleurida

millipede

CLASS: Diplopoda

diplopod

CLASS: Chilopoda

centipede

CLASS: Symphyla

myriapod

SUPERCL: Hexapoda

hexapod

CLASS: Insecta

insect

SUBCL: Apterygota

insect; wingless insect

ORD: Archaeognatha

bristletail

ORD: Zygentoma

silverfish (and relatives)

SUBCL: Pterygota

insect (or modern common name,
such as dragonfly, fly, etc.)

<u>CLASSIFICATION</u> (OF FOSSIL FORMS)	<u>COMMON NAME</u>
PHY: Echinodermata	echinoderm
SBPHY: Crinozoa	crinoid
CLASS: Crinoidea	crinoid
SUBCL: Inadunata	inadunate crinoid
SUBCL: Camerata	camerate crinoid
SUBCL: Flexibilia	flexible crinoid
SUBCL: Articulata	articulate crinoid
CLASS: Paracrinoidea	paracrinoid
SBPHY: Blastozoa	blastozoan
CLASS: Blastoidea	blastoid
CLASS: Rhombifera	rhombiferan; cystoid
CLASS: Diploporita	diploporan; cystoid
CLASS: Eocrinoidea	eocrinoid
CLASS: Parablastoidea	parablastoid
CLASS: Coronoidea	coronoid echinoderm
SUBPHY: Asterozoa	asterozoan
CLASS: Asteroidea	asteroid; starfish (includes somasteroids)
CLASS: Ophiuroidea	ophiuroid; brittle star
SBPHY: Homalozoa	echinoderm; homalozoan
CLASS: Stylophora	stylophoran; carpoid
CLASS: Homoiostelea	carpoid
CLASS: Homostelea	homostelean; carpoid
CLASS: Ctenocystoidea	ctenocystoid; cystoid
SBPHY: Echinozoa	echinozoan
CLASS: Echinoidea	sea urchin; sand dollar
CLASS: Holothuroidea	sea cucumber
CLASS: Edrioasteroidea	edrioasteroid
CLASS: Helicoplacoidea	helicoplacoidean
CLASS: Cyclocystoidea	cyclocystoid
CLASS: Edrioblastoidea	edrioblastoid
PHY: Hemichordata	hemichordate invertebrate
CLASS: Pterobranchia	hemichordate
CLASS: Graptolithina	graptolite
ORD: Dendroidea	branching graptolite
ORD: Crustoidea	encrusting graptolite
ORD: Tuboidea	graptolite
ORD: Graptoloidea	graptoloid; planktic graptolite
PHY: Conodonta	conodont
CLASS: Paraconodontina	conodont
CLASS: Conodontophorida	conodont

<u>CLASSIFICATION</u> (OF FOSSIL FORMS)	<u>COMMON NAME</u>
PHY: Chordata	chordates
SUBPHY: Cephalochordata	
SUBPHY: Urochordata	sea squirts or tunicates
SUBPHY: Vertebrata	vertebrates
CLASS: Agnatha	jawless fish
SUBCL: Pteraspidomorphi (Diplorina)	agnathans
ORD: Heterostraci (Pteraspida)	*ostracoderms
ORD: Thelodontida (Coelolepida)	*unarmored ostracoderms
SUBCL: Cephalaspidomorpha (Monorhina)	
ORD: Cephalaspida (Osteostraci)	*armored ostracpoderms
ORD: Galeaspida	cephalaspidomorphs
ORD: Anaspida	*ostracoderms
ORD: Petromyzontida	lampreys
SUBCL: uncertain	
ORD: Myxinida	hagfishes
CLASS: Placodermi	*jawed fishes
ORD: Ptyctodontida	*placoderms
ORD: Pseudopetalichthyida	*placoderms
ORD: Rhenanida	*skatelike placoderms
ORD: Acanthothortaci	*primitive placoderms
ORD: Petalichthyida	*armored placoderms
ORD: Phyllolepida	*heavily plated placoderms
ORD: Arthrodira	*placoderms
ORD: Antiarchi	*placoderms
CLASS: Chondrichthyes	cartilaginous fishes
SUBCL: Elasmobranchii	sharks
ORD: Cladoseiachida	*ancestral sharks
ORD: Eugeneodontida (Edestida)	*sharks
ORD: Ctenacanthida	*sharks
SUPFAM: Ctenacanthoidea	*sharks
SUPFAM: Hybodontoida	*sharks
ORD: Xenacanthida	*fresh water sharks
ORD: Galeomorpha	sharks
SUPFAM: Heterodontoidea	mollusk-feeding sharks
SUPFAM: Orectoloboidea	nurse sharks
SUPFAM: Lamnoidea	sharks
SUPFAM: Carcharhinoidea	tiger sharks, bull sharks, etc
SUPFAM: Hexanchoidea	six-gilled sharks
ORD: Squalomorpha	dogfishes
ORD: Batoidea	skates and rays

***Extinct**

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<u>CLASSIFICATION</u> (OF FOSSIL FORMS)	<u>COMMON NAME</u>
SUBCL: Holocephali	sharklike fishes
ORD: Chimaerida	chimaeras or ratfishes
SUBCL: uncertain	
ORD: Iniopterygida	*chondrichthyans
ORD: Petalodontida	*chondrichthyans
CLASS: Acanthodii	*spiny fishes
ORD: Climatiformes	*primitive acanthodians
ORD: Ischnacanthiformes	*acanthodians
ORD: Acanthodiformes	*latest acanthodians
CLASS: Osteichthyes	bony fishes
SUBCL: Actinopterygii	ray-finned fishes
INFRACL: Chondrostei	primitive ray-finned fishes
ORD: Palaeonisciformes	*ancestral ray-finned fishes
SUBORD: Palaeoniscoidei	*chondrosteans
ORD: Redfieldiiformes	*freshwater chondrosteans
ORD: Perleidiiformes	*chondrosteans
ORD: Saurichthyiformes	*chondrosteans
ORD: Polypteriformes	chondrosteans
ORD: Acipenseriformes	sturgeons and paddlefishes
INFRACL: Neopterygii	ray-finned fishes
ORD: Lepisosteiformes	garfishes
ORD: Semionotiformes	*early holosteans
ORD: Pycnodontiformes	*holosteans
ORD: Macrosemiiformes	*holosteans
ORD: Amiiiformes	bowfin and relatives
ORD: Pachycormiformes	*holosteans
ORD: Aspidorhynchiformes	*holosteans
DIV: Teleosteri	ray-finned fishes
ORD: Pholidophoriformes	*holosteans/teleosts
ORD: Leptolepiiiformes	*teleosts
ORD: Ichthyodectiformes	*teleosts
SUBDIV: Osteoglossomorpha	teleosts
ORD: Osteoglossiformes	tropical, freshwater fishes
SUBDIV: Elopomorpha	teleosts
ORD: Elopiformes	tarpons
ORD: Anguilliformes	eels
ORD: Notacanthiformes	deep-sea fishes

***Extinct**

<u>CLASSIFICATION (OF FOSSIL FORMS)</u>	<u>COMMON NAME</u>
SUBDIV: Clupeomorpha	teleosts
ORD: Ellimmichthyiformes	*clupeomorphs
ORD: Clupeiformes	herrings
SUBDIV: Euteleostei	teleosts
ORD: Salmoniformes	salmon and trout
SUPERORD: Ostariophysii	most freshwater fishes
ORD: Gonorhynchiformes	milkfishes
ORD: Characiformes	tetras and piranhas
ORD: Cypriniformes	characins, minnows, carps, suckers, loachs
ORD: Siluriformes	catfishes
SUPERORD: Stenopterygii	deep-sea teleosts
ORD: Stomiiformes	hatchetfishes
SUPERORD: Scopelomorpha	deep-sea fishes
ORD: Aulopiformes	deep-sea teleosts
ORD: Myctophiformes	deep-sea fishes
SUPERORD: Paracanthopterygii	advanced teleosts
ORD: Percopsiformes	pirate perch
ORD: Batrachoidiformes	toadfishes
ORD: Gobiesociformes	clingfishes
ORD: Lophiiformes	anglerfishes
ORD: Gadiformes	cod and haddock
ORD: Ophidiiformes	brotulas, cusk-eels, pearlfishes
SUPERORD: Acanthopterygii	spiny teleosts
ORD: Atheriniformes	flying fishes
ORD: Cyprinodontiformes	killifishes
ORD: Beryciformes	squirrel fishes
ORD: Zeiformes	tropical teleosts
ORD: Lampriformes	moon fishes
ORD: Gasterosteiformes	sticklebacks, sea horses
ORD: Scorpaeniformes	sculpins, sea robins
ORD: Perciformes	spiny teleosts
ORD: Pleuronectiformes	flatfishes
ORD: Tetraodontiformes	plectognath fishes

*Extinct

<u>CLASSIFICATION (OF FOSSIL FORMS)</u>	<u>COMMON NAME</u>
SUBCL: Sarcopterygii	bony fishes
ORD: Crossopterygii	air-breathing fish
SUBORD: Rhipidistia	*tetrapods
SUBORD: Onychodontiformes	*crossopterygians
SUBORD: Coelacanthiformes	crossopterygians
ORD: Dipnoni	lungfishes
CLASS: Amphibia	amphibians
SUBCL: Labyrinthodontia	*labyrinthodonts
ORD: Ichthyostegalia	*labyrinthodonts
ORD: Loxommatida	*labyrinthodonts
ORD: Temnospondyli	*labyrinthodonts
SUPFAM: Colosteoidea	*temnospondyls
SUPFAM: Trimerorhachoidea	*temnospondyls
SUPFAM: Edopoidea	*temnospondyls
SUPFAM: Eryopoidea	*temnospondyls
SUPFAM: Rhinesuchoidea	*temnospondyls
SUPFAM: Capitosauroida	*temnospondyls
SUPFAM: Rhytidosteoidea	*temnospondyls
SUPFAM: Trematosauroida	*temnospondyls
SUPFAM: Brachyopoidea	*temnospondyls
SUPFAM: Metoposauroida	*temnospondyls
SUPFAM: Plagiosauroida	*temnospondyls
ORD: Anthracosauria	*labyrinthodonts
SUBORD: Embolomeri	*anthracosaurs
SUBORD: Gephyrostegida	*anthracosaurs
SUBORD: Seymouriamorpha	*anthracosaurs
SUBCL: Lepospondyli	*amphibians
ORD: Aistopoda	*lepospondyls
ORD: Nectridea	*lepospondyls
ORD: Microsauria	*lepospondyls
ORD: Lysoropha	*lepospondyls
ORD: Adelogyrinida	*lepospondyls
SUBCL: Lissamphibia	amphibians
ORD: Gymnophiona (Apoda)	amphibians or caecilians
ORD: Caudata (Urodela)	newts and salamanders
ORD: Proanura	*protofrogs
ORD: Anura	frogs & toads

*Extinct

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<u>CLASSIFICATION</u> (OF FOSSIL FORMS)	<u>COMMON NAME</u>
CLASS: Reptilia	reptiles
SUBCL: Anapsida	reptiles
ORD: Captorhinida	*reptiles
SUBORD: Captorhinomorpha	*captorhinidans
SUBORD: Procolophonia	*captorhinidans
SUBORD: Pareiasauria	*captorhinidans
SUBORD: Millerosauria	*captorhinomorphs
ORD: Mesosauria	*reptiles
ORD: Chelonia	turtles & tortoises
SUBORD: Proganochelyida	*turtles
SUBORD: Pleurodira	turtles
SUBORD: Cryptodira	turtles
SUBCL: Diapsida	reptiles
ORD: Araeoscelida	*diapsids
ORD: Choristodera	*diapsids
INFRACL: Lepidosauromorpha	lizards & snakes
ORD: Eosuchia (Younginiiformes)	lepidosauromorphs
SUPERORD: Lepidosauria	lizards, snakes & sphenodontans
ORD: Spheodontida	tuatara
ORD: Squamata	lizards & snakes
SUBORD: Lacertilia	lizards
SUBORD: Serpentes	snakes
INFRACL: Archosauromorpha	diapsids
ORD: Rhynchosauria	*archosauromorphs
ORD: Thalattosauria	*archosauromorphs
ORD: Trilophosauria	*archosauromorphs
ORD: Protorosauria	*archosauromorphs
SUPERORD: Archosauria	reptiles
ORD: Thecodontia	*archosaurians
SUBORD: Proterosuchia	*thecodonts
SUBORD: Rauisuchia	*thecodonts
SUBORD: Ornithosuchia	*thecodonts
SUBORD: Aetosauria	*thecodonts
SUBORD: Phytosauria (Parasuchia)	*thecodonts
ORD: Crocodylia	crocodilians
SUBORD: Protosuchia	*crocodilians
SUBORD: Mesosuchia	*crocodilians
SUBORD: Eusuchia	crocodiles, gavials, alligators

*Extinct

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<u>CLASSIFICATION (OF FOSSIL FORMS)</u>	<u>COMMON NAME</u>
ORD: Pterosauria	*flying reptiles
SUBORD: Rhamphorhynchoidea	*pterosaurs
SUBORD: Pterodactyloidea	*pterosaurs
SUPERORD: Dinosauria	*dinosaurs
ORD: Saurischia	*dinosaurs
SUBORD: Staurikosauria	*dinosaurs
SUBORD: Theropoda	*dinosaurs
SUBORD: Sauropodomorpha	*dinosaurs
ORD: Ornithischia	*dinosaurs
SUBORD: Ornithopoda	*dinosaurs
SUBORD: Pachycephalosauria	*dinosaurs
SUBORD: Stegosauria	*dinosaurs
SUBORD: Ankylosauria	*dinosaurs
SUBORD: Ceratopsia	*dinosaurs
INFRACL: Euryapsida	*diapsids
SUPERORD: Sauropterygia	*nothosaurs & plesiosaurs
ORD: Nothosauria	*sauropterygians
ORD: Plesiosauria	*sauropterygians
SUPFAM: Plesiosauroidea	*plesiosaurs
SUPFAM: Pliosauroida	*plesiosaurs
SUPERORD: Placodontia	*euryapsids
SUPERORD: Ichthyosauria	*reptiles
SUBCL: Synapsida	*reptiles
ORD: Pelycosauria	*synapsids
SUBORD: Ophiacodontia	*pelycosaurs
SUBORD: Sphenacodontia	*pelycosaurs
SUBORD: Edaphosauria	*pelycosaurs
ORD: Therapsida	*synapsids
SUBORD: Eotitanosuchia	*therapsids
SUBORD: Dinocephalia	*herbivors
SUBORD: Dicynodontia	*therapsids
SUBORD: Theriodontia	*therapsids
CLASS: Aves	birds
SUBCL: Archaeornithes	*birds
ORD: Archaeopterygiformes	*birds
SUBCL: Ornithurae	birds
INFRACL: Hesperornithae	*birds

ORD: Hesperornithiformes
INFRACL: Carinatae

*birds
birds

*Extinct

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<u>CLASSIFICATION</u> (OF FOSSIL FORMS)	<u>COMMON NAME</u>
DIV: Ichthyornithes	*birds
ORD: Ichthyornithiformes	*birds
DIV: Neornithes	birds
SUPERORD: Palaeognathae	birds
ORD: Tinamiformes	tinamous
ORD: Struthioniformes	ostriches
ORD: Rheiformes	rheas
ORD: Casuariiformes	cassowaries & emus
ORD: Aepyornithiformes	*elephant birds
ORD: Dinornithiformes	*moas
ORD: Apterygiformes	kiwis
SUPERORD: Neognathae	birds
ORD: Galliformes	grouse, quail, turkeys, pheasants
ORD: Anseriformes	ducks, geese, swans
ORD: Podicipediformes	grebes
ORD: Diatrymiformes	*birds
ORD: Gaviiformes	loons
ORD: Sphenisciformes	penguins
ORD: Pelecaniformes	pelicans, frigate birds
ORD: Procellariiformes	albatrosses, petrels
ORD: Gruiformes	cranes, rails, limpkins
ORD: Charadriiformes	shore birds, gulls, auks
ORD: Columbiformes	pigeons, doves, dodo
ORD: Psittaciformes	lories, parrots, macaws
ORD: Coliiformes	colies
ORD: Ciconiiformes	herons, storks
ORD: Cuculiformes	cuckoos, roadrunners
ORD: Falconiformes	vultures, hawks, falcons, eagles
ORD: Strigiformes	owls
ORD: Caprimulgiformes	goatsuckers
ORD: Apodiformes	swifts, hummingbirds
ORD: Coraciiformes	kingfishers, rollers, hoopoes, hornbills
ORD: Piciformes	barbets, toucans, woodpeckers
ORD: Passeriformes	flycatchers, ovenbirds, lyrebirds, songbirds

*Extinct

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<u>CLASSIFICATION</u> (OF FOSSIL FORMS)	<u>COMMON NAME</u>
CLASS: Mammalia	mammals
SUBCL: Eotheria	*mammals
ORD: Docodontia	docodonts
ORD: Triconodontia	*triconodonts
SUBCL: Prototheria	mammals
ORD: Monotremata	platypus & echidna
SUBCL: Allotheria	*mammals
ORD: Multituberculata	*mammals
SUBORD: Plagiaulacoidea	*multituberculates
SUBORD: Taeniolabidoidea	*multituberculates
SUBORD: Ptilodontoidea	*multituberculates
SUBCL: Theria	therians
INFRACL: Pantotheria	*therians
ORD: Eupantotheria	therians
ORD: Symmetrodonta	*symmetrodonts
INFRACL: Metatheria	pouched mammals
ORD: Marsupialia	marsupials
SUBORD: Didelphoidea	opossums
SUBORD: Caenolestoidea	mouse opossums
SUBORD: Dasyuroidea	marsupial rats, carnivores
SUBORD: Parameloidea	bandicoots
SUBORD: Diprotodonta	kangaroos, wallabies, phalangers, koalas, wombats
INFRACL: Eutheria	placental mammals
ORD: Insectivora	insectivores
SUBORD: Proteutheria	*insectivores
SUBORD: Soricomorpha	shrews
SUBORD: Erinaceomorpha	hedge hogs
ORD: Macroscelida	elephant shrews
ORD: Scandentia	tree shrews
ORD: Chiroptera	bats
SUBORD: Megachiroptera	fruit-eating bats
SUBORD: Microchiroptera	insect & fish eating bats
ORD: Dermoptera	flying lemurs
ORD: Taeniodonta	*taeniodonts
ORD: Tillodontia	*tillodonts

ORD: Edentata
SUBORD: Cingulata
SUBORD: Pilosa

edentates
 armadillos & *glyptodonts
 ant eaters, tree sloths, *ground sloths

***Extinct**

<u>CLASSIFICATION</u> (OF FOSSIL FORMS)	<u>COMMON NAME</u>
ORD: Pholidota	pangolins
ORD: Primates	lemurs, tarsiers, apes, monkeys, & humans
SUBORD: Plesiadapiformes	*primates
SUBORD: Strepsirhini	lemurs
SUBORD: Haplorhini	tarsiers
SUBORD: Platyrrhini	new world monkeys
SUBORD: Catarrhini	old world monkeys, apes, & humans
ORD: Rodentia	rodents
SUBORD: Sciurognathi	sciurognaths
INFRAORD: Protrogomorpha	*rodents
INFRAORD: Sciuromorpha	squirrels, gophers
INFRAORD: Castorimorpha	beavers
INFRAORD: Myomorpha	mice, rats
INFRAORD: Theridomorpha	*rodents
SUBORD: Hystricognathi	hystricognaths
INFRAORD: Hystricomorpha	porcupines
INFRAORD: Phiomorpha	cane rats, gundis, mole rats
INFRAORD: Caviomorpha	rodents
ORD: Lagomorpha	rabbits & hares
ORD: Acreodi	*mammals
ORD: Cetacea	whales, porpoises, dolphins
SUBORD: Archaeoceti	*whales
SUBORD: Odontoceti	porpoises, dolphins, toothed whales
SUBORD: Mysticeti	baleen whales
ORD: Creodonta	*mammals
SUBORD: Oxyacnoidea	*creodonts
SUBORD: Hyaenodontia	*creodonts
ORD: Carnivora	carnivores
SUBORD: Fissipedia	land carnivores
SUPFAM: Miacoidea	*fissipeds
FAM: Miacidae	*miacids
SUPFAM: Canoidea	dogs, bears, pandas, raccoons, mustelids
FAM: Canidae	dogs, wolves, foxes
FAM: Ursidae	bears

FAM: Ailuridae	pandas
FAM: Procyonidae	racoons, coatis, ring-tails
FAM: Mustelidae	weasels
SUPFAM: Feloidea	cats, hyaenas
FAM: Viverridae	civets
FAM: Hyaenidae	hyaenas

***Extinct**

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2009

<u>CLASSIFICATION</u> (OF FOSSIL FORMS)	<u>COMMON NAME</u>
FAM: Felidae	cats
SUBORD: Pinnipedia	marine carnivores
FAM: Phocidae	seals
FAM: Otariidae	sea lions
FAM: Odobenidae	walruses
ORD: Condylarthra	*hoofed mammals
ORD: Tubulidentata	aardvarks
ORD: Pantodonta	*ungulates
ORD: Dinocerata	*ungulates
ORD: Notoungulata	*ungulates
SUBORD: Notioprogonia	*notoungulates
SUBORD: Toxodonta	*ungulates
SUBORD: Typotheria	*notoungulates
SUBORD: Hegetotheria	*notoungulates
ORD: Litopterna	*ungulates
ORD: Astrapotheria	*ungulates
ORD: Trigonostylopa	*ungulates
ORD: Pyrotheria	*ungulates
ORD: Perissodactyla	odd-toed mammals
SUBORD: Hippomorpha	horses
SUPFAM: Equoidea	horses, zebras, asses
SUPFAM: Brontotheroidea	*brontotheres or titanotheres
SUBORD: Ancylopoda	*perissodactyls
SUBORD: Ceratomorpha	rhinoceroses, tapirs
SUPFAM: Tapiroidea	tapirs
SUPFAM: Rhinoceratoidea	rhinoceroses
ORD: Artiodactyla	even-toed mammals
SUBORD: Paleodonta	*artiodactyls
SUPFAM: Dichobunoidea	*artiodactyls
SUPFAM: Entelodontoidea	*entelodonts
SUBORD: Suina	artiodactyls
SUPFAM: Suoidea	pigs, peccaries
SUPFAM: Anthracotherioidea	*anthracotheres

SUPFAM: Hippopotamoidea	hippopotamuses
SUPFAM: Anoplotherioidea	*artiodactyls
SUBORD: Ancodonta	*ancodonts
SUPFAM: Cainotherioidea	*cainotheres
SUPFAM: Merycoidodontoidea	*oreodonts

***Extinct**

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2009

<u>CLASSIFICATION (OF FOSSIL FORMS)</u>	<u>COMMON NAME</u>
SUBORD: Tylopoda	camels & llamas
SUBORD: Ruminantia	artiodactyls
SUPFAM: Traguoidea	tragulids
SUPFAM: Cervoidea	deer
SUPFAM: Giraffoidea	okapis, giraffes
SUPFAM: Bovoidea	antelopes, cattle
ORD: Proboscidea	elephants
SUBORD: Moeritherioidea	*proboscideans
SUBORD: Deinotherioidea	*dinotheres
SUBORD: Euelephantoidea	elephants, *mastodonts, *mammoths, *stegodonts
SUPFAM: Gomphotherioidea	*mastodonts
SUPFAM: Mastodontoidea	*mastodonts
SUPFAM: Stegodontoidea	*stegodonts
SUPFAM: Elephantoidea	elephants, *mammoths
SUBORD: Barytherioidea	*barytheres
ORD: Sirenia	sea cows, dugongs
ORD: Desmostylia	*desmostylians
ORD: Hyracoidea	hyraxes, conies
ORD: Embrithopoda	*mammal
KING: Monera	
DIV: Cyanophyta	cyanobacteria; blue-green algae
DIV: Schizomycota	bacteria
KING: Fungi	fungi, molds
KING: Protista	protist
DIV: Phaeophyta	brown algae
DIV: Rhodophyta	red algae
DIV: Chrysophyta	diatoms; golden-brown algae
DIV: Pyrrophyta	dinoflagellates
DIV: Foraminifera	foraminifer
DIV: Radiolaria	radiolarian
DIV: Chlorophyta	grass-green algae

***Extinct**

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2009

<u>CLASSIFICATION</u> (OF FOSSIL FORMS)	<u>COMMON NAME</u>
KING: Plantae	plant
DIV: Bryophyta	moss, liverwort
DIV: Tracheophyta	vascular plant
CLASS: Lycopsidea	club moss; lycopsid
CLASS: Sphenopsida	horsetails (& their relatives)
CLASS: Filicopsida	fern; tree fern
CLASS: Progymnospermopsida	ancestral gymnosperms
CLASS: Gymnospermopsida	gymnosperm
ORD: Pteridospermales	seed ferns
ORD: Cycadales	cycad
ORD: Cycadeoidales	cycadeoid
ORD: Glossopteridales	glossopterid
ORD: Ginkgoales	ginkgophyte
ORD: Cordaitales	cordaite
ORD: Coniferales	conifer (or any appropriate modern name like pine, spruce)
ORD: Taxales	taxad
SUBDIV: Angiospermophytina	flowering plant
CLASS: Magnoliopsida	dicotyledon
CLASS: Liliopsida	monocotyledon

MAJOR REFERENCES FOR FOSSIL LIST:

MONISTS, PROTISTS and PLANTS:

Stewart, Wilson N. and Gar W. Rothwell. Paleobotany and the Evolution of Plants, Second Edition. New York Cambridge University Press, 1993.

INVERTEBRATES:

Boardman, Richard S., Alan H. Cheetham, Albert J. Rowell, Editors. Fossil Invertebrates. Cambridge, MA: Blackwell Scientific Publications, Inc., 1987.

VERTEBRATES:

Colbert, Edwin H., Eli C. Minkoff, and Michael Morales. Colbert's Evolution of the Vertebrates: A History of Backboned Animals Through Time, Fifth Edition. New York: John Wiley and Sons, Inc., 2001.

Benton, Michael J. Vertebrate Palaeontology. Malden, MA: Blackwell Publishing, 2005.

TIME UNITS

Cenozoic epochs:

- Pleistocene
- Pliocene
- Miocene
- Oligocene
- Eocene
- Paleocene

Mesozoic periods:

- Cretaceous
- Jurassic
- Triassic

Paleozoic periods:

- Permian
- Pennsylvanian
- Mississippian
- Devonian
- Silurian
- Ordovician
- Cambrian

CAPITALIZATION: Proper nouns are written with an initial capital letter. These would include names of the phyla, subphyla, superclasses, classes and subclasses as well as the names of the geologic eras, periods, epochs and formations. Common names need not be capitalized. For labeling purposes, however, most exhibitors prefer to capitalize the first letters of the words, or they may wish to write the name in all upper case letters.

Scientific names are to be written in "italics" or underlined, with only the first letter of the genus capitalized. (See rules book)

Current practice for rock unit names is to capitalize the initial letter in each word, including the words formation, zone, etc. Examples: Silica Shale, Yorktown Formation, Bolaspidella Zone.

Addendum to AFMS Fossil List (1995)

AFMS List of the Major Fossil Taxa for fossil exhibits

Invertebrate:

Porifera
Cnidaria
Bryozoa
Brachiopoda
Mollusca
Annelida
Arthropoda
Echinodermata

Minor Taxa which may be considered major if included in the exhibit

Archaeocyatha
Hyolitha
Hemichordata
Conodonta
Foraminifera (King = Protista)
Radiolaria (King = Protista)

Vertebrata:

Chondrichthyes
Osteichthyes
Teleostei
Amphibia
Reptilia
Aves
Mammalia

Minor Taxa which may be considered major if included in the exhibit

Agnatha
Placodermi
Acanthodii

Plants:

Sphenopsida
Filicopsida
Pteridospermales
Cycadales
Glossopteridales
Ginkgoales
Cordaitales
Coniferales
Magnoliopsida
Liliopsida

Minor Taxa which may be considered major if included in the exhibit

Lycopsida
Progymnospermopsida
Cycadeoidales
Phaeophyta (King = Protista)
Chlorophyta (King = Protista)
Fungi (= Kingdom)
Chrysophyta (King = Protista)
Cyanophyta (King = Monera)

January 1995