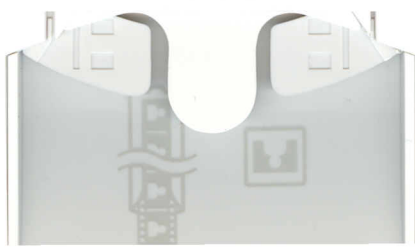


# The Tower of Biodiversity



Smithsonian Institution



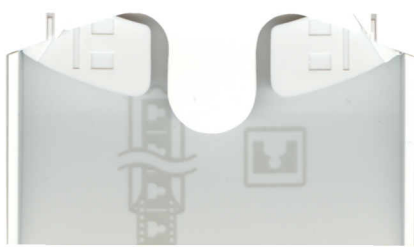


The Tower of Biodiversity, rising three stories in the well of the east staircase of the historic Smithsonian Building, illustrates not only the great variety of animal life on our planet, but also hints at the building's early history. From 1857 until 1910, the Castle, as it is now commonly known, housed the Smithsonian's extensive natural history collections; hundreds of exhibit cases were filled with preserved specimens of birds, reptiles, amphibians, fish, mammals, mollusks, and shells. Surviving a disastrous fire that destroyed the upper floors of the building, many of those first collection specimens still exist today in the National Museum of Natural History's biological collections.

As you look at the Smithsonian treasures exhibited on the tower, you will discover the story these objects reveal: that of our world's rich biological diversity. The 162 specimens and models seen here are but a tiny fraction of the over 80 million that make up the Smithsonian's collections of natural history. These invaluable collections are held in trust for the nation and the world for study and research into biological diversity, evolution, and global change.



The exhibition hall on the first floor of the Castle, 1895.



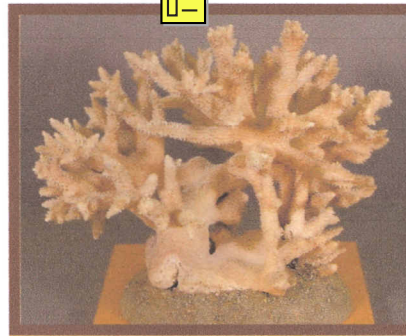


In descending order, starting at the third floor level, the specimens exhibited on the tower are:



Asclepiadaceae  
*Asclepias  
physocarpa*  
Schlechter

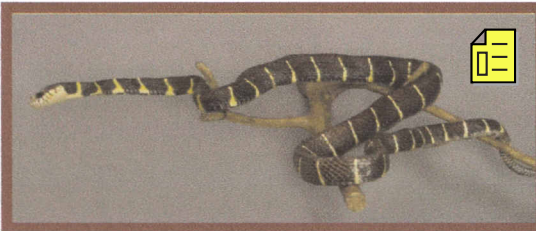
A member of the  
Milkweed Family  
which is native to  
southern Africa.  
Cultivated in the  
Ripley Garden.



Staghorn Coral  
*Acropora cervicornis*

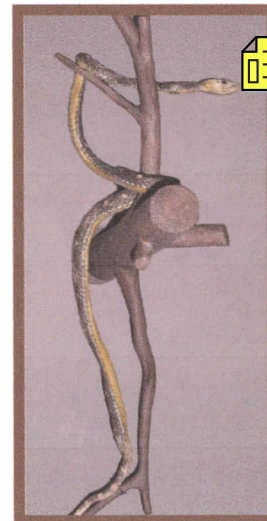
Hard, reef-building coral.  
Although not endangered,  
the trade of this species is  
monitored on the CITES\*

\* Convention on International Trade  
in Endangered Species of Wild Flora  
and Fauna.



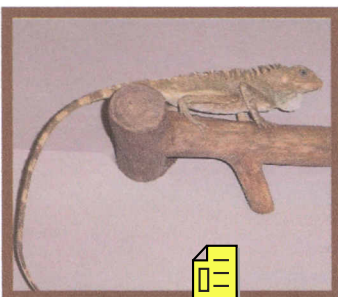
Cateyed Mangrove  
Snake  
*Boiga blandingii*

A common resident of  
the mangrove forest of  
Southeast Asia, this  
rear-fanged snake uses  
venom to capture its  
prey, biting and hold-  
ing it until it suc-  
cumbs.



Asian Tree  
Viper  
*Trimeresurus sp.*

This venomous  
snake has a pre-  
hensile tail  
which allows it  
to hang from  
branches.



Asian Agamid Lizard  
*Calotes sp.*

Semiarboreal lizards employ a sit-and-  
wait strategy to capture insect prey.



Golden Lion Tamarin  
*Leontopithecus rosalia*

Endangered due to deforestation  
of its native habitat, the Atlantic  
coastal region of Brazil. Since  
1984, a captive breeding program  
at the National Zoo has been  
successful re-introducing this  
species to the wild.



Black-footed Ferret  
*Mustela nigripes*

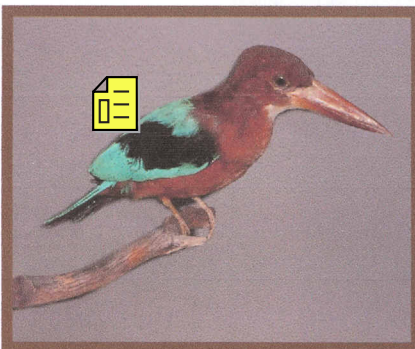
Wild populations  
were extinct by 1987.  
Currently, there are  
three locations in the  
United States where  
they have been re-  
introduced. A captive  
breeding program at  
the Smithsonian's  
Conservation  
Research Center has  
contributed to this  
re-introduction.



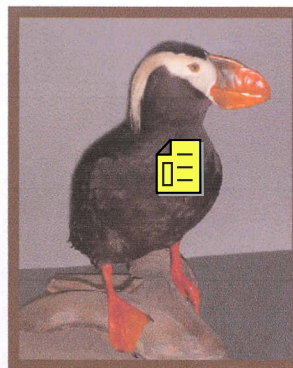




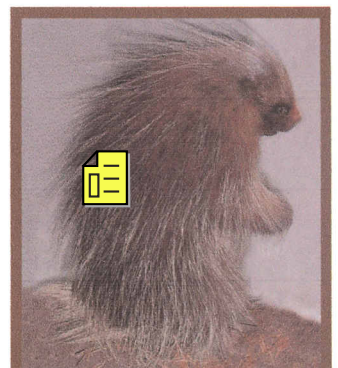
Yellow-lored Parrot  
*Amazona xantholora*



Philippine Kingfisher  
*Halcyon smyrnensis*



Tufted Puffin  
*Fatercula cirrhata*



North American Porcupine  
*Erethizon dorsatum*



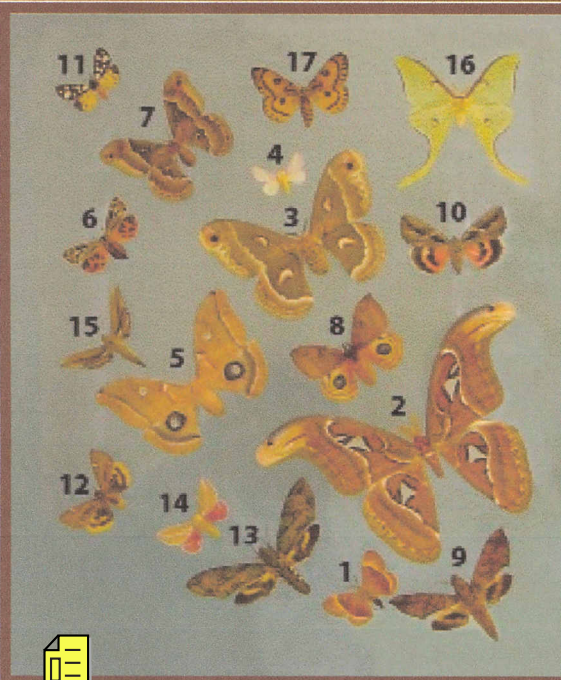
Emperor Penguin Chick  
*Aptenodytes forsteri*

Adult Emperor penguins are the largest species of penguin but produce the smallest egg in proportion to adult body mass of any bird. Males incubate the egg by holding it on the top of their feet while standing on the ice shelf in Antarctica.



Salmon, model,  
nonbreeding condition  
*Oncorhynchus sp.*


## Moth Case




- 1-Oak Egger Moth, *Lasiocampa quercus*
- 2-Atlas Moth, *Attacus atlas* World's largest moth in overall size.
- 3-Cecropia Moth, *Hyalophora cecropia*
- 4-Rosy Maple Moth, *Dryocampa rubicunda*
- 5-Polyphemus Moth, *Antheraea polyphemus*
- 6-Virgin Tiger Moth, *Gnampteryx virgo*
- 7-Promethea Moth, *Callosamia promethea*
- 8-Io Moth, *Automeris io*
- 9-White-tipped Sphinx, *Pachylia ficus*
- 10-Underwing Moth, *Catocala sp.*
- 11-Tiger Moth, *Callimorpha sp.*
- 12-St. Lawrence Tiger Moth, *Hyphoraia parthenos*
- 13-Sphinx Moth, *Neococcytus sp.*
- 14-Citheroniid Moth, *Adelocephala sp.*
- 15-Falco Sphinx Moth, *Xylophanes falco*
- 16-Luna Moth, *Actias luna*
- 17-Sheep Moth, *Hemileuca eglanterina*

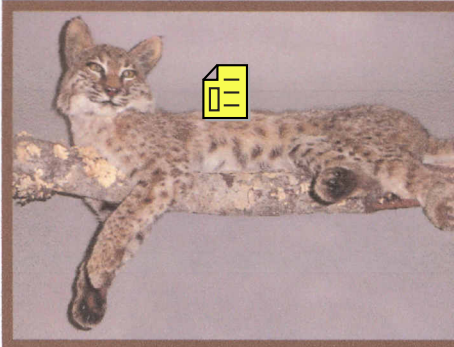




Salmon, model, male, breeding condition   
*Oncorhynchus sp.*




Salmon, model, female, breeding condition   
*Oncorhynchus sp.*




Bobcat  
*Lynx rufus*  
The most widely distributed native cat in North America.



Riflebird, male and female  
*Ptiloris magnificentus*   
The female's coloration blends in with the nest for protective camouflage.



Nine-banded Armadillo  
*Dasypus novemcinctus*   
This species has played an important role in medical research on leprosy.

Marine Toads (male & female)  
*Bufo marinus*



Introduced to the French Caribbean Islands from its native range (southern Texas to central Brazil) as a potential predator for sugar cane beetles, this species has become a pest as its poison kills native predators. It has also been introduced to Hawaii, several other islands of the South Pacific, and to Darwin, Australia.

Fire Salamander  
*Salamandra salamandra*




A European species of terrestrial salamander. It lived its name because it emerges from partially rotted logs when they are tossed into a fire. Its bright red color in life serves to warn predators of its poisonous skin secretions.

Treefrogs (male & female)  
*Phrynohyas venulosa*

Delayed sexual maturity permits the female extra growing time and thus larger size which increases egg production. All frogs have poison glands in their skin but the poison in this species is extremely irritating to predators, producing an unforgettable experience which acts as a deterrent against future attacks.

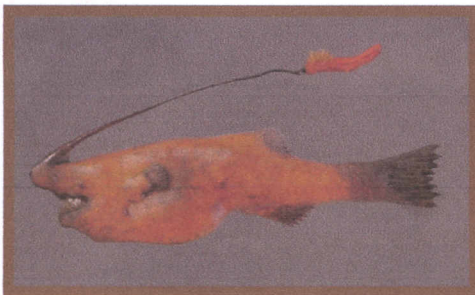


Chicken Frog  
*Leptodactylus pentadactylus* 

A large frog that dwells on the forest floor. It is found from Central America into the northern parts of South America.







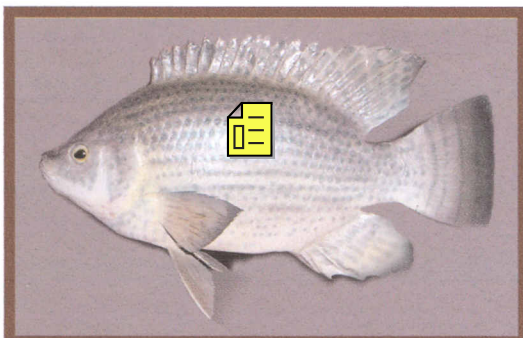
Deep-sea Angler Fish, model  
*Gigantactis perlatus*

Deep-angler fishes live in the cold, dark mid-waters of the ocean. To avoid expending scarce energy, they attract their prey with a modified dorsal-fin ray that acts as a lure.

Eel, model  
*Anguilla sp.*

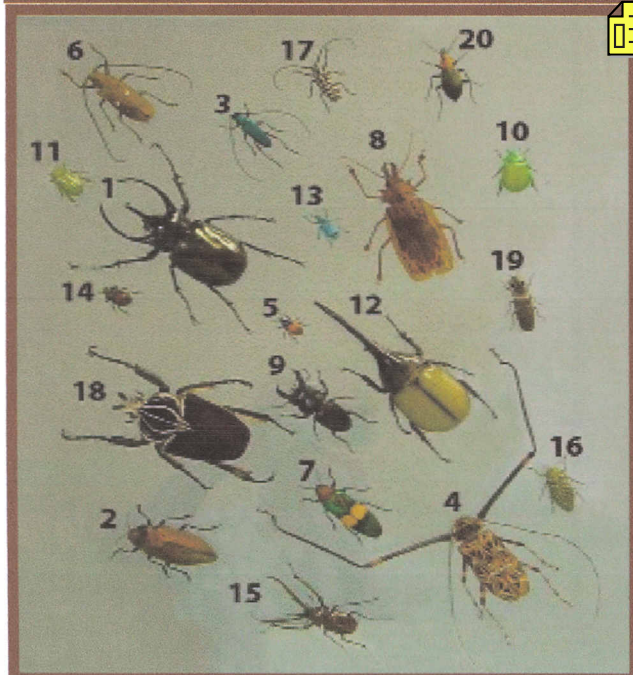


Eels of the genus *Anguilla* spend most of their adult lives in freshwater, but spawn in the ocean, often far away from land. The American and European species both spawn in the Sargasso Sea, south of Bermuda. Their larvae drift back to their respective continents on oceanic currents.



Sea Bass, model, *Centropristes sp.*

## Beetle Case



- 1-Atlas Beetle, *Chalcosoma atlas*
- 2-Tropical Wood-boring Beetle, *Euchroma gigantea*
- 3-Velvet Longhorn Beetle, *Plinthocoelium sp.*
- 4-Harlequin Beetle, *Acrocinus longimanus*
- 5-Snail-eater Ground Beetle, *Brachygnatha festinus*
- 6-Oriental Longhorn Beetle, *Batocera sp.*
- 7-Buprestid Beetle, *Chrysochroa sp.*
- 8-Spined Longhorn Beetle, *Macrodonita sp.*
- 9-Stag Beetle, *Dorcas sp.*
- 10-Green Plusiotis Scarab, *Plusiotis beyeri*
- 11-Bright Plusiotis Scarab, *Plusiotis gloriosa*
- 12-Hercules Beetle, *Dynastes hercules*
- 13-Green Weevil, *Cyphus sp.*
- 14-Scarab Beetle, *Geotrupes sp.*
- 15-Chilean Stag Beetle, *Chiasognathus granti*
- 16-African Buprestid Beetle, *Julodis sp.*
- 17-Cottonwood Borer Beetle, *Plectrodera scalator*
- 18-Goliath Beetle, *Goliathus goliathus*
- Heaviest insect in the world.
- 19-Eyed Click Beetle, *Alaus oculatus*
- 20-Ground Beetle, *Coptolabrus sp.*







Blue Flowers  
*Malva sylvestris* Linn.

A member of the Cotton Family, these flowers are native to Europe and temperate parts of Asia. Cultivated in the Ripley Garden.



Sea Fan  
*Gorgonia ventalina*  
Soft coral.



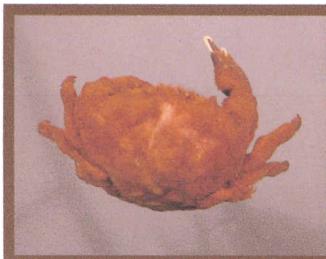
Coconut Crab  
*Birgus latro*

A large tropical land crab found on the islands of the South Pacific and Indian Oceans. Once widely distributed throughout the Pacific, they have disappeared over much of their original range.



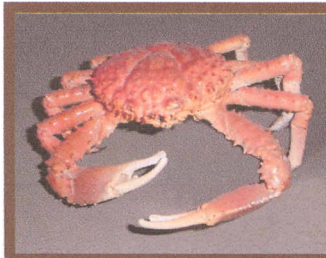
Blue Crab  
*Callinectes sapidus*

Commercially important crab found from Cape Cod to Florida. It is very common in estuaries and famous in the Chesapeake Bay.



Sponge Crab  
*Dromia* sp.

Sponge crabs derive their name from characteristically covering and concealing their dorsal surface with various species of sponge, algae, sea squirts, or even bits of paper they might come across.



Caribbean King Crab  
*Mithrax spinosissimus*

A large nocturnal crab found in the deep reef waters of the tropical western Atlantic Ocean. It has adapted well to herbivory.

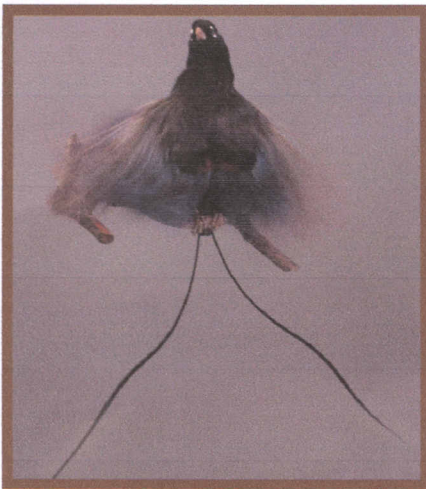


Hawksbill Turtle, model  
*Eretmochelys imbricata*

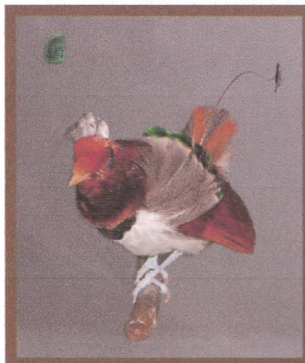
This species of sea turtle is endangered worldwide. A tropical water species, it occurs in the United States only in its extreme southern region. It continues to be over harvested owing to the beautiful keratinous scutes on its shell.





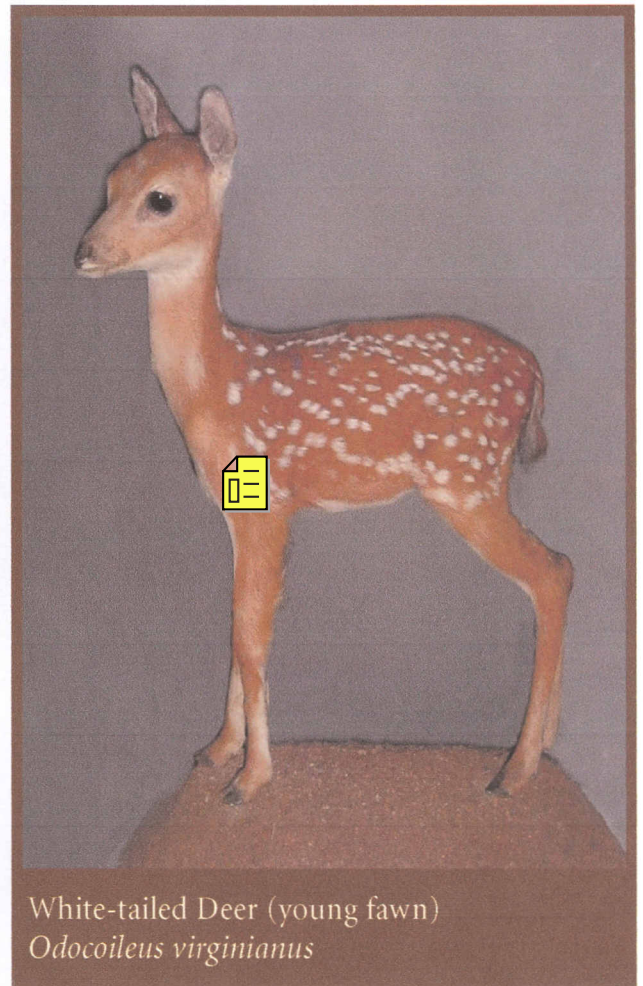


Blue Bird of Paradise  
*Paradisaea rudolphi*



King Bird of Paradise  
*Cicinnurus regius*

Smallest species of  
the Birds of Paradise.

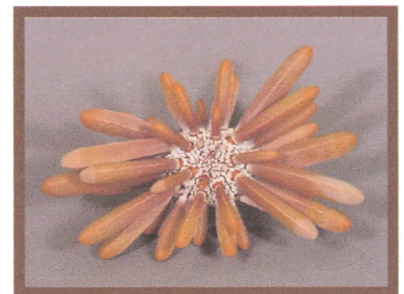
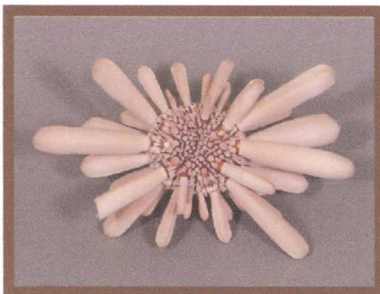
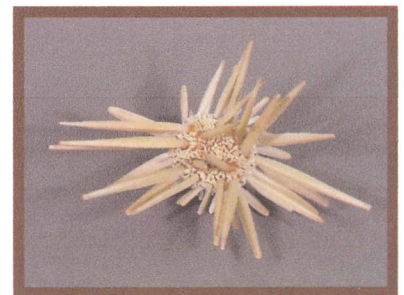
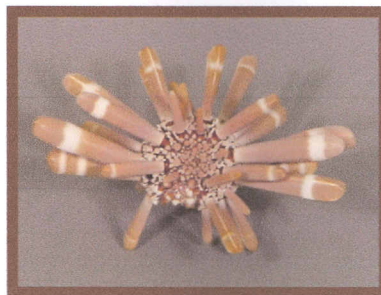
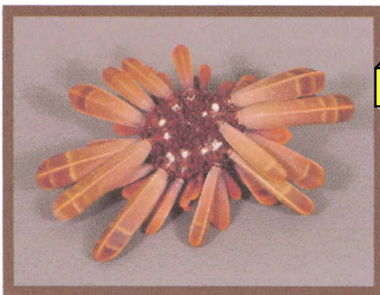


White-tailed Deer (young fawn)  
*Odocoileus virginianus*



King of Saxony Bird  
of Paradise  
*Pteridophora alberti*

## Pencil Urchins



Pencil Urchins  
*Heterocentrotus mammillatus*

Herbivorous species that can be found in coral reef habitats throughout the Indo-Pacific.







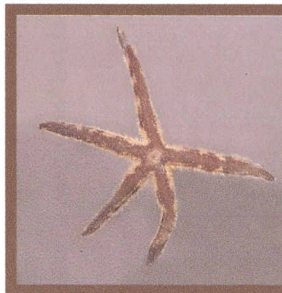
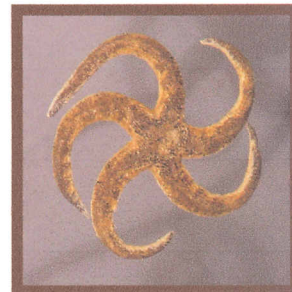
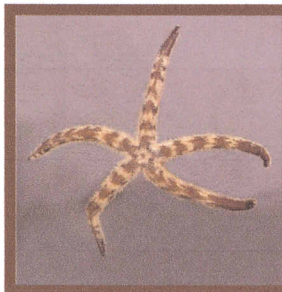
Red Algal Specimens  
*Microcladia coulteri*  
Harvey (top)



*Plocamium cartilagineum*  
(Linn.) Dixon (bottom)

Marine algae collected  
January 15, 2001 at  
Stillwater Cove, Pebble  
Beach, CA. Voucher speci-  
mens deposited in the U.S.  
National Herbarium's Algal  
Collection at NMNH.

## Sea Stars



Sea Stars  
*Luidia alternata*

Found off the SE  
coast of the US and  
Gulf of Mexico. A  
fragile species that  
readily loses its  
arms when handled  
out of water, a  
process known as  
*autotomy*.



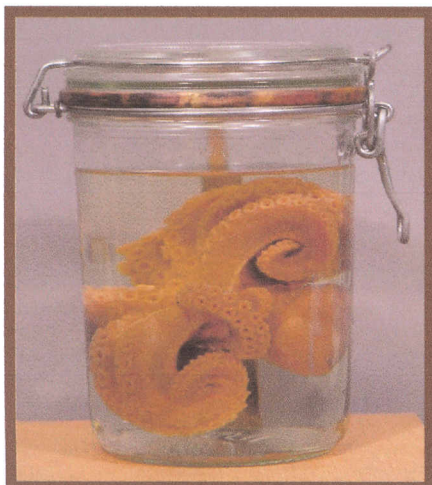
Squid  
*Onychoteuthis banksii*

A jet-propelled "torpedo" of the open  
oceans, this squid lives near the surface  
of warm tropical seas. It captures its  
prey using two feeding tentacles  
equipped with numerous, sharp hooks,  
like a cat's claws. Squid, like octopus  
babies, hatch out of their eggs looking  
like tiny replicas of their parents, rather  
than going through a distinct larval  
phase as do most all other mollusks and  
invertebrates.



Vent Worm  
unidentifed  
Vermintiferan

Collected by the crew of  
the deep sea research  
vessel Alvin from a  
hydrothermal vent in  
the Pacific Ocean at a  
depth of 2,225 meters  
(7,300 ft).



Octopus  
*Octopus sp.*



Octopods are marine mollusks that live in shallow waters  
around the world and are especially abundant and diverse in  
warm tropical seas. Masters of camouflage, they can match  
the color and texture of their background habitat precisely.  
Capturing their prey with suction-cupped arms, they inject  
the prey with poison and devour it.

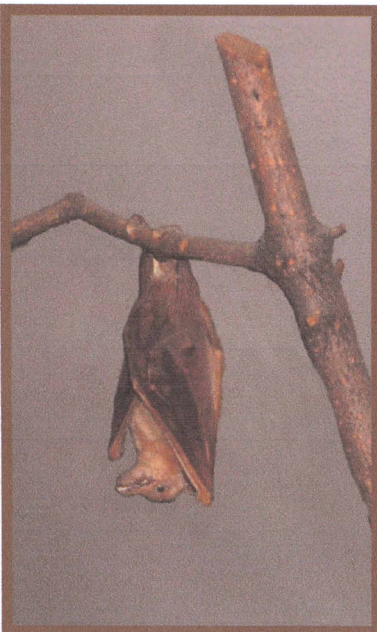




## Butterfly Case



Because the colors of many butterflies vary greatly from back to front, the butterflies have been mounted so that both sides can be seen.



Mexican Long-tongued Bat  
*Leptonycteris mexicanus*

Native to Central American, Mexico, and a small region of the southwestern, US, where it is a summer resident only. Feeds on pollen, nectar, fruit and possibly insects.

1-Mourning Cloak, *Nymphalis antiopa*  
Adult hibernates in the winter, thus it is one of the first butterflies on the wing in the spring.

2-Peacock, *Inachis io*

3-Baltimore, *Euphydryas phaeton*  
State butterfly of Maryland. Feeds exclusively on Turtlehead—a small plant.

4-Falcate Orangetip, *Anthocharis midea*

5-The Mosaic, *Colobura dirce*

6-Great Spangled Fritillary, *Speyeria cybele*

7-Purple Mort Bleu, *Eryphanis polyxena*

8-Isabella, *Eueides isabella*

9-Boisduval's False Acraea, *Pseudacrea boisduvalli*

10-Cracker, *Hamadryas* sp.  
Found in Latin America. Males produce a clicking noise when flying.

11-Black Charaxes, *Charaxes* sp.

12-Brown Siproeta, *Siproeta epaphus*

13-African Cymothoe, *Cymothoe weymeri*

14-Wood Nymph, *Cercyonis pegala*

15-Spotted Euphaedra, *Euphaedra* sp.

16-Cloudless Giant Sulphur, *Phoebis sennae*

17-African Charaxes, *Charaxes* sp.

18-African Euphedra, *Euphaedra spatiosa*

19-Latin Callithea, *Callithea* sp.

20-Spanish Festoon, *Zerynthia polyxena*

21-Green Charaxes, *Charaxes eupale*

22-Swallowtail, *Euryaedes aristeus*

23-Agrias Butterfly, *Agrias claudina*

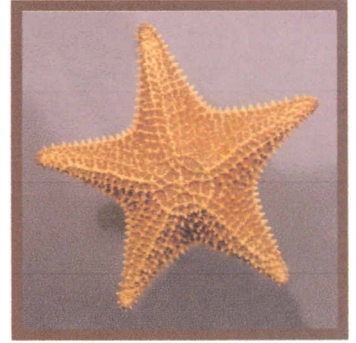
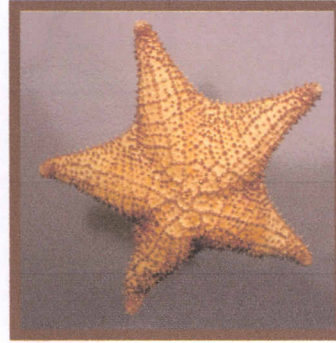
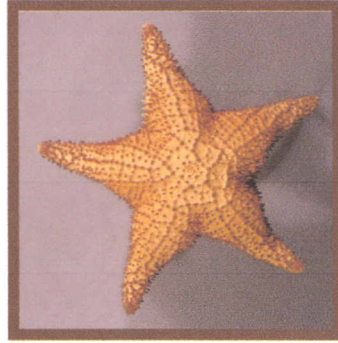
24-Cramer's Blue Morpho, *Morpho rhetenor*  
Strong color differences between sexes. Males have bright reflective wings.



# Sea Stars

Cushion Sea Stars  
*Oreaster reticulatus*

A reef and lagoon dwelling sea star that is found off the southeastern coast of the United States and in the Caribbean. It can evert its stomach to cover its prey and digest it outside of the body.



Mandarin Duck  
*Aix galericula*



Vulturine Guineafowl  
*Acryllium vulturinum*

This is the largest species of guineafowl (Family Numididae). This family of birds is endemic to Africa.



Peacock  
*Pavo cristatus*



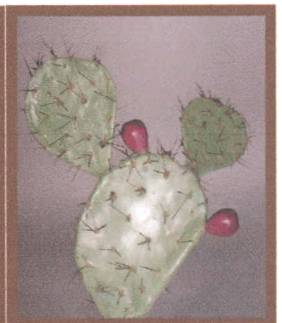
Natterer's Motmot  
*Momotus momota nattereri*



Marten  
*Martes martes*

Prickly Pear Cactus (model)  
*Opuntia sp.*

Member of the Cactus family. This model was previously on display in the Mammals Hall at NMNH.







Butterfly Fish  
*Forcipiger flavissimus*



Sea Horses  
*Hippocampus erectus*

Lacking pelvic (ventral) and anal (tail) fins, sea horses swim upright using ear-like pectoral fins with a dorsal fin for propulsion. They spend much of their time with their prehensile tail wrapped around seaweed and seagrass, waiting for prey to pass by.



Puffer  
*Diodon holocanthus*

Puffers have an innovative method of thwarting predators—they inflate their bellies like a balloon with air, water, or both, making it appear too large to swallow.



Cowrie Shell  
*Cypraea angus*



Cowrie Shell  
*Cypraea hesitata*



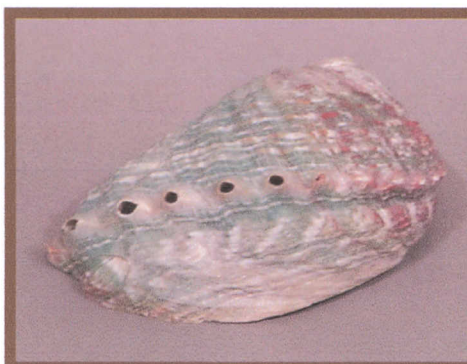
Cowrie Shell  
*Cypraea aurantium*

Known as the “Golden Cowrie.” This is a moderately rare species found from the Philippines to Polynesia.



Cowrie Shell  
*Cypraea tigris*

A large cowrie common throughout the Indo-Pacific region.



Abalone Shell  
*Haliotis assimilus*

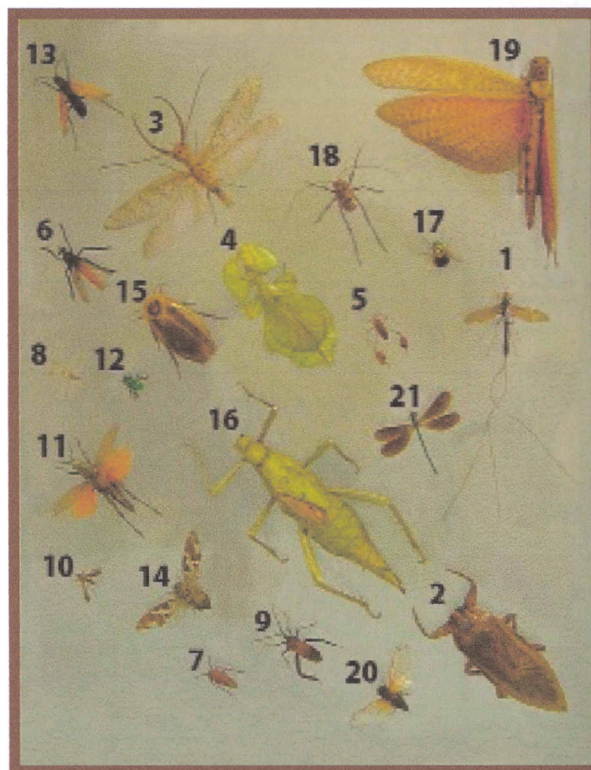
This species is common in California. It is found in shallow water and is a popular genus for use in making shell ornaments and jewelry.



Abalone Shell, *Haliotis fulgens*







## Insect Case

1-B<sup>1</sup> Ichneumon Wasp, *Megarhyssa* sp.

2-Giant Water Bug, *Lethocerus* sp.

3-Dobsonfly, *Corydalis cornutus*

4-Leaf Insect, *Phyllium* sp.

5-Tropical Coreid Bug, *Anisocelis* sp.

6-Robber Fly, *Microstylum* sp.

7-Fulgorid Bug, *Fulgoridae*

8-Mantispid Fly, *Mantispa* sp.

9-Leaf-footed Bug, *Acanthocephala thomasi*

10-June Beetle Parasite Fly, *Pyrgota undata*

11-Lubber Grasshopper, *Acrididae*

12-Orchid Bee, *Euglossa* sp.

13-Spider Wasp, *Pepsis* sp.

14-Tropical Cicada, *Zamarra* sp.

15-Tropical Cockroach, *Blaberus craniifer*

16-Stick Insect, *Heteropteryx dilatata*

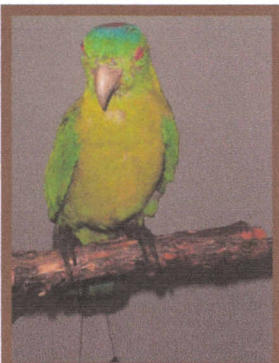
17-Tachinid Fly, *Formosia* sp.

18-Shield-backed Grasshopper, *Decticinae*

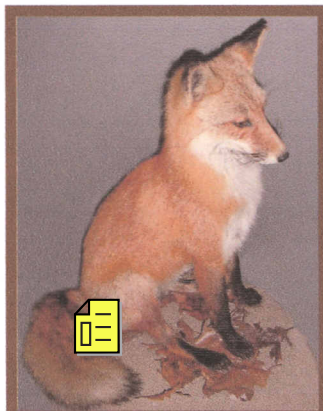
19-Tropical Grasshopper, *Acrididae*

20-17-year Cicada, *Magicicada* sp.

21-Black-winged Damselfly, *Calopteryx maculata*



Crimson-spotted  
Ratchet-tailed  
Parrot  
*Prioniturus flavi-  
cans*



Red Fox, *Vulpes vulpes*



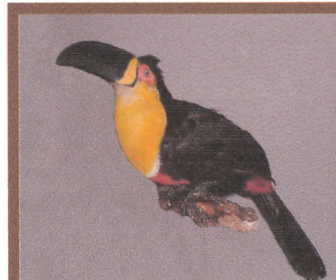
Ginkgo  
*Ginkgo biloba* Linn.

Native to China, Ginkgo trees date back in time approximately 200 million years. They are resistant to grazing due to internal chemistry and are able to thrive in a variety of habitats. Cultivated on the grounds of NMNH.



Kiwi  
*Apteryx australis*

Kiwis have well-developed sense of hearing and smell but poor eyesight. They hunt for food mostly by smell using nostrils at the tip of their beaks, unlike most birds that have their nostrils at the base of their beaks.



Ariel  
Toucan  
*Ramphastos  
vitellinus ariel*





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