

## MARSUPIALS



1. DISTINGUISH:

A. MAMMAL FROM OTHER ANIMALS.

B. PLACENTALS, MARSUPIALS AND MONOTREMES FROM ONE ANOTHER.

2. UNDERSTAND HOW MARSUPIALS ARE CLASSIFIED INTO FAMILIES AND DESCRIBE, IN A GENERAL WAY, THE HABITS OF THESE FAMILIES.

3. DESCRIBE THE DISTRIBUTION, HABITAT (IE. TYPE OF COUNTRY THEY LIVE IN), DIET BREEDING BEHAVIOR, AS WELL AS ANY OTHER INTERESTING INFORMATION OF TWELVE DIFFERENT GROUPS OF MARSUPIALS AND MONOTREMES.

4. BE ABLE TO EXPLAIN THE DIFFERENCE BETWEEN MARSUPIAL REPRODUCTION AND THAT IN TRUE MAMMALS (IE. PLACENTALS).

5. EXPLAIN THE SIGNIFICANCE OF THE DIRECTION OF OPENING OF THE POUCH AND THE NUMBER OF YOUNG PER LITTER IN MARSUPIALS.

6. GIVE AN EXPLANATION OF THE UNIQUE OCCURRENCE OF MARSUPIALS IN AUSTRALIA.

7. BE ABLE TO EXPLAIN THE NEED FOR CONSERVATION OF OUR MARSUPIALS.

8. WRITE A REPORT OF YOUR VISIT TO A NATURAL HISTORY MUSEUM, WILDLIFE SANCTUARY, ZOO, ETC. INDICATING IN ABOUT 10-15 LINES, THE EXTENT OF YOUR OBSERVATIONS.

## **MARSUPIAL HONOR HELPS:**

**MAMMALS** ("MAMMA" MEANS BREAST) ARE ANIMALS THAT HAVE HAIR, BREATHE AIR, FEED YOUNG MILK FROM MOTHER

**PLACENTALS** ("PLACENTA" MEANS CAKE) ARE MAMMALS THAT HAVE INTERNAL YOUNG, CONNECTED TO THE MOTHER THROUGH THE PLACENTA WHICH SUPPLIES NOURISHMENT FOR THE DEVELOPING YOUNG.

**MARSUPIALS** ("MARSUPIUM" MEANS POUCH OR BAG) ARE MAMMALS THAT GENERALLY HAVE POUCHES WHERE THEIR YOUNG CONTINUE TO DEVELOP.

**MONOTREMES** ("MONO" MEANS ONE, "TREMA" MEANS HOLE) ARE EGG LAYING MAMMALS.

## **THE MARSUPIALS AND MONOTREMES:**

**SUPERORDER AMERIDELPHIA:** AMERICAN OPOSSUMS, MOST IN SOUTH OR CENTRAL AMERICA, MOST ARE CARNIVOROUS OR OMNIVOROUS. ONLY ONE IN NORTH AMERICA (DIDELPHIS VIRGINIANA - THE VIRGINIA OPOSSUM [HTTP://WWW.NSRLL.TTU.EDU/TMOT1/DIDEVIREG.HTM](http://www.nsrll.ttu.edu/tmot1/didevireg.htm)).

**ORDER DIDELPHIMORPHIA:** OPOSSUMS  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/DIDELPHIMORPHIA/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/didelphimorphia/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/DIDELPHIMORPHIA](http://animaldiversity.ummz.umich.edu/accounts/didelphimorphia)  
[HTTP://WWW.MAMMALSRUS.COM/METATHERIA/DIDELPHIMORPHIA/DIDELPHIMORPHIA.HTML](http://www.mammalsrus.com/metatheria/didelphimorphia/didelphimorphia.html)

**FAMILY DIDELPHIDAE:** OPOSSUMS - NORTH AND SOUTH AMERICA, MOSTLY OMNIVOROUS, MOST HAVE LONG SCALY PREHENSILE TAIL  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/DIDELPHIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/didelphidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/DIDELPHIDAE](http://animaldiversity.ummz.umich.edu/accounts/didelphidae)  
[HTTP://WWW.MAMMALSRUS.COM/METATHERIA/DIDELPHIMORPHIA/DIDELPHIMORPHIA.HTML](http://www.mammalsrus.com/metatheria/didelphimorphia/didelphimorphia.html)  
[HTTP://WWW.NHPTV.ORG/WILD/DIDELPHIDAE.ASP](http://www.nhptv.org/wild/didelphidae.asp)

**ORDER PAUCITUBERCULATA:** ONE FAMILY (6 SPECIES) OF SHREW OPOSSUMS IN WESTERN SOUTH AMERICA  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PAUCITUBERCULATA/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/paucituberculata/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PAUCITUBERCULATA](http://animaldiversity.ummz.umich.edu/accounts/paucituberculata)  
[HTTP://WWW.MAMMALSRUS.COM/METATHERIA/PAUCITUBERCULATA/PAUCITUBERCULATA.HTML](http://www.mammalsrus.com/metatheria/paucituberculata/paucituberculata.html)

**FAMILY CAENOLESTIDAE:** SHREW OPOSSUMS - SMALL, GREY OR GREY-BROWN, FEMALES LACK A POUCH. MOST ARE INSECTIVOROUS.  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/CAENOLESTIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/caenolestidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/CAENOLESTIDAE](http://animaldiversity.ummz.umich.edu/accounts/caenolestidae)  
[HTTP://WWW.MAMMALSRUS.COM/METATHERIA/PAUCITUBERCULATA/PAUCITUBERCULATA.HTML](http://www.mammalsrus.com/metatheria/paucituberculata/paucituberculata.html)  
[HTTP://WWW.NHPTV.ORG/WILD/CAENOLESTIDAE.ASP](http://www.nhptv.org/wild/caenolestidae.asp)

**SUPERORDER AUSTRALIDELPHIA** (MOSTLY AUSTRALIAN AND AUSTRAL-ASIAN MARSUPIALS)

**ORDER MICROBIOTHERIA:** JUST THE MONITO DEL MONTE  
**FAMILY MICROBIOTHERIIDAE:** ONLY ONE SPECIES, A SMALL INSECTIVORE, THE MONITO DEL MONTE, IN CHILE AND ARGENTINA.  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/MICROBIOTHERIA/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/microbiotheria/pictures/)

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/MICROBIOTHERIA](http://animaldiversity.ummz.umich.edu/accounts/microbiotheria)  
[HTTP://WWW.MAMMALSRUS.COM/METATHERIA/MICROBIOTHERIA/MICROBIOTHERIA.HTML](http://www.mammalsrus.com/metatheria/microbiotheria/microbiotheria.html)

**ORDER DASYUROMORPHIA:** INCLUDES NUMBATS AND TASMANIAN WOLFS.  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/DASYUROMORPHIA/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/dasyuromorphia/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/DASYUROMORPHIA](http://animaldiversity.ummz.umich.edu/accounts/dasyuromorphia)  
[HTTP://WWW.MAMMALSRUS.COM/METATHERIA/DASYUROMORPHIA/DASYUROMORPHIA.HTML](http://www.mammalsrus.com/metatheria/dasyuromorphia/dasyuromorphia.html)

**FAMILY THYLACINIDAE:** THE TASMANIAN WORLD, BELIEVED TO HAVE GONE EXTINCT IN 1936.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/THYLACINIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/thylacinidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/THYLACINIDAE](http://animaldiversity.ummz.umich.edu/accounts/thylacinidae)

**FAMILY DASYURIDAE:** FOUND IN AUSTRALIA AND NEW GUINEA, GENERALLY HAVE A LONG BODY, POINTY HEAD, FURRY TAIL AND SHORT LEGS. PRIMARILY CARNIVORES AND INSECTIVORES. INCLUDES THE TASMANIAN DEVIL AND THE QUOLLS.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/DASYURIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/dasyuridae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/DASYURIDAE](http://animaldiversity.ummz.umich.edu/accounts/dasyuridae)

**FAMILY MYRMECOBIIDAE:** INCLUDE ONLY THE NUMBATS, OR MARSUPIAL ANT EATERS. THEY ARE SMALL, HAVE A BUSHY TAIL, A STRIPED RUMP, SMALL EARS ON A POINTY HEAD, NO POUCH, HAVE STRONG CLAWS AND A LONG SLENDER TONGUE. THEY LIVE IN AUSTRALIA.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/MYRMECOBIIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/myrmecobiidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/MYRMECOBIIDAE](http://animaldiversity.ummz.umich.edu/accounts/myrmecobiidae)

**ORDER PERAMELEMORPHIA:** COMPACT BODIES, POINTY HEADS, SHORT FOR LEGS, MORE POWERFUL HIND LEGS, HOP BY PUSHING OFF WITH HIND FEET, LANDING ON FOR AND HIND FEET. MOST ARE DIGGERS, MOST ARE INSECTIVORES, THOUGH WILL EAT SMALL ANIMALS AS WELL. POUCH OPENS TO THE REAR.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PERAMELEMORPHIA/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/peramelemorphia/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PERAMELEMORPHIA](http://animaldiversity.ummz.umich.edu/accounts/peramelemorphia)  
[HTTP://WWW.MAMMALSRUS.COM/METATHERIA/PERAMELEMORPHIA/PERAMELEMORPHIA.HTML](http://www.mammalsrus.com/metatheria/peramelemorphia/peramelemorphia.html)

**FAMILY PERORYCTIDAE:** RAINFOREST BANDICOOTS, PREFER RAINFOREST AREAS.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PERORYCTIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/peroryctidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PERORYCTIDAE](http://animaldiversity.ummz.umich.edu/accounts/peroryctidae)

**FAMILY PERAMELIDAE:** BANDICOOTS AND BILBIES. SMALL, WITH LONGER HIND LIMBS FOR HOPPING OR RUNNING. LIVE IN RELATIVELY DRY AREAS. BRIEF GESTATION WITH AN EMBRYO THAT HAS A PLACENTA (UNLIKE MOST MARSUPIALS)

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PERAMELIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/peramelidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PERAMELIDAE](http://animaldiversity.ummz.umich.edu/accounts/peramelidae)

**ORDER NOTORYCTEMORPHIA:** THE MARSUPIAL MOLES, OF WHICH THERE ARE ONLY 2 SPECIES

[HTTP://WWW.MAMMALSRUS.COM/METATHERIA/NOTORYCTEMORPHIA/NOTORYCTEMORPHIA.HTML](http://www.mammalsrus.com/metatheria/notoryctemorphia/notoryctemorphia.html)

**FAMILY NOTORYCTIDAE:** MARSUPIAL MOLES - SMALL, WITH BLIND VESTIGAL EYES, NO EXTERNAL EARS, SHORT STOUT TAILS. SILKY GOLDEN FUR. CLAWS FOR DIGGING, EAT INVERTEBRATE LARVAE, HAVE A SMALL WELL-DEVELOPED POUCH.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/NOTORYCTEMORPHIA/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/notoryctemorphia/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/NOTORYCTEMORPHIA](http://animaldiversity.ummz.umich.edu/accounts/notoryctemorphia)

**ORDER DIPROTODONTIA:** LARGEST ORDER OF MARSUPIALS, MOST ARE HERBIVORES, HAVE SECOND AND THIRD DIGITS ON HIND FEET FUSED (SYNDACTYLOUS), USUALLY A SINGLE PAIR OF INCISORS IN LOWER JAW.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/DIPROTODONTIA/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/diprotodontia/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/DIPROTODONTIA](http://animaldiversity.ummz.umich.edu/accounts/diprotodontia)  
[HTTP://WWW.MAMMALSRUS.COM/METATHERIA/DIPROTODONTIA/DIPROTODONTIA.HTML](http://www.mammalsrus.com/metatheria/diprotodontia/diprotodontia.html)

**FAMILY PHASCOLARCTIDAE:** KOALA - LIVE IN WOODED AREAS OF EASTERN AUSTRALIA, FEED ON EUCALYPTUS. MEDIUM SIZE, SHORT TAIL, ROUNDED EARS, BULBOUS NOSE.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PHASCOLARCTIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/phascolarctidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PHASCOLARCTIDAE](http://animaldiversity.ummz.umich.edu/accounts/phascolarctidae)

**FAMILY VOMBATIDAE:** WOMBATS - FOUND ONLY IN AUSTRALIA, ONLY THREE EXTANT SPECIES. MEDIUM-SIZED STOCKY ANIMALS WITH SHORT LIMBS AND TAIL. STRONG CLAWS FOR BURROWING. POUCH OPENS TO THE REAR.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/VOMBATIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/vombatidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/VOMBATIDAE](http://animaldiversity.ummz.umich.edu/accounts/vombatidae)

**FAMILY PHALANGERIDAE:** BRUSHTAIL POSSUMS AND CUSCUSSES - 18 SPECIES, FOUND IN AUSTRALIA, NEW GUINEA AND SOME SMALLER NEARBY ISLANDS. FORWARD FACING EYES ON A SHORT FACE. GOOD CLIMBERS WITH A LONG, OFTEN PREHENSILE TAIL. MOSTLY NOCTURNAL OMNIVORES.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PHALANGERIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/phalangeridae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PHALANGERIDAE](http://animaldiversity.ummz.umich.edu/accounts/phalangeridae)

**FAMILY BURRAMYIDAE:** PYGMY POSSUMS - FIVE SPECIES, FOUND IN AUSTRALIA AND NEW GUINEA. SMALL, WITH A CONICAL HEAD, SHORT MUZZLE AND ROUNDED EARS, AND A SLENDER PREHENSILE TAIL. MOSTLY NOCTURNAL INSECTIVORES, THOUGH SOME EAT NECTAR AND SMALL ANIMALS.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/BURRAMYIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/burramyidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/BURRAMYIDAE](http://animaldiversity.ummz.umich.edu/accounts/burramyidae)

**FAMILY TARSIPEDIDAE:** HONEY POSSUM - ONLY ONE SPECIES, THE HONEY POSSUM OR NOOLBENDER. FOUND IN SOUTHWESTERN AUSTRALIA. SMALL WITH POINTED SNOUT AND PREHENSILE TAIL. USE AN ELONGATED BRISTLE-TIPPED TONGUE TO FEED ON NECTAR. ALSO PLAY A ROLE AS A POLLINATOR.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/TARSIPEDIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/tarsipedidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/TARSIPEDIDAE](http://animaldiversity.ummz.umich.edu/accounts/tarsipedidae)

**FAMILY PETAURIDAE:** 10 SPECIES INCLUDING THE SUGAR GLIDERS. FOUND IN THE FORESTS OF AUSTRALIA AND NEW GUINEA. THEY ALL HAVE A DARK STRIPE ALONG THEIR BACK, AND A LONG, FURRY TAIL, AND SOME HAVE MEMBRANES FOR

GLIDING. MOSTLY EAT INSECTS OR SAP THEY GET BY GASHING TREES WITH THEIR TEETH.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PETAURIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/petauridae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PETAURIDAE](http://animaldiversity.ummz.umich.edu/accounts/petauridae)

**FAMILY PSEUDOCHERIDAE:** RINGTAILED POSSUMS AND RELATIVES. FOUND MOSTLY IN AUSTRALIA AND NEW GUINEA. MOST HAVE A STRONG PREHENSILE TAIL, ARE TREE-DWELLING HERBIVORES, AND HAVE A WELL DEVELOPED POUCH.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PSEUDOCHERIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/pseudocheiridae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/PSEUDOCHERIDAE](http://animaldiversity.ummz.umich.edu/accounts/pseudocheiridae)

**FAMILY POTOROIDAE:** NINE SPECIES, ALL FROM AUSTRALIA, OF SMALL OMNIVORES AND HERBIVORES. THEY HAVE LARGE WELL DEVELOPED HIND FEET, ARE STRONG HOPPERS AT HIGH SPEEDS, AND MOVE LIKE RABBITS AT LOWER SPEEDS. THEY ARE CLOSELY RELATED TO THE KANGAROOS AND WALLABIES, THOUGH THEIR FORELIMBS ARE NOT AS SMALL COMPARED TO HIND LIMBS AS IN THESE LARGER COUSINS.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/POTOROIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/potoroidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/POTOROIDAE](http://animaldiversity.ummz.umich.edu/accounts/potoroidae)

**FAMILY ACROBATIDAE:** TWO SPECIES OF FEATHERTAIL GLIDERS, ONE IN AUSTRALIA AND ONE IN NEW GUINEA. THEY HAVE BRISTLE-TIPPED TONGUES, AND FEED ON NECTAR AND POLLEN FROM FLOWERS. THE NEW GUINEA SPECIES DOES NOT HAVE THE MEMBRANES FOR GLIDING LIKE THE AUSTRALIAN SPECIES DOES. THE AUSTRALIAN FEATHERTAIL GLIDER IS THE SMALLEST SPECIES OF GLIDING MAMMAL, AND WEIGHS ONLY 10-14 GRAMS.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/ACROBATIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/acrobatidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/ACROBATIDAE](http://animaldiversity.ummz.umich.edu/accounts/acrobatidae)

**FAMILY HYPSPRYMNODONTIDAE:** MUSKY RAT KANGAROO, FOUND IN THE NORTHEAST AUSTRALIAN RAIN FORESTS, IS SMALL, WITH A HAIRLESS TAIL, AND FEEDS ON FALLEN SEEDS AND FRUITS. IT CAN ALSO CLIMB TREES.

**FAMILY MACROPODIDAE:** THE SECOND LARGEST FAMILY OF MARSUPIALS, AND INCLUDES THE KANGAROOS AND WALLABIES. THEY ARE FOUND IN AUSTRALIA, NEW GUINEA AND OTHER NEARBY ISLANDS, HAVE LONG HIND FEET AND A LONG HEAVY TAIL, AND STAND GENERALLY UPRIGHT. MOST HOP ON TWO LEGS WHEN MOVING QUICKLY, KEEPING THE TAIL OFF THE GROUND. FOR LOWER-SPEED HOPPING, THEY LAND ON THEIR TAIL AND FORE LEGS, THEN BRING THE HIND LEGS FORWARD TO PUSH OFF THE GROUND FOR THE NEXT JUMP. THEY CANNOT MOVE BACKWARDS. MOST ARE NOCTURNAL GRAZERS AND BURROWERS. THEY HAVE THE ABILITY IN REPRODUCTION TO DELAY THE DEVELOPMENT OF THE EMBRYO, ALLOWING SOME FEMALES TO BE CARRYING THREE GENERATIONS OF YOUNG AT ONCE - ONE IN THE POUCH, AND ONE OUT OF THE POUCH BUT STILL NURSING.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/MACROPODIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/macropodidae/pictures/)  
[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/MACROPODIDAE](http://animaldiversity.ummz.umich.edu/accounts/macropodidae)

## MONOTREMES

**ORDER MONOTREMATA:** MONOTREMES ARE MAMMALS, BUT HAVE SOME CHARACTERISTICS FAR DIFFERENT FROM OTHER MAMMALS, EVEN FROM MARSUPIAL MAMMALS. ALTHOUGH THEY HAVE FUR AND A FOUR CHAMBERED HEART LIKE OTHER MAMMALS, THEIR MILK IS NOT SECRETED THROUGH A NIPPLE, BUT RATHER JUST THROUGH THE SKIN, THEY HAVE A LEATHERY BILL, HAVE THE GAIT OF A REPTILE, ARE EGG-LAYING, AND HAVE A SINGLE BODY OPENING FOR FECES, URINE AND EGG. THERE ARE ONLY THREE EXTANT SPECIES OF MONOTREMES, AND THEY ARE FOUND ONLY IN AUSTRALIA, NEW GUINEA AND TASMANIA.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/MONOTREMATA/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/monotremata/pictures/)

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/MONOTREMATA/](http://animaldiversity.ummz.umich.edu/accounts/monotremata/)

[HTTP://WWW.MAMMALSRUS.COM/PROTOTHERIA/MONOTREMATA/MONOTREMATA.HTML](http://www.mammalsrus.com/prototheria/monotremata/monotremata.html)

**FAMILY ORNITHORHYNCHIDAE:** ONLY ONE SPECIES, THE PLATYPUUS. A STREAMLINED FUR-COVERED BODY WITH A FLATTENED TAIL REMINISCENT OF A BEAVER, WEBBED FEET AND A DUCK-LIKE BILL. THEY LIVE IN EASTERN AUSTRALIA, AND THE MALES CAN EXCRETE VENOM THROUGH A SPINE ON THEIR HIND FEET.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/ORNITHORHYNCHIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/ornithorhynchidae/pictures/)

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/ORNITHORHYNCHIDAE/](http://animaldiversity.ummz.umich.edu/accounts/ornithorhynchidae/)

[HTTP://WWW.MAMMALSRUS.COM/PROTOTHERIA/MONOTREMATA/ORNITHORHYNCHIDAE/ORNITHORHYNCHIDAE.HTML](http://www.mammalsrus.com/prototheria/monotremata/ornithorhynchidae/ornithorhynchidae.html)

**FAMILY TACHYGLOSSIDAE:** TWO SPECIES OF ECHIDNA. THEY HAVE FUR AND SPINES, AND A STICKY TONGUE FOR CAPTURING AND EATING INSECTS.

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/TACHYGLOSSIDAE/PICTURES/](http://animaldiversity.ummz.umich.edu/accounts/tachyglossidae/pictures/)

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/TACHYGLOSSIDAE/](http://animaldiversity.ummz.umich.edu/accounts/tachyglossidae/)

[HTTP://WWW.MAMMALSRUS.COM/PROTOTHERIA/MONOTREMATA/TACHYGLOSSIDAE/TACHYGLOSSIDAE.HTML](http://www.mammalsrus.com/prototheria/monotremata/tachyglossidae/tachyglossidae.html)

**MARSUPIAL REPRODUCTION:** ONE OF THE MOST NOTABLE DIFFERENCES BETWEEN MARSUPIALS AND PLACENTAL MAMMALS IS THE VERY SHORT GESTATION PERIOD, AND THE VERY EARLY "BIRTH" OF THE VERY SMALL, UNDER-DEVELOPED YOUNG. IN MANY MARSUPIALS, THIS YOUNG THEN MOVES TO A POUCH AND ATTACHES TO A TEAT TO COMPLETE THE DEVELOPMENT PERIOD.

**POUCHES AND YOUNG:** MARSUPIAL POUCHES CAN OPEN EITHER TOWARD THE FRONT OR TOWARD THE REAR, DEPENDING UPON THE SPECIES. IN MARSUPIALS THAT BURROW, THE POUCH GENERALLY OPENS TO THE REAR, TO AVOID GETTING DIRT IN THE POUCH WHEN DIGGING. IN NON-BURROWING MARSUPIALS, THE POUCH GENERALLY OPENS TO THE FRONT. THOSE MOTHERS WITH A FRONT-LOADING POUCH CAN INTERACT WITH THEIR YOUNG, WHEREAS THOSE WITH A REAR-LOADING POUCH CANNOT. KANGAROOS AND SOME OTHER FRONT-LOADING MARSUPIALS HAVE ONLY ONE OFFSPRING AT A TIME, BUT CAN BE NURTURING THREE AT ONCE - ONE IN THE UTERUS, ONE ATTACHED TO A TEAT IN THE POUCH, AND A THIRD THAT IS OUTSIDE THE POUCH, BUT RETURN FOR NOURISHMENT. REAR-POUCH MARSUPIALS MAY HAVE MORE YOUNG. IN SOME SPECIES, THERE ARE MANY YOUNG, BUT ONLY A LIMITED NUMBER OF TEATS, SO ONLY A FEW SURVIVE.

**WHY THERE ARE SO MANY MARSUPIALS IN AUSTRALIA:** THIS IS A BIT OF A TRICKY QUESTION TO ANSWER, AND ONE THAT EVOLUTIONISTS OFTEN USE TO COUNTER CHRISTIAN CLAIMS OF THE SPREAD OF ANIMALS AFTER THE FLOOD. UNTIL RECENT TIMES, NEARLY ALL THE MAMMALS IN AUSTRALIA WERE MARSUPIALS, WITH PLACENTALS BEING INTRODUCED BY MAN FROM OTHER CONTINENTS. WHY DOES AUSTRALIA HAVE MARSUPIALS, BUT OTHER CONTINENTS DO NOT? FIRST, THERE ARE MARSUPIALS IN SOUTH AND CENTRAL AMERICA AS WELL (AND THE VIRGINIA OPOSSUM IN NORTH AMERICA), AND IN RECENT YEARS, SCIENTISTS STUDYING DNA RELATIONSHIPS SUGGEST THAT MARSUPIALS MAY HAVE BEEN NATIVE TO SOUTH AMERICA FIRST, NOT AUSTRALIA. BUT HOW DID THEY CROSS THE OCEAN? THERE ARE SEVERAL THEORIES, THOUGH WE DO NOT KNOW FOR SURE. ONE SUGGESTION IS THAT AFTER THE FLOOD, FOR THE WATERS THAT COVERED THE EARTH TO REcede SO QUICKLY, THERE WAS LIKELY AN ICE AGE IN THE NORTHERN HEMISPHERE, AND WITH MUCH OF THE WATER TRAPPED AS ICE, THE OCEAN LEVELS WERE LOWER, PROVIDING LAND BRIDGES BETWEEN CONTINENTS FOR ANIMALS TO CROSS. ANOTHER IS THAT, AFTER THE FLOOD, THERE WOULD HAVE BEEN A LOT OF VEGETATION "RAFTS" STILL FLOATING AROUND IN THE OCEANS, FROM ALL THE TORN-UP FORESTS, AND ANIMALS COULD HAVE ACCIDENTALLY "SAILED" TO AUSTRALIA. THE OCEAN CURRENTS CYCLE IN THE SOUTH PACIFIC BETWEEN THE COAST OF SOUTH AMERICA AND THE AUSTRALIAN COAST. OTHERS HAVE SPECULATED THAT MARSUPIALS MAY HAVE BEEN TAKEN TO AUSTRALIA AS MAN SPREAD ACROSS THE GLOBE AFTER THE TOWER OF BABEL. BUT WHY ONLY MARSUPIALS IN AUSTRALIA? THERE IS NO EASY ANSWER. IT COULD HAVE BEEN THE CLIMATE AT THE TIME, IT COULD HAVE BEEN A MORE RAPID MOVEMENT OF MARSUPIALS AS THEY COMPETED WITH PLACENTAL MAMMALS. AS WE LOOK AT OTHER CONTINENTS, WE SEE CERTAIN TYPES OF ANIMALS THAT MAY BE SPECIFIC TO ONE OR ANOTHER, AND GIVEN AUSTRALIA'S DISTANCE, FROM OTHER CONTINENTS, ONCE IT WAS ISOLATED, IT WAS UNLIKELY TO SEE SIGNIFICANT ADDITIONS OF SPECIES INTRODUCED. ALTHOUGH WE DO NOT HAVE DEFINITIVE ANSWERS, WE CAN STILL HOLD ON TO OUR FAITH EVEN AS WE ENCOUNTER SOME OF NATURE'S MYSTERIES.

**WHY WE SHOULD HELP CONSERVE OUR MARSUPIALS:** INVASIVE AND INTRODUCED PLACENTAL MAMMALS AND HUMAN ACTIVITIES HAVE LED TO THE EXTINCTION OF AT LEAST TEN SPECIES OF AUSTRALIAN MARSUPIALS IN MODERN TIMES. MANY OTHERS ARE THREATENED, DUE TO INTRODUCED SPECIES AND HABITAT PRESSURES. MARSUPIALS CONTRIBUTE TO NATURAL DIVERSITY, PLAY ROLES IN ECOLOGICAL NICHES, AND SOME EVEN SERVE ROLES AS POLLINATORS. MARSUPIALS, LIKE ALL OF GOD'S CREATION, DESERVE OUR RESPECT AND PROTECTION.

#### **OTHER USEFUL RESOURCES:**

[HTTP://HONOURS.ADVENTISTCONNECT.ORG/MARSUPIALS-MONOTREMES](http://honours.adventistconnect.org/marsupials-monotremes)

[HTTP://ANIMALDIVERSITY.UMMZ.UMICH.EDU/ACCOUNTS/METATHERIA/](http://animaldiversity.ummz.umich.edu/accounts/metatheria/)

[HTTP://WWW.AUSTRALIANWILDLIFE.COM.AU/MARSUPIALS.HTM](http://www.australianwildlife.com.au/marsupials.htm)

[HTTP://WWW.UCMP.BERKELEY.EDU/MAMMAL/MARSUPIAL/MARSUPIAL.HTML](http://www.ucmp.berkeley.edu/mammal/marsupial/marsupial.html)

[HTTP://WWW.SANDIEGOZOO.ORG/ANIMALBYTES/T-MARSUPIAL.HTML](http://www.sandiegozoo.org/animalbytes/t-marsupial.html)

[HTTP://WWW.OPOSSUMSOCIETYUS.ORG/OPOSSUM\\_REPRODUCTION\\_AND\\_LIFE\\_CYCLE.HTM](http://www.opossumsocietyus.org/opossum_reproduction_and_life_cycle.htm)

[HTTP://WWW.FERRIS.EDU/CARD/KIDS\\_CORNER/MARSUPIALS.HTM](http://www.ferris.edu/card/kids_corner/marsupials.htm)

[HTTP://WWW.ANSWERSINGENESIS.ORG/ARTICLES/NAB/HOW-DID-ANIMALS-SPREAD](http://www.answersingenesis.org/articles/nab/how-did-animals-spread)

[HTTP://WWW.ENVIRONMENT.GOV.AU/BIODIVERSITY/THREATENED/PUBLICATIONS/ACTION/MARSUPIALS/9.HTML](http://www.environment.gov.au/biodiversity/threatened/publications/action/marsupials/9.html)