ORIGINS
Genesis 1: 20-25
Session 7: Evolution Part I

James River Community Church
David Curfman

February – May 2013
Evolution – Genesis 1:20-25

- The phrase "after its kind" or "after their kind" occurs 10 times.
- “Kinds” – Hebrew “min” (Gen. 1, Lev. 11, & Deut. 14)
  - having a common ancestor or parents
  - Not the same as current definitions of species, genus or family (biological taxonomy)
- Evolution concludes one common ancestor for “all kinds”
- Creation concludes one common ancestor for “each kind”

http://www.youtube.com/watch?v=z2CEPBUi8nl
## Biblically Clean “Kinds” (Lev 11 and Deut 14)

<table>
<thead>
<tr>
<th>Land Animals</th>
<th>Fish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antelope - Bison (Buffalo) - Caribou - Cattle (Beef, Veal) - Deer (Venison) - Elk - Gazelle</td>
<td>Flounder (Dab, Gray, Lemon Sole, Summer/Winter Flounder, Yellow Tail)</td>
</tr>
<tr>
<td>Giraffe - Goat - Hart - Ibex - Moose - Ox - Reindeer - Sheep (Lamb, Mutton)</td>
<td>Grouper (Black, Nassau, Red, or Yellowfish Grouper, Gag) - Grunt (White / Yellow Grunts)</td>
</tr>
<tr>
<td>Birds</td>
<td>Gulf Pike (Robalo, Snook, Sergeant) - Haddock - Hake - Halibut - Hardhead - Hardtail (Blue Runner)</td>
</tr>
<tr>
<td>Chicken - Dove - Duck - Goose - Grouse - Guinea fowl - Partridge - Peafowl - Pheasant</td>
<td>Herring (Alewife, Branch, Glut. Lake, River, Sea Herrings) - Kingfish</td>
</tr>
<tr>
<td>Pigeon - Prairie chicken - Ptarmigan - Quail - Sagehen - Sparrow (and other songbirds)</td>
<td>Long Nose Sucker (Northern or Red Striped Sucker) - Mackerel (Cobia)</td>
</tr>
<tr>
<td>Swan - Teal - Turkey</td>
<td>Mahimahi (Dorado, Dolphinfish - NOT the mammal dolphin) - Menhaden - Minnow - Mullet</td>
</tr>
<tr>
<td>Insects</td>
<td>Muskellunge (Jacx) - Orange Roughy - Perch (Bream) - Pike (Pickerel, Jack) - Pig Fish</td>
</tr>
<tr>
<td>Clean insects include types of locusts that may include crickets and grasshoppers</td>
<td>Pollack (Pollock, Boston Bluefish) - Pompano - Red Horse Sucker (Redfin) - Red Snapper - Redfish</td>
</tr>
<tr>
<td>Fish</td>
<td>Robalo (Gulf Pike) - Porgy (Scup) - Red Drum (Redfish) - Rockfish</td>
</tr>
<tr>
<td>Albacore (Crevalle, Horse Mackerel, Jack) - Alewives (Branch, River Herring) - Anchovy - Barracuda</td>
<td>Salmon (Chum, Coho, King, Pink or Red) - Sardine (Pilchard) - Scup (Porgy) - Sea Bass</td>
</tr>
<tr>
<td>Bass - Black Drum - Black Pomfret (Monchong) - Blue Runner (Hardtail) - Bluebacks (Glut Herrings)</td>
<td>Sergeant Fish (Gulf Pike) - Shad - Sheepshead - Silver Hake (Whiting) - Silversides</td>
</tr>
<tr>
<td>Bluebill Sunfish - Bluefish - Bluegill - Bonitos - Bowfin - Buffalofish - Carp</td>
<td>Smelt (Frost, Ice Fish) - Snapper (Ebu, Jobfish, Lehi, Onaga, Opakapaka, Uku) - Snook (Gulf Pike)</td>
</tr>
<tr>
<td>Chubs (Bloater, Longjaw, Blackfin) - Cod - Common Sucker (Fresh Water Mullet, White Sucker)</td>
<td>Sole - Spanish Mackerel - Steelhead - Striped Bass - Sucker (Red Horse Sucker, Redfin) - Sunfish</td>
</tr>
<tr>
<td>Crappie (Black or White Crappies) - Drum</td>
<td>Tarpon - Trout (Gray Sea, Lake, Sand Sea, White Sea, Spotted Sea Trouts, Weakfish)</td>
</tr>
<tr>
<td></td>
<td>Tuna (Ahi, Aku, Albacore, Bluefin, Bonito, Shipjack,Tombo, Yellowfin, Yellowtail)</td>
</tr>
<tr>
<td></td>
<td>Turbot (except European turbot) - Whitefish - Whiting (Silver Hake) - Yellow Perch</td>
</tr>
</tbody>
</table>
Biblically Unclean “Kinds” (Lev 11 and Deut 14)

- **Land Animals**
  - Swine
  - Boar - Peccary - Pig (hog, bacon, ham, lard, pork)
  - Canines
  - Coyote - Dog - Fox - Hyena - Jackal - Wolf
  - Equines
  - Ass - Donkey - Mule - Horse - Onager - Zebra (quagga)
  - Felines
  - Cat - Cheetah - Leopard - Lion - Panther - Tiger
- **Unclassified**
  - Armadillo - Badger - Bear - Beaver - Camel - Elephant - Gorilla - Groundhog - Hare - Hippopotamus
  - Kangaroo - Llama (alpaca, vicuña) - Mole - Monkey - Mouse - Muskrat - Opossum - Porcupine
  - Rabbit - Raccoon - Rat - Rhinoceros - Skunk - Slug - Snail (escargot) - Squirrel - Wallaby
  - Weasel - Wolverine - Worm
- **Insects**
  - All insects are unclean except some in the Locust family.
  
- **Birds**
  - Albatross - Bat - Bittern - Buzzard - Condor - Coot - Cormorant - Crane - Crow - Cuckoo - Eagle
  - Flamingo - Grebe - Grosbeak - Gull - Hawk - Heron - Kite - Lapwing - Loon - Magpie - Osprey
  - Ostrich - Owl - Parrot - Pelican - Penguin - Plover - Rail - Raven - Roadrunner - Sandpiper
  - Seagull - Stork - Swallow - Swift - Vulture - Water Hen - Woodpecker
- **Reptiles and Amphibians**
  - Alligator - Caiman - Crocodile - Lizard - Snake - Turtle
- **Reptiles**
  - Blindworm - Frog - Newt - Salamander - Toad
- **Amphibians**
  - Bullhead - Catfish - Eel - European turbot - Marlin - Paddlefish - Shark
  - Stickleback - Squid - Sturgeon (includes most caviar) - Swordfish
- **Fish**
  - Abalone - Clam - Crab - Catfish - Claret - Lobster - Mussel - Prawn - Oyster - Scallop - Shrimp
  - Soft Body
- **Sea Mammals**
  - Dolphin - Otter - Porpoise - Seal - Walrus - Whale
Evolution – “Kinds” or Taxonomy

• Carl Linnaeus (1707-1778) – The Father of Taxonomy. His system for naming, ranking, and classifying organisms is still in wide use today (with changes).
• Lutheran, botanist, and physician
• In 1735, he published Systema Naturae: Creationis telluris est gloria Dei ex opere Naturae per Hominem solum (“System of Nature – The Earth's creation is the glory of God, as seen from the works of Nature by Man alone”)
• “Since God has created the world, it is possible to understand God's wisdom by studying His creation. The study of nature would reveal the Divine Order of God's creation, and it was the naturalist's task to construct a "natural classification" that would reveal this Order in the universe.” (from preface).
<table>
<thead>
<tr>
<th>CAROLI LINNAEI</th>
<th>REGNUM ANIMALE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. QUADRUPEDIA</td>
<td>IV. PISCES.</td>
</tr>
<tr>
<td>II. AVES</td>
<td>V. INSECTA</td>
</tr>
<tr>
<td>III. AMPHIBIA</td>
<td>VI. VERMES.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Carne</th>
<th>Corpore</th>
<th>Plumae</th>
<th>Capsae</th>
<th>Pelage</th>
<th>Græce</th>
<th>Latine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homo</td>
<td>Corpus</td>
<td>Palla</td>
<td>Capillis</td>
<td>Pelago</td>
<td>Homo</td>
<td>Homo</td>
</tr>
<tr>
<td>Equus</td>
<td>Corpus</td>
<td>Palla</td>
<td>Capillos</td>
<td>Pelage</td>
<td>Equus</td>
<td>Equus</td>
</tr>
<tr>
<td>Canis</td>
<td>Corpus</td>
<td>Palla</td>
<td>Capillis</td>
<td>Pelage</td>
<td>Canis</td>
<td>Canis</td>
</tr>
<tr>
<td>Vespa</td>
<td>Corpus</td>
<td>Palla</td>
<td>Capillis</td>
<td>Pelage</td>
<td>Vespa</td>
<td>Vespa</td>
</tr>
</tbody>
</table>

**PARADOXA**

- Lapis, spondylus, spondylos, spondylos.
- Aquilia, naumachia, naumachia, naumachia.
- Canis, lupus, lupus, lupus.
- Porcellus, porcellus, porcellus, porcellus.

**ORDERA**

- Caninae (Canidae)
- Felineae (Felidae)
- Equidae (Equidae)
- Cynocephalia (Cynocephalia)

**CLASSA**

- Carnivora (Carnivora)
- Artiodactyla (Artiodactyla)
- Perissodactyla (Perissodactyla)
- S proboscidea (Proboscidea)

**SUBCLASSA**

- Archontoglossa (Archontoglossa)
- Euarchontoglossa (Euarchontoglossa)
- Eutheria (Eutheria)
- Primates (Primates)

**SUPERORDERA**

- Haplorhini (Haplorhini)
- Omomyiformes (Omomyiformes)
- Anthropoidea (Anthropoidea)
- Haplorhini (Haplorhini)

**SUPERCLASSA**

- Aves (Aves)
- Reptilia (Reptilia)
- Amphibia (Amphibia)
- Pisces (Pisces)

**SUPERPHYLUM**

- Chordata (Chordata)
- Vertebrata (Vertebrata)
- Actinopterygii (Actinopterygii)
- Cnidaria (Cnidaria)

**PHYLUM**

- Chordata (Chordata)
- Vertebrata (Vertebrata)
- Actinopterygii (Actinopterygii)
- Cnidaria (Cnidaria)

**SUPERPHYLUM**

- Insecta (Insecta)
- Arachnida (Arachnida)
- Chelicerata (Chelicerata)
- Mandibulata (Mandibulata)

**PHYLUM**

- Insecta (Insecta)
- Arachnida (Arachnida)
- Chelicerata (Chelicerata)
- Mandibulata (Mandibulata)
Evolution: Phylogeny (family tree)
Evolution – “Kinds” or Taxonomy

- **Species** – For heterosexual organisms, a group of individuals that actually or potentially interbreed in nature, i.e. the biggest gene pool possible under natural conditions.

- **Genus** - No hard and fast rules. Rules-of-thumb for delimiting a genus:
  - monophyly – all *descendants* of an ancestral taxon are grouped together
  - reasonable compactness – a genus should not be expanded needlessly
  - distinctness – in regards of *evolutionarily relevant criteria*, i.e. ecology, morphology, or biogeography;
  - According to evolutionists, “DNA sequences are a *consequence* rather than a *condition* of diverging evolutionary lineages except in cases where they directly inhibit gene flow”
  - But, “It is now common for biologists to devise a *classification based on the results of phylogenetic analysis using DNA sequence data*”
Viruses – Possess genetic material, reproduce (only within a living being), and change through natural selection. However, they lack key characteristics (such as cell structure) that are generally considered necessary to count as life…”organisms at the edge of life”.
Outline

1. Genesis 1-11 (Introduction)
2. Genesis 1:1-31 (Universe Part 1) – Big Bang Model
3. Genesis 1:1-31 (Universe Part 2) – Old and Young Earth Models
4. Genesis 1:1-19 (Earth) – Days 1 to 4
5. Genesis 1:1-19 (Earth) – Formation and Age
9. Genesis 1:26-2:4a (Humans) – Male and female, Rest

On-line at http://www.jamesrivercommunitychurch.org
Evolution: Objectives

- Understand the theory of evolution
- Understand the idea of “common decent”
- Understand the “evidences” for evolution
  - Genetics
  - Comparative anatomy
  - Natural selection
  - Computational mathematics
  - Paleontology – fossil record
- Understand the place for dinosaurs
Evolution: What is it?

- “Biological Evolution – descent with modification. This definition encompasses small-scale evolution (changes in gene frequency in a population from one generation to the next; i.e., microevolution) and large-scale evolution (the descent of different species from a common ancestor over many generations; i.e., macroevolution).”
- “The central idea of biological evolution is that all life on Earth shares a common ancestor.”
- “Evolution does not ask "why?" Evolution has no sense of future; the here and now is the only place where evolution occurs. Lineages of organisms are not designed for some future purpose; they are changed by opportunities to which they can respond and by the selective processes that their environment imposes on them. Evolution is limited by developmental and genetic constraints. If an adaptation is useful to a lineage, chances are that it will be preserved.”

*From UC Berkeley*
Evolution: Charles Darwin

- Darwin born same day as Abraham Lincoln (Feb 12, 1809) in England. Died and buried at Westminster Abbey (April 19, 1882)
- “On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life” published on 24 November 1859:
  1. Every species is fertile enough that if all offspring survived to reproduce the population would grow
  2. Despite periodic fluctuations, populations (species) remain roughly the same size.
  3. Resources such as food are limited and are relatively stable over time.
  4. A struggle for survival ensues.
  5. Individuals in a population (species) vary significantly from one another.
  6. Much of this variation is inheritable.
  7. Individuals less suited to the environment are less likely to survive and less likely to reproduce; individuals more suited to the environment are more likely to survive and more likely to reproduce and leave their inheritable traits to future generations, which produces the process of natural selection (inference).
  8. This slowly effected process results in populations (species) changing to adapt to their environments, and ultimately, these variations accumulate over time to form new species (inference).
Evolution: Theoretical Processes

- **Descent** (Change in gene frequency) and the genetic differences that are heritable and passed on to the next generation;
- Mutation (Change in DNA), migration (gene flow), genetic drift, and natural selection as mechanisms of change;
- The importance of genetic variation;
- The random nature of genetic drift (chance changes in genes over long periods of time) and the effects of a reduction in genetic variation;
- How variation, differential reproduction, and heredity result in evolution by natural selection; and
- How different species can affect each other’s evolution through coevolution.
Evolution: Examples of DNA Mutation

X-MEN: DNA mutations
Evolution: The Process

- “All available evidence supports the central conclusions of evolutionary theory, that life on Earth has evolved and that species share common ancestors. Biologists are not arguing about these conclusions. **But they are trying to figure out how evolution happens**”— U.C. Berkeley

- Dr. Etheridge, paleontologist at the British Museum in London admitted "Nine tenths of the talk of evolution is sheer nonsense, not founded on observation and wholly unsupported by facts. This museum is full of proofs of the utter falsity of their views. In all this great museum there is not one particle of evidence of the transmutation of species."
Evolution: The Process

- Charles Darwin – “To suppose that the eye with all its inimitable contrivances for adjusting the focus to different distances, for admitting different amounts of light, and for the correction of spherical and chromatic aberration, could have been formed by natural selection, seems, I freely confess, absurd in the highest degree.”

- Charles Darwin – “As, by this theory, innumerable transitional forms must have existed, why do we not find them embedded in the crust of the earth? Why is all nature not in confusion instead of being as we see them, well-defined species? Geological research does not yield the infinitely many fine gradations between past and present species required by the theory; and this is the most obvious of the many objections which may be argued against it.”

- Charles Darwin – “Not one change of species into another is on record...we cannot prove that a single species has been changed.‘‘...but he hoped science would eventually prove his theory..."
Neutral human DNA sequences are approximately 1.2% divergent from those of the chimpanzee, 1.6% from gorillas, and 6.6% from baboons. If species have similar DNA sequences, then they are assumed to have descended from a common ancestor. Thus we and a chimpanzee had a common ancestor.

Until recently, “Pseudogenes” were considered extra DNA in a genome that had no known functions and were called "Junk DNA". This junk DNA was therefore evidence of common ancestors. However, we now know they all have a use.

**Common descent or Common designer?**
Evolution – Comparative Anatomy

- Atavisms – mutations that resemble anatomy of other species, termed an “evolutionary throwback”
- The degree of resemblance between two organisms is assumed to indicate how closely related they are. If widely separated groups of organisms are originated from a common ancestry, they are expected to have certain basic features in common.
- Since most existing species can be organized rather easily in a nested hierarchical classification.
- Vestigial body parts – Rudimentary body parts, those that are smaller and simpler in structure than corresponding parts in the ancestral species, are called vestigial organs.

- **Common descent or Common designer?**
Evolution – Geographical Distribution

• Plant and animal species are discontinuously distributed throughout the world (e.g. kangaroos, penguins, elephants)
• Oceanic islands (e.g. Hawaii) do not have native terrestrial mammals (they do sometimes have bats and seals), amphibians, or fresh water fish. In some cases they have terrestrial reptiles (such as the iguanas and giant tortoises of the Galapagos islands. Many endemic animals on oceanic islands (e.g. Komodo Dragon)
• Except for earthworms and ants, no plants or animals are found everywhere!
• Alligators are found only in the rivers of southeastern United States, and in the Yangtze River of China.
• New volcanic islands quickly acquire plant and animal life
• Most scientists conclude that these islands were colonized by plants and animals that were able to reach them (e.g. plant seeds carried by migratory birds, former land bridges, bats and insects being blown out over the sea by the wind, floating by sea, & lower sea level).
• **Common descent or Migration from a Common designer?**
Evolution – Natural Selection

- Natural Selection
  - Anti-biotic resistant bacteria
  - Pesticide resistant plants
  - PCB resistant tomcods in the Hudson River
  - Peppered moth in England – The color of the moth has gone from light to dark to light again over the course of a few hundred years due to the appearance and later disappearance of pollution from the Industrial Revolution in England.

- Common descent from other species or Common designer for each “kind”?
“Not only has life evolved, but life has evolved to evolve. That is, correlations within protein structure have evolved, and mechanisms to manipulate these correlations have evolved in tandem. The rates at which the various events within the hierarchy of evolutionary moves occur are not random or arbitrary but are selected by Darwinian evolution. Sensibly, rapid or extreme environmental change leads to selection for greater evolvability. This selection is not forbidden by causality and is strongest on the largest-scale moves within the mutational hierarchy. Many observations within evolutionary biology, heretofore considered evolutionary happenstance or accidents, are explained by selection for evolvability (Earl and Deem, Rice University in Evolvability):

- **Common descent with a motive or Common designer?**
Evolution: Fossil Record

- French zoologist Pierre Grassé says – “Naturalists must remember that the process of evolution is revealed only through fossil forms... only paleontology can provide them with the evidence of evolution and reveal its course or mechanisms” – That’s why we’ll spend time on fossils

- Scientists have described about 250,000 different fossil species (millions of fossils are in museums), yet, according to evolutionists, that is a small fraction of those that lived in the past.

- George G. Simpson, The Major Features of Evolution – “It remains true, as every paleontologist knows, that most new species, genera and families, and that nearly all categories above the level of families, appear in the [fossil] record suddenly and are not led up to by known, gradual, completely continuous transitional sequences.”
Earth: Geologic Timeline
You might be a fossil, if…

- Everything hurts, and what doesn't hurt, doesn't work anyway.

- The gleam in your eyes is from the sun hitting your bifocals.

1. **You have a hard skeleton or shell** – Soft parts get eaten or decay
2. **You have are to die where you can be buried quickly or catastrophically**
   - Near sand and mud such as rivers, lakes and seas.
   - Whatever you do, don't die on land, far from water
   - Get buried before a scavenging animal eats you.
   - Get buried before waves and currents scatter your remains.
   - Get buried before other animals bore or dissolve their way into your skeleton to make a home.

3. **You live in the sediment or sea floor** – More likely to fossilize than those floating or swimming above the bottom.

4. **You must be compressed into rock by soil strata above** – As the sand and mud builds up above you, eventually the layer you are in hardens to rock.

5. **You work you way up to the top of the surface for scientists to see you**

6. **You (or what’s left of you) made it** – you’re a fossil!
Evolution: Summary

- Fossils require rapid deposition, coverage, and compression, and eventual erosion
- Circular logic for geologic column and fossil record
- Sedimentary rocks are primarily a result of the Noahic flood (To be discussed later).
- Fossils represent a certain geographic area and not geologic age; e.g. marine fossils on top of mountain ranges
- “In general, the probability that an organism becomes fossilized is very low”
- Flight has “evolved” many times (e.g. birds, bats, flies, and bees)
- Extinction does not mean evolution
- Similarities in DNA and anatomy do not require a common ancestor
- Significant fossil deposition at the flood, combined with high pressures produced fossil fuels
- **Common descent or Common designer?**
- Next week – Evolution Part 2: Eden, Sin, The Flood