A Study of Biblical Kinds Using 62 Species of Mice

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1.0 Abstract

This study evaluated the DNA of 62 species of mice (some of which are categorized as subspecies) in an attempt to better understand Biblical kinds. Mice have been studied genetically for years resulting in a large collection of mouse DNA and technical papers. Our findings from this study are:

- Each mouse species/kind remains distinct due to the complexity of breeding mechanisms which are hardwired in the DNA; these mechanisms, or instincts, cause mice to be selective in choosing breeding partners. Mice can read each other as though they displayed bar codes (Beynon and Hurst 2003 and 2004) which allows them to chose a mate within their species, but yet not too closely related as to cause genetic health problems (Sherborne *et al.* 2007; Jiménez *et al.* 1994). The details of these selective breeding instincts help solve the mystery of how the Creator mechanized creatures, at least the mice, to reproduce after their kinds.
- This study has also provided insight as to which mouse kinds were on the Ark: our conclusion is that most of what are considered modern-day "species" are also Biblical "kinds." Those considered sub-species must be evaluated individually using DNA and breeding instincts to determine whether they are individual kinds or races of the same kind.

2.0 Background

2.1 Mouse Selective Reproduction Mechanisms

The following provide some of the known mechanisms which keep mouse species distinct:

- One of the prime mechanisms that preserve our mouse kinds are pheromones. Pheromones are proteins that present themselves in bodily fluids such as saliva, urine, and feces. These pheromones are proteins that are produced by the creature's glands and secreted through bodily fluids that trigger social behavior in members of the same species (Shahan *et al.* 1987).
- Pheromones are species specific (Lane *et al.* 2004; Logan *et al*. 2008).
- Pheromones are individually specific and act as a "barcode" (Beynon and Hurst 2003; Beynon and Hurst 2004).
- Female mice detect the male mouse's genetic background via pheromones and songs that compel the female mouse to avoid mating with a close relative (Asaba *et al.* 2014).
- The house mouse has approximately 1100 olfactory receptor genes used in sensing odors and the function of these genes differs between male and female mice. (Shiao *et al.* 2012).
- Mice are protected from inbreeding with close relatives by a protective pheromone. (Sherborne *et al.* 2007; Jiménez *et al.* 1994).
- Urinary proteins trigger ovulation in female mice (Morè 2006).
- Pheromones are present in both male and female mice although male mice have a concentration approximately 5 times that of the females (Robertson *et al.* 1997).

- Pheromones are also contained in the male mouse's tears. It has been found that when these pheromones are present, the female mouse becomes receptive and copulation occurs; however, if the male mouse has a deficiency in these pheromone proteins, the female is not activated sexually and copulation does not occur (Haga 2010).
- Juvenile mice secret a protective pheromone through their tears that signal mature male mice to not breed with them. This pheromone is present in neither newborn mice nor mature mice, only juveniles (Ferrero *et al*. 2013).
- Experiments have shown that several proteins are instrumental is allowing mouse sperm to penetrate the mouse egg and without the proper protein configurations, fertilization does not occur (Avella *et al.* 2014).
- Studies on Caenorhabditis elegans (nematode) have shown that their pheromones affect sperm motility (i.e. sperm guidance). This study suggests that this function would also apply to mice. (McKnight *et al.* 2014). This is important and interesting that even if two different species of mice bred, the sperm, without guidance (motility) would be ineffective.
- Mice sing to their mates in ultra sonic frequencies in the range of 30 to 110 kHz and have the characteristics of song birds. The songs are complex and are being presently studies for content (Holy 2005). When birds (Zebra finches) sing, 33 proteins respond to songs and activate protein formation (Wada *et al.* 2006).

2.2 Defining Biblical Kinds

The Bible is clear that kinds were created with distinction and remain distinct (Genesis 1-2, Leviticus 11, Deuteronomy 14). Therefore, it should be easy to distinguish one kind from another; and, usually it is: we can tell a lion from a tiger, and a bluebird from a robin etc. However, if we look at mice, they all look quite similar, but when we evaluate them closely, we see distinct differences. The scientific community has spent much time looking at these differences.

Scientists have categorized life forms into groups such as kingdom, phylum, class, order, family, genus, species, and subspecies. We, at Genesis and Genetics, have concluded that the Biblical "kind" and consensus secular science "species" are, generally, the same. Here is our reasoning:

- Both kinds and species use reproduction as a major criterion for identification.
- The Bible is clear that the creation is only approximately 6000 years old (Ussher 2003; Genesis Chapter 1; Chapter 5; Exodus 20:10-11). Now that we understand how genetic mutations work, it is impossible to generate enough mutations in 4400 years (time since flood) for speciation through natural selection to occur.
- For hundreds of thousands of species to be formed by natural means would require evolution which is creation by accident. This is contrary to the tune of the Bible and the personality of the Creator (John 1:3).
- Genetic mutations cannot create new species, but, rather, are detrimental since the original creation was "very good" (Genesis 1:31); therefore, any changes to the original DNA would tend to be harmful and lead to deformity and disease rather than new species/kinds.

There are a few differences between "species" and "kinds" which are up to interpretation depending on whether you are looking at the species/kinds from evolutionary or divine creation perspectives.

Secular science credits the reproduction of "after their kinds" to [evolutionary genetic reproductive isolation], and creation scientist credit it to [divine intelligence, i.e. the Creator].

2.3 Methods

The genetic data sequences used in this paper came from GenBank (Benson *et al.* 2013). Software tools used for this analysis were BLAST (Altschul *et al.* 1990) and Clustal Omega (Goujon *et al.* 2010). These tools were developed by secular scientist to be used for evolutionary purposes and from evolutionary perspectives. However, the default, basic analysis options are perfectly suited for creation investigative work. The results have been verified by using visual inspections of the raw data in Microsoft Excel and/or comparisons using software developed by and for Genesisandgenetics.org. These efforts have resulted in high confidence in the results of the aforementioned tools.

Genetic distance is the scientific way of expressing genetic variation. To simplify, consider two genetic sequences that are 100 base pairs long and they differ by five base pair; the variation, or genetic distance, is 5%.

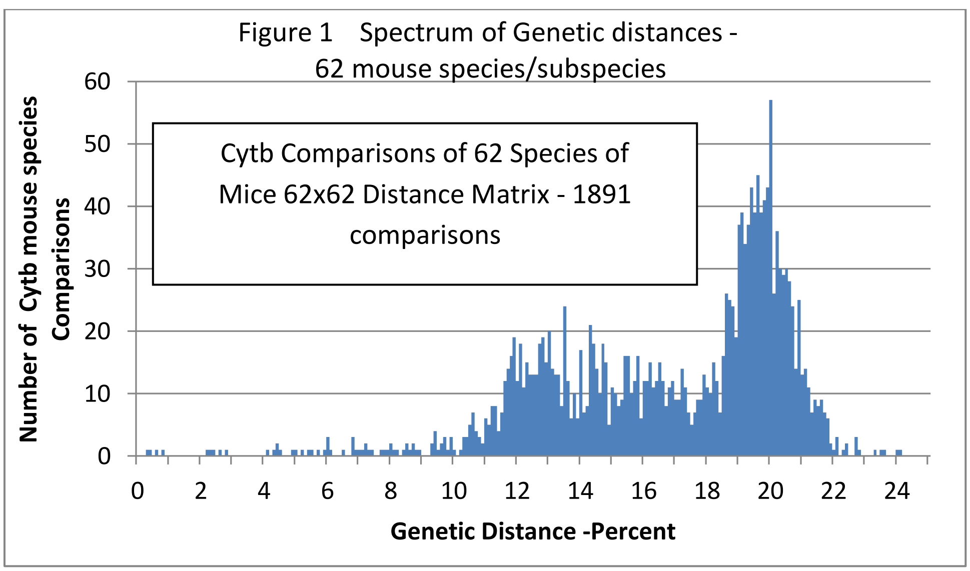
Cytochrome b is a gene in the mitochondrion that is commonly accepted as one of the most useful in phylogenetic studies for secular science, i.e. evolution (Castresana 2001).

3.0 Results

3.1 Genetic Distances (Variations) between Mouse Kinds

GenBank provided us with the DNA (Cytochrome b-Cytb) of 62 mouse species/subspecies for analysis. The distance matrix of size 62 by 62 was produced by Clustal Omega.

Figure 1 presents the comparisons of genetic distances for the entire 62X62 distance matrix. There are 1891 comparisons shown (62 x 62 = 3844 minus 62 zeros and divided by 2 eliminating symmetric matrix repeats). The 62X62 matrix used to construct Figure 1 may be viewed by following this link: MATRIX1_Text . (You may have to deselect "word wrap" on your text reader)



The highest genetic distance between these 62 mouse species is just over 24 percent which is the genetic distance between the California mouse (Peromyscus californicus) and the pygmy wood mouse (Sylvaemus uralensis). This is interesting in that the difference between the California mouse (GenBank FJ716219.1) and a domestic pig (GenBank NC_012095) is only 23.7 percent; so, this puts the values of Figure 1 in perspective.

Comparing human cytochrome b (e.g. NC_012920) to a chimpanzee cytochrome b (e.g. NC_001643), the genetic distance is 11 percent. Therefore, it would be reasonable to consider the mouse species/kinds with genetic distances greater that 11 percent to be distinct species/kinds meaning that they are not just races and not capable of natural hybridization. Figure 1 shows that most species/kinds of mice differ from one another by more that 11 percent.

In order to evaluate the genetic distances less that 11 percent, we can look at MATRIX1_Text and find that comparing *Mus musculus musculus* to *Mus musculus domesticus*, the genetic distance is 2.2 percent. These are two species that have been categorized as subspecies by the secular scientific community. There is a considerable amount of genetic data on these two kinds/species and Figure 2 presents the spectrum of genetic distances comparing 23 *Mus musculus musculus* sequences to15 *Mus musculus domesticus* sequences resulting in a 38 X 38 comparison matrix.

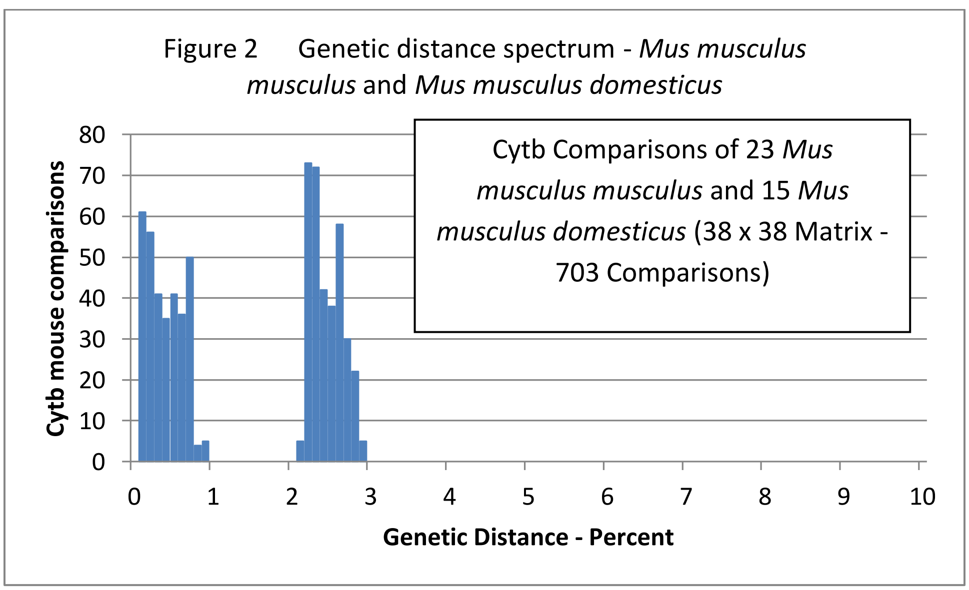


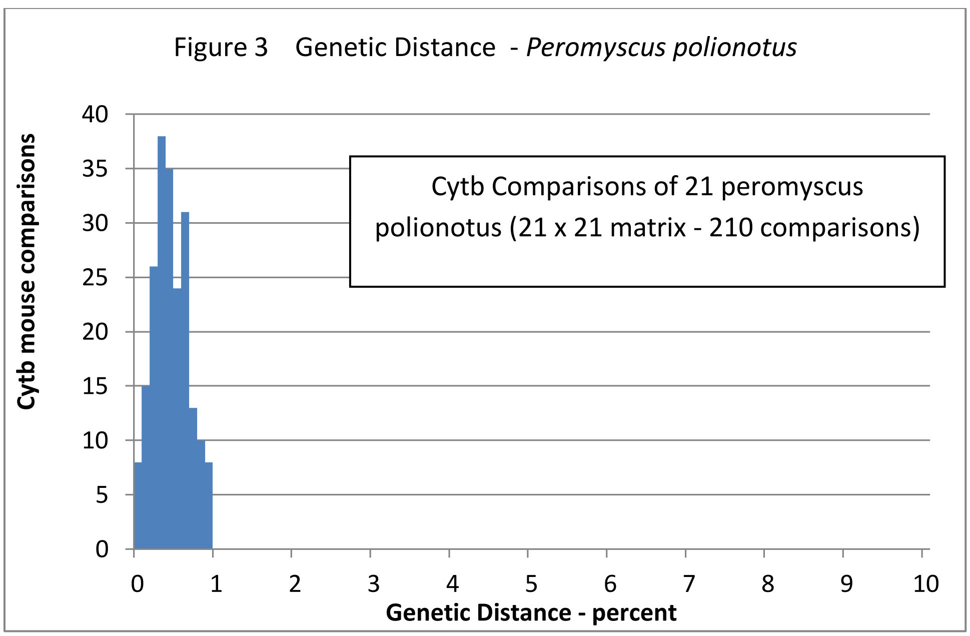
Figure 2 Genetic distance spectrum - *Mus musculus musculus* and *Mus musculus domesticus*

The comparison matrix was generated by Clustal Omega (Goujon *et al.* 2010). The 38X38 matrix used to construct Figure 2 may be viewed by following these links: MATRIX2_Text . (You may have to deselect "word wrap" on your text reader)

Since figure 2 displays two distinct groups, it leads one to believe that they are distinct species/kinds; this notion is further strengthened considering the fact that the 23 *Mus musculus musculus* are from various countries (Russia, China, Japan, Uzbekistan, etc.) and the *Mus musculus domesticus* are also from various countries(Russia, Philippines, Tunisia, Iran, etc.). Had they been from isolated, pocket groups, they could have been races, but seeing the two distinct peaks from sequences collected from diverse countries leads one to believe they are distinct species/kinds. Fortunately, research has been done on the breeding of these two species (Geraldes *et al.* 2011) and the findings are that they do not successfully breed: primarily because the male offspring are sterile. Therefore, our conclusion is that these two subspecies are actually two Biblical kinds.

Another area of interest on Figure 1 is the beach mouse, (*Peromyscus polionotus*) and the southeastern beach mouse (*Peromyscus polionotus niveiventris*); they are within 1 percent of each other. The secular scientists classify the southeastern beach mouse as a subspecies of the beach mouse. Other beach mouse species sequences were found allowing the comparison of 21 cytochrome b sequences:

Quantity	Name
2	*Peromyscus polionotus*
3	*Peromyscus polionotus niveiventris*
8	*Peromyscus polionotus rhoadsi*
8	*Peromyscus polionotus phasma*



The 21X21 matrix used to construct Figure 3 may be viewed by following these links: MATRIX3_Text . Figure 3 shows that beach mouse and its subspecies have indistinguishable cytochrome b and form a very narrow band of only 1 percent. Therefore our conclusion would tend to be that they are not distinct species, but different races of the same species; and, therefore, could easily interbreed having viable offspring. However, in order to confirm our supposition, it would be necessary to observe their breeding instincts in their native habitat, and also evaluate their offspring for health and ability to procreate. Someday, as our understanding of DNA improves, the breeding instincts will be understood and observable in the genome.

3.2 Mice Populations Retain their Distinction

Mouse kinds/species maintain their distinctness even when sharing habitat with other mouse kinds/species. For instance the California mouse (*Peromyscus californicus*) shares habitat with the deer mouse (Peromyscus maniculatus), the house mouse (Mus musculus), the brush mouse (*Peromyscus boylii),* the cactus mouse (*Peromyscus eremicus*), and others; yet, they all remain distinct. (Note that several are of the same genus) This observation is in tune with the Bible stating that creatures were created after their kind and reproduce after their kinds (Genesis 1:24-25); and, now, with these mouse studies, the method the Creator used to accomplish this feat is becoming apparent: He hardwired the creatures to breed only with their own kind. Animals are not known to have high morals: anyone who has had a cat or dog would attest to this; yet, dogs don't breed with cats; horses don't breed with cows; bluebirds don't breed with robins; and, the various mice kinds/species don't breed with other mouse kinds/species. Mouse kinds/species are hardwired to only breed with their like species/kinds (Logan *et al.* 2008; Lane *et al.* 2004).

3.3 Forced and Natural Inter-species Breeding - Hybrids

If species interbreed, the mechanisms in paragraph 2.1 would tend to restore and preserve the original kinds. Logically, crossbreeds would be confused from a breeding instinct standpoint and wouldn't fit into either society; this is due to the shuffling of nuclear genes controlling instincts. For instance, pheromones would not be functional for either of the parent species and would cause problems with attraction, social behavior, estrous cycling, lineage recognition, and sperm motility. Hybrids are beyond the scope of this paper, but, the fact is mice sometimes hybridize naturally. An example of this is the *Mus musculus musculus* and the *Mus musculus domesticus* which, from Figure 2, have an approximate 2 percent genetic distance from each other. They do sometimes hybridize; however, the hybrid males are generally infertility (Geraldes *et al.* 2011), and are more susceptible to the tissue-dwelling protozoan Sarcocystismuris (Derothe *et al.*2001). There are probably many other factors that preserve the distinctness of *Mus musculus musculus* and *Mus musculus domesticus* yet to be discovered.

3.4 Mice Kinds on the Ark

As a result of this study, our conclusion is that most of the kinds of mice defined by secular biologists as species were on the Ark as opposed to being produced by post-flood speciation. Here are our reasons:

1. Genetic mutations take time to generate and process through "natural selection." The mate selection mechanisms are very complex and could not possibly have been "selected out" in a mere 4400 years (time since the flood - Ussher 2003 and Genesis chapter 5).

2. The Creator designed and created by His wisdom, understanding and power, not by chaos, i.e. accidents. Creation by chaos is contrary to the Bible and the attributes of God (e.g. Job 12: 7-10).

3. When the dietary laws were given (less than 1000 years after the flood), the species were defined. (Leviticus 11, Deuteronomy 14)

The mice with genetic distances greater than 11 percent equates to cytochrome b differences of greater than 125 nucleotides and considered by us to be unique kinds and definitely on the Ark. Those less than 11 percent should be looked at individually from both DNA and breeding mechanism standpoints. If they display breeding problems, they most probably were not on the Ark.

3.5 Comparisons of Creation and Evolution Models

The evolutionist say that these mechanisms were a result of natural selection over millions of years; the creationist, we included, say that these mechanisms were divinely designed and implemented in the beginning.

4.0 Conclusion

There are effective mechanisms coded in mouse DNA that stabilizes the various species/kinds of mice causing them to reproduce after their kinds/species.

Presently, the best method of determining Biblical kinds is reproductive "selectivity" and "viability" coupled with DNA analysis.

Most of what are categorized as mice "species" are Biblical kinds and some of the "subspecies" are also Biblical kinds.

From this study, it is apparent that the mouse also declares the majesty, wisdom and power of the Creator.

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