

Creationist modelling of the origins of *Canis lupus familiaris*—ancestry, timing, and biogeography

Cody J. Guitard

Much work has been done by evolutionary scientists attempting to trace the origins of *Canis lupus familiaris* (domestic dogs). While many insights from this research are helpful, there are good scientific reasons to reject the proposed timeframe for the domestication of wolves (*Canis lupus*), the proposed phylogenetic relatedness of the Canidae family to other families in the evolutionary tree, and the use of variation within domestic dogs as evidence for the evolution of canids from the same common ancestor as all other living things. In contrast, inferences from the historical biblical texts provide a better model for the biological variation observed within domestic dogs and other canids, as well as for potential timeframes and geographical locales of initial (post-Flood) domestication of wolves into dogs. In light of biblical chronogenealogies used in dating the Flood and Babel events, initial post-Flood domestication would have taken place c. 2,521–2,200 BC. Possible narrower date ranges as well as geographical locales of initial domestication are given in light of different sets of assumptions concerning the chronology of biblical events and interpretations of the current scientific data.

It is commonplace for people to mistakenly think of dog breeds as different species, though all dog breeds are in fact the same subspecies—*Canis lupus familiaris*, the domestic dog. Researchers recognize that most of today’s more than 400 breeds of domestic dogs have only arisen in the past 200 years or so as the products of artificial selection.¹ With the sequencing of the entire domestic dog genome,² researchers are increasingly aware that the genome contains enormous built-in potential³ for the astounding variety observed among the different breeds.⁴ Researchers are hopeful that understanding the mechanisms that cause such variety in domestic dogs will assist in better understanding variation in other species.⁵ Evolutionary and creationist scientists are in agreement that domestic dogs originated via domestication of a wolf-like creature (see figure 1).⁶ In fact, domestic dogs and wolves belong to the same biological family (Canidae) as foxes, coyotes, jackals, dingoes,⁷ and other dog-like mammals,⁸ and it is widely agreed that at least the domestic dog and the wolf are the same species.

Evolutionary model for domestic dog origins

Evolutionary researchers believe that the lineage leading to the order Carnivora (carnivores) of the class Mammalia (mammals) would have originated about 83.1–96.2 million years (Ma) ago.⁹ According to the supposed evolutionary history of the Canidae family, the order Carnivora diverged to form the suborders Caniformia, or Canoidea, and Feliformia, or Feloidea, about 62.3–67.5 Ma ago.⁹ The

suborder Caniformia then gave rise to the Canidae family about 57.0–65.4 Ma ago.⁹ While this modern classification scheme—the proposed dating notwithstanding—can be useful in some ways, it is important to keep in mind that it is man-made and largely reflects the *assumption* of evolutionary relatedness of all life.

As previously mentioned, the canids consist of domestic dogs, wolves, foxes, coyotes, jackals, dingoes, and other dog-like mammals, all of which are agreed by evolutionists and creationists to share a common wolf-like ancestor.¹⁰ This is demonstrated by DNA comparisons¹¹ and the ability of the canids to hybridize (e.g. dog-wolf,¹² dog-coyote,¹³ dog-jackal,¹⁴ dog-dingo,¹⁵ dog-fox,¹⁶ coyote-fox,¹⁷ coyote-wolf¹⁸),¹⁹ oftentimes producing fertile offspring—perhaps, one might suggest, rendering their *Canis lupus* subspecies classifications trivial. (See figures 2–4 for hybrid examples.) It is entirely possible that following the initial domestication, domestic dogs freely hybridized not only with wild wolves but also with other canids.²⁰ Creationists do not contest this scenario.

Timing of initial domestication

As to when the initial domestication of wolves into dogs took place, different studies have yielded different results. Research involving mtDNA sequencing has led researchers to suggest dates ranging as early as 100,000 years ago²¹ to as late as 5,400 years ago,²² while dog-like fossils have been dated to as early as 31,700 years ago.²³ Recent evolutionary research indicates that initial dog-wolf divergence in particular occurred somewhere within 27,000–40,000 years



Figure 1. Despite the enormous variety among the many breeds of domestic dogs, they are indeed the same subspecies and all share a common ancestor in a wolf-like creature.

ago, though domestication may only have taken place thousands of years later, probably at numerous independent times and geographical locations.²⁴ It is widely accepted that domestication had occurred by the time of the Agricultural Revolution around 10,000 years ago by evolutionary estimates.²⁵ Most archaeologists and palaeontologists believe that relatively tame scavenger wolves around human hunting camps were first domesticated as camp guards and later as hunters sometime around the end of the Pleistocene epoch—the time period spanning the world’s most recent ice age according to uniformitarian geology—which ended around 11,700 years ago.²⁶ As one group of researchers describes:

“First, a founder group of less-fearful wolves would have been pulled toward nomadic encampments to scavenge kills or perhaps salvage wounded escapees from the hunt. Thereafter, these wolves may have found utility as barking sentinels, warning of human and animal invaders approaching at night. Gradually, natural selection and genetic drift resulting from human activities began to differentiate these wolves from the larger autonomous population. Once people had direct interaction with wolves, a subsequent, ‘cultural process’ would have begun. Suitable ‘preselected’ wolf pups taken as pets would have been socialized to humans and unconsciously and unintentionally selected for decreased flight behaviour and increased

sociality, 2 trademarks of tameness. Eventually, people established control over proto-dog mating. From this point forward the wolf in effect became a dog, under constant observation and subject to strong artificial selection for desired traits.”²⁷

While this story is speculative, it is also entirely plausible. In fact, such a scenario—with the additional note that animals were designed with domestication potential—would fit very well within any one of the possible creationist models (see below) for initial post-Flood domestication. Even the idea of increasingly tame scavenger wolves that would approach villages to feed on human prey parallels the predatory behaviour attributed to dogs in the Bible (see 1 Kings 14:11, 16:4, 21:19, 23–24, 22:38; 2 Kings 9:10, 36).

Geographical region of initial domestication

The geographical region in which wolves were first domesticated into dogs has been the subject of much study and disagreement among evolutionists. Until recently, there have usually been two suggested candidates for the point of origin for the domestication of wolves into man’s best friend: Europe²⁸ and East Asia.²⁹ Now, however, in light of recent advancements in mtDNA sequencing, many evolutionary scientists are beginning to think that perhaps the answer to the question of the origin of domestic dogs is not either Europe *or* East Asia, but both Europe *and* East Asia. That is, that dogs were domesticated from two separate wolf populations—one in Europe and one in East Asia.³⁰ However, contrary to earlier mtDNA sequencing data, newer research results give the impression that domestication of wolves first occurred somewhere in the Middle East.³¹ In short, an increasing number of researchers are coming to think that initial domestication took place in several independent geographical regions at different times. As will be discussed later, the proposed geographical regions are no issue for creationist modelling.

Critique of the evolutionary model

Theories in the evolutionary literature concerning the relatedness and variation *within* the Canidae family, the geographical region(s) for initial domestication of wolves, and the reason(s) why humans sought to domesticate wolves in the first place fit well within the creationist model (explained later). However, there are several major problems with the broader evolutionary model concerning the use of domestic dog variation as evidence for the general theory of evolution (the common ancestry of all living things),³² the alleged common ancestry of the canids with other family groups within the Carnivora suborder, and the timing of initial domestication of wolves into dogs.



Figure 2. A grey wolf



Figure 3. A wolfdog (dog-wolf hybrid)



Figure 4. A coywolf (coyote-wolf hybrid)

Intra-kind variation, not evolution

Evolutionists like to present the rapid diversification of domestic dogs as a supposed observation of evolution in action.³³ However, this is a clear case of equivocation, for the variation observed in dogs is not the same kind of change necessary for molecules-to-man (or, more appropriately here, molecules-to-dog) evolution. Functional and phenotypic differences which distinguish the various breeds of domestic dogs are not the products of evolution—which requires the creation of new genetic information³⁴—but the selection, manipulation, and mutation of *pre-existing* genetic information. Artificial selection actually *depletes* the genetic potential in the gene pool, rendering each generation of offspring less adaptable than the previous ones to future environmental changes.³⁵ While these data are in no way evidence for evolution, they do fit well within the young-earth model, wherein the basic created canid kind or type has a pool of genetic potential for intra-kind variation, but not inter-kind variation.³⁶

The transitional forms are missing

A major problem with the evolutionary story of the origins of domestic dogs lies in the lack of transitional forms in the supposed phylogenetic history of the Canidae family linking it with other families.³⁷ For example, transitional forms are missing to account for the alleged divergence of the Canidae family from the Mephitidae family, which is also classified under the suborder Caniformia. Furthermore, there are no transitional forms suggesting common ancestry between the suborders Caniformia and Feliformia. The revealing words of zoologist Austin H. Clark, written nearly a century ago, still ring true today:

“... gaps are found in all these evolutionary lines, and many of these gaps appear to be real—that is, they were never, so far as we have been able to learn, bridged by so-called missing links. To take a concrete example, it is quite obvious that the gap between cats and dogs is broad, and it remains broad throughout the fossil record. Cats never became dogs, nor dogs cats; but both are carnivorous mammals.”³⁸

Much of the data interpreted as evidence for evolutionary common ancestry come from studies of physiological and genetic homologies in the animal kingdom, though these are much better interpreted as evidence of common *design* rather than common *descent*.³⁹ The evidence used by evolutionists for proposing hierarchies of common descent is similar to what creationists use for placing different species within the same created kind, but the evolutionists need changes of one type of feature (e.g. an arm) into another type of feature (e.g. a wing) resulting from the naturalistic introduction of novel genetic potential into the organism’s genome, which is a type of change far beyond anything known of how organisms

actually change. In the end, multiple lines of evidence suggest that the canids are their own separately created kind with vast potential for intra-kind variation.⁴⁰

Determining initial domestication time

One problem with evolutionary estimates for the time of initial domestication is that the methods used rely on numerous, unfounded assumptions. For example, the estimates from mtDNA analysis—the most common tool used for reconstructing historical patterns of biogeographical distribution and speciation—are questionable due to the unknown extent of the effects of direct and indirect selection on mtDNA.⁴¹ Furthermore, mtDNA analyses assume a uniform mutation rate throughout the genetic ancestry of the species, though it is known that mutation rates can either speed up or slow down due to outside influences,⁴² including environmental factors.⁴³ It has also been shown that certain animals, including dogs,⁴⁴ experience significant changes in their mtDNA patterns as a result of domestication over a short timescale.⁴⁵

The reliability of other methods used for dating the initial domestication is also questionable. One example is osteometry, the measurement of skeletal remains, which has been a favourite tool in the study of early dog domestication. There are a number of interpretive issues that need to be accounted for.⁴⁶ One of the predominant issues with this method is that the reported results of such research in the literature are inconsistent due to a lack of standardization in the methodologies being used. One research group made a revealing discovery:

“As the field [of forensic anthropology] has continued to develop more quantifiable methodologies for analysis, it has also come to more consistently rely upon the use of osteometrics; a method which has long been assumed to have been standardized. In order for osteometrics to be truly classified as being ‘standardized’, it must be standardized in practice as well as in the literature. In other words, one would expect that at least 80% of practitioners take the same measurement consistently, yielding physical measurements which differ only slightly. However, for the measurements tested, this study has demonstrated that, at best, 63% of practitioners consistently take a given measurement, with every other measurement yielding lower levels of consensus. It has also been demonstrated that there are many plausible factors to the current lack of standardization in osteometrics including the presence of several vague and discrepant measurement descriptions in the authorized texts which then results in a lack of standardized osteometric training. As some of the lowest consistency rates were found in the more experienced groups, it could

also be inferred that any interobserver disparities in measurement style could be passed on through education to future generations of anthropologists, thereby perpetuating the problem.”⁴⁷

The researchers go on to suggest that in order to improve the current level of standardization, all published osteometric data ought to be re-examined, all methodologies ought to be re-assessed, and a comprehensive guide to osteometry ought to be re-issued. Similar issues regarding interpretation and inconsistent datasets, as well as frequent sample contamination, also arise in ancient DNA (aDNA) studies.⁴⁸

Furthermore, as has been pointed out numerous times in the creationist literature, there are also issues with radiometric dating, the most commonly used dating method by evolutionists, which is based on several unprovable assumptions. One commonly used in the analysis of canid remains is radiocarbon (¹⁴C) dating. However, like all radiometric dating methods, radiocarbon dating relies on three unprovable assumptions: (1) the initial number of parent and daughter isotopes is known; (2) there has been no contamination (i.e. the system is closed); and (3) the rate of decay has been constant. There are, in fact, many good scientific reasons to doubt and even reject each of these assumptions.⁴⁹ However, if one had a reliable historical record providing data on any of these factors, this would then provide a starting point for making an accurate assessment of a sample’s decay history. For example, many do not realize that when considered through the lens of biblical history, radiocarbon dating actually supports the young-earth creationist model. Nuclear physicist Jim Mason argues that a number of factors (pre-Flood conditions, burial processes during the Flood, etc.) would account for the inflated dates derived from decay measurements:

“These factors would act to make the ratio of ¹⁴C to ¹²C in the pre-Flood world much smaller than it is today (less ¹⁴C, more ¹²C). Also, the intense volcanism associated with the Flood (there is a huge amount of volcanic material in the rocks that would have been formed during the Flood) would have dumped billions of tons of non-radioactive carbon into the atmosphere, further diluting any ¹⁴C that may have been present. Thus, after the Flood, the ratio of ¹⁴C to ¹²C would have to increase to reach today’s levels, meaning anything alive in the years immediately after the Flood would have a radiocarbon age much older than reality. Accounting for this could easily put the calculated time since burial at 4,500 years for even the ‘oldest’ samples.”⁵⁰

The timescale intrinsic to this model will be further developed and will highlight the place of initial post-Flood dog domestication in the model in the next section.

The problems with all of the dating methods discussed have led numerous evolutionary scientists to question many,

if not most, conclusions of previous research into the history of domestic dogs and to seek a major reassessment through new and improved techniques, especially through newly developing DNA sequencing technology.⁵¹ The best possible data, however, for dating and determining the geographical location(s) of the initial domestication of wolves would be a reliable written historical record. As will be shown, some very helpful historical insights can be gleaned from the biblical record concerning domestic dogs.

Biblical time window for initial domestication

Biblically, depending on certain textual and interpretive assumptions, the year of creation can be placed between 5,665 and 3,822 BC,⁵² although a strong case can be made for a creation date of 4,178 ± 50 BC.⁵³ God did not create all species that have ever existed but instead created basic kinds (Gen. 1:11, 12, 21, 24, 25; basic types which have diversified into what are today recognized as families or even higher taxonomic categories).⁵⁴ He endowed each kind with the ability to produce all the intra-kind variation observed today.⁵⁵ Then, in c. 2,522 BC (assuming the creation date of 4,178 ± 50 BC),⁵⁶ God sent a global Flood (which lasted about one year) that killed “everything on the dry land in whose nostrils was the breath of life” (Gen. 7:22) that was not sheltered in Noah’s Ark (Gen. 15).

No domestic dogs on the Ark

Noah did not take every single species which existed at the time into the Ark, but rather representatives of each of the created kinds (Gen. 6:20; 7:14).⁵⁷ While there may have been some domestic dogs before the Flood, the current data yields no certainty. The search for pre-Flood domesticated dogs would need to be limited to strata produced during or prior to the Flood, though the geological boundaries bookending the start and end of the Flood are heavily debated among creationists.⁵⁸ Even if some of the dog-like creatures in the fossil record were identified with certainty as being pre-Flood, it is difficult to determine based solely on fossil remains whether any were domesticated. Since the ancestry of domestic dogs is traceable to something like a grey wolf, there would not have been any members of *Canis lupus familiaris* on the Ark. Instead, there would have been a pair of wolf-like creatures with all the genetic information necessary for the variations observed within the canid kind post-Flood. As Jonathan D. Sarfati notes: “Creationists have often pointed out that Noah didn’t need to take wolves, foxes, coyotes, dingoes, chihuahuas, great danes, spaniels, dachshunds, etc. on the Ark, because it was sufficient to take a pair of wolf-like creatures with all the potential for diversifying into different varieties.”⁵⁹ He adds: “evolutionists now concede that domestic dogs came from wolves only a

few thousand years ago, and are not really very different, although they insist on calling this ‘evolution’.”⁶⁰

Early biblical-historical reference to domestic dogs

There are numerous references throughout Scripture to dogs, but the two which provide the clearest references to literal, *domesticated* dogs are given in Matthew 15:27⁶¹ and Job 30:1.⁶² Job is possibly the oldest book of the Bible, recording events that took place sometime after the Flood (Job 22:16) in the Middle-Eastern land of Uz (Job 1:1)⁶³—which was likely the land that would later become Edom (cf. Lam. 4:21)—and around the time of the Jewish patriarchs.⁶⁴ Job’s contemporaneity with the patriarchs is evident from a number of characteristics of his time, including but not limited to the facts that his wealth was measured in livestock (Job 1:3, 42:12); he offered up sacrifices on his own behalf and for his family (Job 1:5, cf. 42:8), just like the Jewish patriarchs (Gen. 8:20, 12:7–8, 31:54), with no hint of the existence of the Levitical priesthood or temple; he gave his daughters “an inheritance among their brothers” (Job 42:15), unlike the Israelite law in which daughters only received an inheritance in the absence of sons (Num. 27:1–11, 36:1–13); and the longevity of his life—implied by the vastness of his pre-suffering accomplishments (Job 1:3–18), his post-suffering accomplishments (Job 42:10–13), and the fact that he only died 140 years after his sufferings (Job 42:16–17)⁶⁵—is more comparable to those of the patriarchs who lived c. 2,200 BC. All of this indicates that the first domestic dogs originated not long after the Flood and at least as early as c. 2,200 BC, providing an approximately 300-year window between c. 2,521 BC (the end of the Flood) and c. 2,200 BC for initial post-Flood domestication of wolves into dogs to occur.

Further insights and biblical modelling

Speciation and specialization would have occurred at much faster rates during the period of the post-Flood Ice Age⁶⁶ in which animals and humans alike would be subjected to a harsh environment, nutrient limitations, migratory isolation, and small inbreeding populations.⁶⁷ The specializing effects of even a single mutation are well-documented in the diversification of domestic dogs, so it is no stretch to posit that mutations coupled with the isolation of small, inbreeding migratory groups in the harsh post-Flood environment would have provided all the tools necessary for post-Flood humans to domesticate dogs through artificial selection. What is more, modern experiments on the domestication of wolves show that if constant human interaction begins when the wolves are newborn pups, the pups quickly begin to demonstrate some behavioural traits characteristic of domestic dogs, including

dependency on a human caregiver, though they are still prone to the aggressive behaviour and avoidance common among wolves.⁶⁸ Nonetheless, this would seem to indicate that consistent domestication practices could produce tame and eventually fully domesticated canids within relatively short amounts of time.⁶⁹

Combined with the fact that most of today's more than 400 dog breeds are known to have arisen in the past 200 years or so, it is reasonable to suggest that domestication of wolves into dogs could have taken place within the approximately 300 years between c. 2,521 BC (the end of the Flood) and c. 2,200 BC (the estimated time of Job). This would place the time of initial post-Flood domestication right in the first half of the 700-year-long Ice Age during which ice accumulation took place in the first 500 years following the Flood, followed by 200 years of relatively rapid deglaciation.⁷⁰ Biblical dating therefore indicates that domestication took place within the first 300 years or so of ice accumulation, which rendered the post-Flood environment increasingly harsh for survival. Though the Scandinavian ice sheet and mountain ice caps were farther north than the geographical locations discussed in Genesis, it is evident that people in the Middle East were still experiencing abnormally cold periods at the time (Job 38:29–30). If humans initially domesticated wolves for hunting purposes as researchers suggest, this would make perfect sense within the biblical framework as only after the Flood did God give permission to mankind to kill animals for food (Gen. 9:2–3)⁷¹ and, in the increasingly challenging post-Flood environment, man could have used a hunting partner.

Timing of post-Flood dispersion from Babel

As for the geographical location(s) of initial post-Flood domestication, there are two possibilities depending on which assumptions are made. These assumptions are based around the timing of the Babel event which would in turn inform the timing of initial domestication. In light of God's post-Flood permission for man to hunt, it is interesting that the Bible refers to Nimrod, Noah's great-grandson through the line of Ham (Gen. 10:6–8), as "a mighty hunter before the LORD" (Gen. 10:9), as it may be possible that he used tame canids or even fully domesticated dogs in his hunting. He is described as being "the first on Earth to be a mighty man" (Gen. 10:8)⁷² and is revealed as the instigator of the building of the Tower of Babel in the land of Shinar (Gen. 10:10).⁷³ Scripture does not tell when Nimrod led the building of Babel, nor even how long he lived. However, the timing of the Babel event seems to be indicated in Genesis 10:25, where one of Eber's two sons is named "Peleg, for in his days the earth was divided". Contrary to the modern interpretation of this verse as referencing continental drift,⁷⁴ the context appears to reference the linguistic division and population dispersion at Babel:

"In context, only eight verses after 10:25, the Bible states, 'Now the whole earth (*erets*) had one language and one speech' (Genesis 11:1), and as a result of their disobedience, 'the LORD confused the language of all the earth (*erets*)' (Genesis 11:9). This conclusively proves that the 'earth' (*erets*) that was divided was the *same earth that spoke only one language*, i.e. 'earth' (*erets*) refers in this context to the people of the earth, not Planet Earth. [There is] one meaning of *erets* as people of the land, and the context means this is what Genesis 10:25 must refer to."⁷⁵

There are two ways to interpret the meaning behind Peleg's name. On the one hand, this may be a reference to him being born the same year as the dispersion at Babel occurred. Since Peleg was born about 101 years after the Flood (Gen. 11:10–16), this would place the Babel event at c. 2,420 BC. On the other hand, the name given to Peleg may have been prophetic, predicting the coming Babel event.⁷⁶ If this is the case, then the dispersion could have taken place any time during his lifetime (Gen. 11:18–19), yielding a date range for the Babel event of c. 2,420–2,181 BC. However, Job lived in the land of Uz c. 2,200 BC, narrowing this date range for Babel to c. 2,420–2,200 BC.⁷⁷

Given that Job had time to accumulate much material wealth (Job 1:3), have 10 children (Job 1:2), and become established as some sort of high local official (Job 29:25, cf. vv. 21–24), it is likely that the Babel event occurred either before or early in his lifetime, but since Job's lineage and date of birth are unknown, a more precise date range for Babel cannot be provided from the biblical data alone.⁷⁸

Possible models for domestication

Based on the date ranges available, there are three possible models for the timing and geographical location of initial post-Flood domestication of wolves into dogs either pre- or post-Babel (see table 1 for summary).

If initial domestication occurred prior to the dispersion at Babel, then it would have occurred in a single general geographical region somewhere in the Middle East, particularly the area between 'the mountains of Ararat' (where the Ark landed; see Gen. 8:4) and the site of the Tower of Babel. This would fit well with scientific data indicating initial domestication occurred in the Middle East. Then, following the dispersion from Babel, domestic dogs would have migrated with their respective human masters to new geographical locations,⁷⁹ such as Europe and East Asia. It is also possible that the early domestication seen in Europe and East Asia (and perhaps other locales) were independent events occurring in post-Babel human colonies. Either scenario would account for early domestication of canids in those areas and others where post-Babel populations settled.

If initial post-Flood domestication took place pre-Babel, then it would have occurred either c. 2,521–2,420 BC or

Table 1. Possible models for the timing and geographical region(s) of initial post-Flood domestication of wolves into dogs

Scenario	Minimum Date	Maximum Date	Geographical Regions
Pre-Babel (earliest date)	c. 2,521 BC	c. 2,420 BC	Initially in the Middle East
Pre-Babel (later date)	c. 2,521 BC	c. 2,200 BC	Initially in the Middle East
Post-Babel	c. 2,420 BC	c. 2,200 BC	Probably numerous, independent, multi-regional events

c. 2,521–2,200 BC. As previously mentioned, current research experiments into canid domestication indicate that the former date range of about a century could be more than enough time to produce domestic dogs from wolves under normal conditions, possibly taking place within only a few dog generations.⁸⁰ The combination of selective pressures from the post-Flood environment and human breeders, however, may have incited domestication to occur at much faster rates than it normally would today.

Alternatively, if initial post-Flood domestication took place post-Babel, then it could have occurred through several independent major domestication events across multiple geographical locations. As previously mentioned, there are high biogeographical concentrations indicating early domestication in Europe, East Asia, and the Middle East, which would have been major areas of post-Babel human migration.⁸¹ If initial post-Flood domestication took place post-Babel, then it would have occurred c. 2,420–2,200 BC.

Weighing the models

The scientific data discussed concerning the biogeographical distribution of early canids can be interpreted to fit well within any one of the three possible creationist models for the initial post-Flood domestication of wolves into dogs. A pre-Babel domestication model seems the most likely due to man’s pressing need to hunt for food in order to survive the harsh post-Flood environment (cf. Gen. 9:2–3, 10:9). As previously mentioned, similar to the standard story in the mainstream scientific literature, we might imagine less-fearful wolves—descendants of the pair of wolf-like representatives of the canid kind that was on the Ark—scavenging for food from the post-Flood human population. Over time, these canids became tamer and some were eventually selected, likely as pups, by humans for domestication for utility in hunting, protection, and even shepherding.⁸² From the perspective of these animals, this would be a good reciprocal trade-off: while they would assist their human masters in hunting for food and protecting the resources, they would in turn get to share in the rewards of the hunt and have a relatively safe, comfortable home in the midst of the harsh post-Flood environment. This is, of course, only hypothetical and, though reasonable, ought to be treated as speculation.

Concluding remarks

The hope for this paper is to incite more research into developing a creationist model for the origins of domestic dogs as well as models for the origins of other species. Further research ought to be done in post-Flood canid migration patterns in order to shed more light on the timing and geographical locale(s) of initial domestication. New insights into the timing of Babel and the events of Job may also allow us to draw more precise and even narrower date ranges for domestication. However, the preliminary biblical and scientific insights discussed in this paper should provide a good starting point for better understanding the paleontological data and for further developing a creationist speciation model for the canid kind.

References

1. Parker, H.G. *et al.*, Genomic analyses reveal the influence of geographic origin, migration, and hybridization on modern dog breed development, *Cell Reports* 19(4):697–708, 2017.
2. Published in Lindblad-Toh, K. *et al.*, Genome sequence, comparative analysis and haplotype structure of the domestic dog, *Nature* 438(7069):803–819, 2005.
3. Indeed, it would seem that God has even pre-programmed genomes with the ability to change over time, though within the limits of one’s own ‘kind’; see Carter, R.W., Can mutations create new information? *J. Creation* 25(2):92–98, 2011.
4. It came as a surprise to some to find that many of the morphological features characteristic of different breeds are caused by single genes. For example, the domestic dog is the land vertebrate which demonstrates the greatest diversity in body size, yet this is largely (if not completely) due to a single gene that encodes for insulin-like growth factor 1 (IGF1); see Sutter, N.B. *et al.*, A single *IGF1* allele is a major determinant of small size in dogs, *Science* 316(5821):112–115, 2007. Furthermore, some research suggests that dog breeds could be identified solely by their genetic makeup; see Koskinen, M.T., Individual assignment using microsatellite DNA reveals unambiguous breed identification in the domestic dog, *Animal Genetics* 34(4):297–301, 2003.
5. Hedrick, P.W. and Anderson, L., Are dogs genetically special? *Heredity* 106(5):712–713, 2011; Boyko, A.R., The domestic dog: man’s best friend in the genomic era, *Genome Biology* 12(216):1–10, 2011; Parker, H.G., Shearin, A.L., and Ostrander, E.A., Man’s best friend becomes biology’s best in show: genome analyses in the domestic dog, *Annual Review of Genetics* 44:309–336, 2010.
6. This would have resulted through the artificial isolation of certain genes coding for certain functions associated with domestication, such as growth and neurology; see Ramirez, O. *et al.*, Analysis of structural diversity in wolf-like canids reveals post-domestication variants, *BMC Genomics* 15(465):1–23, 2014.
7. There is disagreement among scientists as to the origins of the Australian dingo, though the most common hypothesis is that it descended from domestic dogs from East Asia and is now a distinct species. See Savolainen, P., Leitner, T., Wilton, A.N., Matisoo-Smith, E., and Lundeberg, J., A detailed picture of the origin of the Australian dingo, obtained from the study of mitochondrial DNA, *PNAS* 101(3):12387–12390, 2004; cf. Catchpoole, D., The Australian dingo—a wolf in dog’s clothing, *Creation* 27(2):10–15, 2005.
8. Wayne, R.K. and Ostrander, E.A., Origin, genetic diversity, and genome structure of the domestic dog, *BioEssays* 21(3):247–248, 1999.

9. Nyakatura, K. and Bininda-Emonds, O.R.P., Updating the evolutionary history of Carnivora (Mammalia): a new species-level supertree complete with divergence time estimates, *BMC Biology* **10**(12):1–31, 2012; see table 2 on p. 6.
10. Sarfati, J.D., *Refuting Compromise: A biblical and scientific refutation of 'progressive creationism' (billions of years), as popularized by astronomer Hugh Ross*, 2nd edn, Creation Book Publishers, Powder Springs, GA, pp. 230–232, 2011.
11. Pendragon, B., A review of selected features of the family Canidae with reference to its fundamental taxonomic status, *J. Creation* **25**(3):79–88, 2011.
12. Lorenzini, R. *et al.*, Wolf-dog crossbreeding: 'smelling' a hybrid may not be easy, *Mammalian Biology* **79**(2):149–156, 2014.
13. Schmutz, S.M. *et al.*, Agouti sequence polymorphisms in coyotes, wolves and dogs suggest hybridization, *J. Heredity* **98**(4):351–355, 2007.
14. Galov, A. *et al.*, First evidence of hybridization between golden jackal (*Canis aureus*) and domestic dog (*Canis familiaris*) as revealed by genetic markers, *Royal Society Open Science* **2**(12):1–14, 2015.
15. Cursino, M.S. *et al.*, Do female dingo-dog hybrids breed like dingoes or dogs? *Australian J. Zoology* **65**(2):112–119, 2017.
16. van Gelder, R.G., Mammalian hybrids and generic limits, *American Museum Novitates* **2635**:1–25, 1977, p. 11.
17. van Gelder, ref. 16, p. 10.
18. Mech, L.D. *et al.*, Studies of wolf x coyote hybridization via artificial insemination, *PLOS ONE* **12**(9):1–12, 2017.
19. Hybridization data has also linked all the living varieties of cats—another family within the order *Carnivora*—within a unique kind; see Pendragon B. and Winkler, N., The family of cats—delineation of the feline basic type, *J. Creation* **25**(2):118–124, 2011.
20. Stronen, A.V. *et al.*, Canid hybridization: contemporary evolution in human-modified landscapes, *Ecology and Evolution* **2**(9):2128–2140, 2012.
21. Vilà, C. *et al.*, Multiple and ancient origins of the domestic dog, *Science* **276**(5319):1687–1689, 1997.
22. Pang, J.-F. *et al.*, mtDNA data indicate a single origin for dogs south of Yangtze River, less than 16,300 years ago, from numerous wolves, *Molecular Biology and Evolution* **26**(12):2849–2864, 2009.
23. Germonpré, M. *et al.*, Fossil dogs and wolves from Palaeolithic sites in Belgium, the Ukraine and Russia: osteometry, ancient DNA and stable isotopes, *J. Archaeological Science* **36**(2):473–490, 2009.
24. Skoglund, P., Ersmark, E., Palkopoulou, E., and Dalén, L., Ancient wolf genome reveals an early divergence of domestic dog ancestors and admixture into high-latitude breeds, *Current Biology* **25**(1):1515–1519, 2015.
25. Druzhkova, A.S. *et al.*, Ancient DNA analysis affirms the canid from Altai as a primitive dog, *PLOS ONE* **8**(3):1–6, 2013.
26. Sablin, M.V. and Khlopachev, G.A., The earliest Ice Age dogs: evidence from Eliseevichi I, *Current Anthropology* **43**(5):795–799, 2002; Driscoll, C.A., Macdonald, D.W., and O'Brien, S.J., From wild animals to domestic pets, an evolutionary view of domestication, *PNAS* **106** (Supp.1):9971–9978, 2009.
27. Driscoll, Macdonald, and O'Brien, ref. 26, p. 9973.
28. Thalmann, O. *et al.*, Complete mitochondrial genomes of ancient canids suggest a European origin of domestic dogs, *Science* **342**(6160):871–874, 2013.
29. Savolainen, P. *et al.*, Genetic evidence for an East Asian origin of domestic dogs, *Science* **298**(5598):1610–1613, 2002; Ding, Z.-L. *et al.*, Origins of domestic dog in southern East Asia is supported by analysis of y-chromosome DNA, *Heredity* **108**(5):507–514, 2012; Wang, G.-D. *et al.*, Out of southern East Asia: the natural history of domestic dogs across the world, *Cell Research* **26**(1):21–33, 2016.
30. Grimm, D., Dogs may have been domesticated more than once, *Science* **352**(6290):1153–1154, 2016; Frantz, L.A.F. *et al.*, Genomic and archaeological evidence suggest a dual origin of domestic dogs, *Science* **352**(6290):1228–1231, 2016. This conclusion is perfectly reasonable if initial domestication took place post-Babel; see below.
31. vonHoldt, B.M. *et al.*, Genome-wide SNP and haplotype analyses reveal a rich history underlying dog domestication, *Nature* **464**(7290):898–902, 2010; Wayne, R.K. and vonHoldt, B.M., Evolutionary genomics of dog domestication, *Mammalian Genome* **23**(1/2):3–18, 2012. This conclusion is perfectly reasonable if initial domestication took place pre-Babel; see below.
32. As defined in Kerkut, G.A., *Implications of Evolution*, Pergamon Press, Oxford, UK, p. 157, 1960. This is what is meant by the term 'evolution' throughout this paper.
33. This example is used repeatedly, for example, in Dawkins, R., *The Greatest Show on Earth: The evidence for evolution*, Free Press, New York.
34. One must be careful when using the terms 'information' and 'new' when discussing genetics; see Carter, ref. 3. What is meant here by 'information' is "an encoded, symbolically represented message conveying expected action and intended purpose" (Gitt, W., Implications of the scientific laws of information—part 1, *J. Creation* **23**(2):96–102, p. 98, 2009). What is meant by 'new' information is genetic information previously absent from the organism's genome that would in turn introduce new genetic potential for new structures and/or functions. There is no known process observed to have given rise to new information naturalistically, causing a significant problem for molecules-to-man evolution.
35. Cosner, L., 'Parade of mutants'—pedigree dogs and artificial selection, *Creation* **32**(3):28–32, 2010.
36. Catchpole, D. and Wieland, C., Speedy species surprise, *Creation* **23**(2):13–15, 2001.
37. For a creationist proposal for taxonomic classification and relatedness within the *Carnivora* suborder that is more consistent with the scientific (and biblical) data, see Mehlert, A.W., On the origin of cats and carnivores, *J. Creation* **9**(1):106–120, 1995.
38. Clark, A.H., Evolution, *Science* **69**(1784):271, 1929.
39. Sarfati, J.D., *The Greatest Hoax on Earth? Refuting Dawkins on evolution*, Creation Book Publishers, Powder Springs, GA, pp. 89–104, 2010.
40. Cf. Pendragon, ref. 11.
41. Hurst, G.D.D. and Jiggins, F.M., Problems with mitochondrial DNA as a marker in population, phylogeographic and phylogenetic studies: the effects of inherited symbionts, *Proceedings of the Royal Society B* **272**(1572):1525–1534, 2005. The researchers also show that the reliability of mtDNA as a marker for biogeographical patterns is questionable.
42. Sniegowski, P.D., Gerrish, P.J., Johnson, T., and Shaver, A., The evolution of mutation rates: separating causes from consequences, *BioEssays* **22**(12):1057–1066, 2000.
43. Metzgar, D. and Wills, C., Evidence for the adaptive evolution of mutation rates, *Cell* **101**(6):581–582, 2000.
44. Björnerfeldt, S., Webster, M.T., and Vilà, C., Relaxation of selective constraint on dog mitochondrial DNA following domestication, *Genome Research* **16**(8):990–994, 2006.
45. Moray, C., Lanfear, R., and Bromham, L., Domestication and the mitochondrial genome: comparing patterns and rates of molecular evolution in domesticated mammals and birds and their wild relatives, *Genome Biology and Evolution* **6**(1):161–169, 2014.
46. Crockford, S.J. and Kuzmin, Y.V., Comments on Germonpré *et al.*, *J. Archaeological Science* **36**, 2009; 'Fossil dogs and wolves from Palaeolithic sites in Belgium, the Ukraine and Russia: osteometry, ancient DNA and stable isotopes'; and Germonpré, Lázkičková-Galetová, and Sablin, *J. Archaeological Science* **39**, 2012 'Palaeolithic dog skulls at the Gravettian Předmosti site, the Czech Republic', *J. Archaeological Science* **39**(8):2797–2801, 2012.
47. Smith, A.C. and Boaks, A., How 'standardized' is standardized? A validation of postcranial landmark locations, *J. Forensic Anthropology* **59**(6):1457–1465, p. 1463, 2014.
48. Thomas, B. and Tomkins, J., How reliable are genomes from ancient DNA? *J. Creation* **28**(3):92–98, 2014.
49. Sarfati, J.D., *The Genesis Account: A theological, historical, and scientific commentary on Genesis I–II*, Creation Book Publishers, Powder Springs, GA, pp. 136–148, 2015.
50. Mason, J., Radiometric dating; in: Carter, R. (Ed.), *Evolution's Achilles' Heels*, Creation Book Publishers, Powder Springs, GA, pp. 209–210, 2014. Cf. Snelling, A.A., Carbon-14 dating—understanding the basics, *Answers* **5**(4):72–75, 2010; Snelling, A.A., Carbon-14 in fossils and diamonds—an evolution dilemma, *Answers* **6**(1):72–75, 2011; Snelling, A.A., 50,000-year-old fossils—a creationist puzzle, *Answers* **6**(2):70–73, 2011.
51. Larson, G. *et al.*, Rethinking dog domestication by integrating genetics, archeology, and biogeography, *PNAS* **109**(23):8878–8883, 2005.

52. Hardy, C. and Carter, R., The biblical minimum and maximum age of the earth, *J. Creation* 28(2):89–96, 2014.
53. Sarfati, ref. 49, pp. 126–131.
54. While the evidence strongly suggests that the level of ‘kind’ among the canids is at the family level, there are some known cases where the level of ‘kind’ may be as high as the level of order, such as in the Passeriformes (see Lightner, J.K., An initial estimate of avian ark kinds, *Answers Research J.* 6:409–466, 2013). Indeed, the Hebrew word translated ‘kind’ in the Genesis account is broad enough to encapsulate these higher taxonomic categories; see Sarfati, ref. 49, p. 178.
55. For a thorough discussion of the created kinds, see Sarfati, ref. 49, pp. 177–182.
56. Sarfati, ref. 49, p. 127.
57. The adaptive capabilities of creatures closer in time to the original ancestors of their kind would have been particularly helpful in surviving the harsh environment of the post-Flood world. See Lightner, J.K., Towards a creationary view of why speciation occurs, *J. Creation* 30(1):70–75, 2016.
58. Hunter, M. J., The pre-Flood/Flood boundary at the base of the earth’s transition zone, *J. Creation* 14(1):60–74, 2000; Oard, M. J., Defining the Flood/post-Flood boundary in sedimentary rocks, *J. Creation* 21(1):98–110, 2007.
59. Sarfati, ref. 10, pp. 230–231.
60. Sarfati, ref. 10, p. 231. This comment was in response to Lange K.E., Wolf to woof: the evolution of dogs, *National Geographic* 201(1):2–11, 2002.
61. In Matthew 15:27, a Canaanite woman refers to dogs that “eat the crumbs that fall from their master’s table”.
62. In Job 30:1, Job refers to “the dogs of my flock”, indicating that he personally owned domestic dogs which were probably used for herding considering the more than 10,000 other animals Job possessed (1:3).
63. The land of Uz was possibly originally settled by Uz, the grandson of Shem (Gen. 10:22–23).
64. For those who place the life of Job at a later date, consider what follows to be an exploration of the narrowest possible date ranges for initial post-Flood dog domestication.
65. Most scholars who accept the historicity of Job believe Job lived for about 200 years. The Septuagint indicates that Job died at the age of 240, an age comparable to the age at death of Serug, Abraham’s great-grandfather, who died at the age of 230 (Gen. 11:22–23). This would fall in line with creationist models of the decrease in human life spans after the Flood.
66. The single Ice Age proposed by young-earth creationists would correspond to the alleged Pleistocene glaciation.
67. Snelling, A.A., *Earth’s Catastrophic Past: Geology, Creation and the Flood—vol. 1*, ICR, Dallas, TX, pp. 175–179, 2009; Carter, R.W., The Neandertal mitochondrial genome does not support evolution, *J. Creation* 23(1):40–43, 2009; p. 42.
68. Gácsi, M. *et al.*, Species-specific differences and similarities in the behaviour of hand-raised dog and wolf pups in social situations with humans, *Developmental Psychobiology* 47(2):111–122, 2005.
69. In fact, this has been demonstrated by Russian experimenters who bred foxes as tame as domestic dogs within a matter of decades; see Trut, L., Oskina, I., and Kharlamova, A., Animal evolution during domestication: the domesticated fox as a model, *Bioessays* 31(3):349–360, 2009; Lightner, J. K., Selection for a behaviour, and the phenotypic traits that follow, *J. Creation* 25(3):96–2011, 2011.
70. See Snelling, A.A., *Earth’s Catastrophic Past: Geology, Creation and the Flood—vol. 2*, ICR, Dallas, TX, pp. 769–793, 2009.
71. This is not to say, however, that sinful man may not have domesticated wolves for such purposes prior to the Flood.
72. Since there were ‘mighty men’ before the Flood (Gen. 6:4), this reference must mean that Nimrod was the first mighty man after the Flood.
73. The confusion at Babel may explain why Nimrod left his kingdom in Shinar to settle in Assyria (Gen. 10:10–11).
74. A discussion of the difficulties with this interpretation is outside the scope of this paper. However, see: creation.com/arguments-we-think-creationists-should-not-use#peleg.
75. Sarfati, ref. 49, pp. 651–652; emphasis in original.
76. Consider Methuselah (Gen. 5:25–27) who died the year of the Flood, whose name can mean “when he dies, it shall be sent”.
77. This, of course, assumes that all post-Flood people at the time were present at the Babel event. While some commentators think otherwise, the text surely implies this, especially by the fact that the rebellion at Babel was fuelled by the desire to disobey God’s command for post-Flood people to disperse and fill the whole earth (Gen. 11:4, cf. 9:1). If other post-Flood populations had already spread to other regions, and if Job, his family, friends and others had settled in the land of Uz prior to the Babel event, then why would it be wrong for one particular group to settle at Babel, upon whom God placed judgment by causing linguistic division and dispersing the people across the face of the earth (Gen. 11:7–9)? Furthermore, Genesis 11:9 says he confused the language of “all the earth”, which in the context of this passage means *all the people of the earth*. It was a universal judgment on “one people” with “one language” (Gen. 11:6). See Sarfati, ref. 49, pp. 651–652.
78. This is not to say that more precise date ranges for the Babel event could not be provided by way of archaeological or other historical data. Perhaps this will be the subject of a future paper. In the current context, however, the concern is what possible dates may be gleaned from the biblical record in particular.
79. Cf. Statham, D., Biogeography, *J. Creation* 24(1):82–87, 2010; p. 85.
80. Thomas, B., On the origin of dogs, *Acts and Facts* 41(1):16, 2012; cf. Trut, Oskina, and Kharlamova, ref. 69, p. 351.
81. See Schroeder, L.L., A Possible post-Flood migration route, *J. Creation* 19(1): 65–72, 2005.
82. While it is possible that some early post-Flood humans began to domesticate dogs simply for companionship purposes (i.e. as pets), the author is hesitant to assert this as probable given the generally low view of dogs in the ancient world. Even the Bible indicates a low view of dogs, associating them with evil (Phil. 3:2; Rev. 22:15) and low status (Ex. 22:31; Deut. 23:18; 1 Sam. 24:14; 2 Sam. 3:8, 9:8; 2 Kings 8:13; Prov. 26:11; Eccl. 9:4). There is even possible indication that physical violence towards dogs was considered acceptable (1 Sam. 17:43; Prov. 26:17). This may be at least in part due to wild scavenger dog-like canids eating dead human bodies (see 1 Kings 14:11, 16:4, 21:19, 23–24, 22:38; 2 Kings 9:10, 36). In light of these passages, it could well be that the low view of dogs was due to the natural mangy appearance and aggressive, carnivorous behaviour of the early post-Flood canines (as with wild wolves today). The idea of simple companionship possibly only occurred to the dogs’ masters after they had already been domesticated for practical purposes and developed a more amiable appearance and more docile behaviour. That being said, it may well be that some early post-Flood people identified ‘cuteness’ in wild canids (likely the pups) and sought to take them in as pets, though the dogs were later tragically neglected by their supposed caretakers and left to fend for themselves, leading to reversion to the wild appearance and behaviour of their ancestors, which in turn gave rise to the low view of the canids found in Scripture and elsewhere in the ancient world. Either possibly could explain the current data, but this author favours the first.

Cody J. Guitard has a B.Sc. in biology from Crandall University and an M.A. in apologetics (concentration in scientific apologetics) from Southern Evangelical Seminary. He is a full-time apologist with Ratio Christi and is the Chapter Director for RC at Crandall University as well as the Regional Director for RC Canada. His research interests include apologetics, theology, philosophy, and science.