# Noah's Ark

**Gen. 6:14 Make yourself an ark of gopherwood; make rooms in the ark, and cover it inside and outside with pitch**

**Questions to Consider**

**How did the animals fit on Noah's Ark?**
**What animals did Noah take onto the Ark?**
**How did he get them there?**
**Where did they store all the food?**
**How could the Ark be big enough?**
**What about all the animal wastes?**

Many skeptics assert that the Bible must be wrong, because they claim that the Ark could not possibly have carried all the different types of animals.

This has persuaded some Christians to deny the Genesis Flood, or believe that it was only a local flood involving comparatively few animals.

Usually such doubters have not thought it through.

A more comprehensive and updated technical study of this and many other related questions is John Woodmorappe's book Noah's Ark: a Feasibility Study.

There are two questions to ask:

How many types of animals did Noah need to take?
Was the Ark's volume large enough to carry all the necessary types?

How many types of animals did Noah need to take?

Relevant passages are:

'And you shall bring into the ark two of every kind of every living thing of all flesh, to keep them alive with you. They shall be male and female. Two of every kind shall come to you to keep them alive; of birds after their kind, and of beasts after their kind, of every creeping thing of the earth after its kind.' (Gen. 6:19–20)

'You shall take with you every clean animal by sevens, the male and female. And take two of the animals that are not clean, the male and female. Also take of the birds of the air by sevens, the male and the female, to keep seed alive upon the face of all the earth.' (Gen. 7:2–3)

In the original Hebrew, the word variously translated as 'beast' or 'cattle' in these passages is the same: behemah, and it refers to land vertebrate animals in general.

The word for ‘creeping things’ is remes, which has a number of different meanings in Scripture, but here it probably refers to reptiles.

Did not need to take:

Noah did not need to take sea creatures because they would not necessarily be threatened with extinction by a flood.

However, turbulent water carrying sediment would cause massive carnage, as seen in the fossil record, and many oceanic species probably did become extinct because of the Flood.

However, if God in His wisdom decided not to preserve some ocean creatures, this was none of Noah’s business.

Noah did not need to take plants either—many could have survived as seeds, and others could have survived on floating mats of tangled vegetation, as seen today after severe storms.

Many insects and other invertebrates were small enough to have survived on these mats as well. According to Genesis 7:22, the Flood wiped out all land animals that breathed through nostrils except those on the Ark. Insects do not breathe through nostrils but through tiny pores (‘tracheae’) in their exterior skeleton (‘shell’).

How many total?

Clean animals: Bible commentators are evenly divided about whether the Hebrew means ‘seven’ or ‘seven pairs’ of each type of clean animal.

Woodmorappe takes the latter meaning just to concede as much to the skeptics as possible.

But the vast majority of animals are not clean, and were represented by only two specimens each. The term ‘clean animal’ is not defined in Scripture until the Mosaic Law. But since Moses was also the writer/compiler of Genesis, if we follow the principle that ‘Scripture interprets Scripture,’ the Mosaic Law definitions can be applied to Noah’s situation. Actually, Leviticus 11 and Deuteronomy 14 list very few ‘clean’ land animals.

How Did Noah round-up?

God brought to Noah all kinds of air-breathing land animals to be saved from the flood.

Gen. 6:20 Of the birds after their kind, of animals after their kind, and of every creeping thing of the earth after its kind, two of every kind will come to you to keep them alive.

What is a ‘kind’?
God created a number of different types of animals with much capacity for variation within limits.

The descendants of each of these different kinds would today mostly be represented by a larger grouping than what is called a species.

**Kingdom, Division, Class, Order, Family, Genus, Species.**

In many cases, those species descended from a particular original kind would be grouped today within what modern taxonomists (biologists who classify living things) call a genus ge·nus (plural genera).

One common definition of a species is a group of organisms which can interbreed, producing fertile offspring, and do not mate with other species.

There are known crosses between so-called species, so the 'kind' may in some cases be as high as the family. Identifying the 'kind' with the genus is also consistent with Scripture, which spoke of kinds in a way that the Israelites could easily recognize.

For example, horses, zebras and donkeys are probably descended from a common ancestor (horse-like) kind, since they can interbreed, although the offspring now are largely sterile.

Dogs, wolves, coyotes and jackals are probably from a common canine (dog-like) kind.

All different types of domestic cattle (which are clean animals) are descended from a common ancestor, so there were probably at most seven (or possibly 14) domestic cattle aboard.

The ancestor itself may have been descended from a cattle kind that also gave rise to bison and water buffaloes.

We know that tigers and lions can produce hybrids called tigons and ligers, so it is likely that they are descended from the same original kind.

Woodmorappe tallied up about 8,000 genera (kinds), including extinct genera. Thus about 16,000 individual animals had to be aboard.

Dinosaurs (More later)

Of the large type dinosaurs—the huge plant-eaters like Brachiosaurus. There are 87 (kinds) commonly cited, but only 12 are 'firmly established' and another 12 are considered 'fairly well established.'

The eggs of even the largest dinosaurs were no bigger than a football, so all young dinosaurs were quite small.

Dinosaurs?

One commonly raised problem is 'How could Noah fit all those huge dinosaurs on the Ark?'

First, not all of the dinosaurs were huge when fully grown.

Second, the Bible does not say that the animals had to be fully-grown. The largest animals were probably represented by 'teenage' or even younger specimens.

Was the Ark large enough to carry all the necessary types?

It may seem surprising, but the median size of all animals on the Ark would most likely have been that of a small rat, according to Woodmorappe's up-to-date tabulations, while only about 11 percent would have been much larger than a sheep.

The ark measured 300x50x30 cubits (Gen. 6:15) which is about 450x75x45 feet, so its volume was 1.52 million cubic feet. To put this in perspective, this is the equivalent volume of 522 -569 standard railroad stock cars, each of which can hold 240 sheep.

So Could they fit?

Doctors Morris and Whitcomb in their classic book, "The Genesis Flood," state that no more than 35,000 individual animals needed to go on the ark.

In his book, Woodmorappe suggests that far fewer animals would have been transported upon the ark.

Woodmorappe demonstrates that as few as 2,000 animals may have been required on the ark.

To pad this number for error, he continues his study by showing that the ark could easily accommodate 16,000 animals.

If the animals were kept in cages with an average size, the 16,000 animals would only occupy 14.4 of the 569 standard railroad cars.

Even if a million insect species had to be on board as well, it would not be a problem, because they require little space. All the insect species would occupy a total volume of only another 12 cars.

This would leave 495 cars for food, Noah's family and 'range' for the animals, and air space. However, insects are not included in the meaning of cattle or creeping things, so Noah probably did not have to take them on board as passengers anyway.

Tabulating the total volume is fair enough, since this shows that there would be plenty of room on the Ark for the animals with ample left over for food, space to move, etc.

It would be possible to stack cages, with food on top or nearby (to minimize the amount of food carrying the humans had to do), to fill up more of the Ark space, while still allowing plenty of gaps for air circulation.

We are discussing an emergency situation, not necessarily luxury accommodation.

Even if we don't allow stacking one cage on top of another to save floor space, there still would be no problem. Woodmorappe shows from standard recommended floor space requirements for animals that all the animals together would have needed less than half the available floor space of the Ark's three decks.

This arrangement allows for the maximum amount of food and water storage on top of the cages close to the animals.

Food requirements

The Ark would probably have carried compressed and dried foodstuffs, and a lot of concentrated food.

Perhaps Noah fed the cattle mainly on grain, plus some hay for fiber. Woodmorappe calculated that the volume of foodstuffs would have been only about 15% of the Ark's total volume. Drinking water would have taken up less than 10% of the volume.

This volume would be reduced further if rainwater were collected and piped into troughs.

A number of scientists have suggested that the animals may have gone into a type of dormancy.

In nearly all groups of animals there is at least an indication of a latent ability to hibernate.

Perhaps these abilities were supernaturally intensified during this period.

With their bodily functions reduced to a minimum, the burden of their care would have been greatly lightened.
Hibernating

Some skeptics argue that food taken on board rules out hibernation, but this is not so.

Hibernating animals do not sleep all winter, despite popular portrayals, so they would still need food occasionally.

Clean Up

How did Noah's family dispose of the waste of thousands of animals every day?

The amount of labor could be minimized in many ways. Possibly they had sloped floors and/or slatted cages, where the manure could fall away from the animals and be flushed away (plenty of water around!)

Vermi-composting (composting by worms) which would also have provided earthworms as a food source for animals.

Very deep bedding can sometimes last for a year without needing a change.

Absorbent material (e.g. sawdust, softwood shavings and especially peat moss) would have reduced the moisture content and hence the odor.

Simple sloped floors under cages with slatted floors would make them self-cleaning

Conclusion

We have shown here that the Bible can be trusted on testable matters like Noah's Ark.

Many Christians believe that the Bible can only be trusted on matters of faith and morals, not scientific matters. But we should consider what Jesus Christ Himself told Nicodemus

(John 3:12): 'If I have told you earthly things and you do not believe, how shall you believe if I tell you heavenly things?'

Scientific facts right or wrong?

If the Bible can be wrong on testable matters such as geography, history and science, why should it be trusted on matters like the nature of God and life after death, which are not open to empirical testing?

Christians should 'be ready always to give an answer to everyone who asks you a reason of the hope in you' (1 Peter 3:15), when skeptics claim that the Bible conflicts with known 'scientific facts.'