

A highly improbable flood

BY ANNA GROVES – JUNE 15, 2015

Perceived conflicts between religion and science drive people away from religion and prevent others from trusting science. No matter which side you're rooting for, being able to untangle these conflicts will allow people from both sides to have real conversations about faith and about science.

Growing up, my church nursery had the usual cartoon-ish image of Noah's Ark painted on the wall, brimming with the types of animals a toddler would want to see at the zoo or have in stuffed animal form in their toybox. Giraffes, bears, elephants, tigers, monkeys... Noah had them all in his big wooden ship. Today, I'd call this group the world's "charismatic megafauna"-- a term used to refer to the cute and cuddly species like polar bears that get all the conservation attention (as opposed to, say, an endangered slug you've never heard of and never care to see).

But the nursery mural didn't fool me, because I was really into global biodiversity when I was a kid. I remember spending what felt like years on an awesome coloring-book-style banner of endangered species. I would read about Portuguese Man-of-Wars and Giant Squids in books about "The Deadliest Animals on Earth." I loved coral reefs and tropical rainforests. I knew there were a *lot* of species on the planet. And I knew that having two of *every* creature-- not just giraffes and elephants-- was a big deal. So from a very young age-- as long as I can remember, actually-- I had a lot of questions about the story of Noah's ark. I wanted to know how Noah handled the venomous snakes, how there was room for all those species, and how they all traveled to where Noah lived to get on the ark in the first place. What about plants?

As I grew up, the story became less and less believable. As a consequence (of this and some other red flags), I wasn't really sure about this whole "Bible" thing, and my faith suffered immensely. I know a lot of Christians who would say they "don't really think about it" or "aren't really bothered" by the fact that the story doesn't make sense. That's fine for some people, but for me it was a significant stumbling block.

Today, as a Christian, I think it's dangerous to teach children stories like this and assume that when they grow up they'll learn to give up the boogie man, Cinderella, and Santa Claus but still believe in something far-fetched like Noah's ark.

But before I get into the good news about why Noah's ark *isn't* so far-fetched, let me outline why the story was always unbelievable to me (especially if you're in the "I never really thought about it" camp of Bible readers). I'm fine with the occasional "God could've done it because He's God" trump card, but this story always required a few too many leaps of faith for me.

First and most obvious is the space issue. Current estimates are that there are 6.5 million terrestrial species on earth. There's no question about how big the ark was, because in Genesis 6, God gives Noah very precise instructions on how to build it:

Genesis 6:14-16 *So make yourself an ark of cypress wood; make rooms in it and coat it with pitch inside and out. This is how you are to build it: The ark is to be three hundred cubits long, fifty cubits wide and thirty cubits high. Make a roof for it, leaving below the roof an opening one cubit high all around. Put a door in the side of the ark and make lower, middle and upper decks.*

$300 \times 50 \times 30 = 450,000$ cubic cubits (is that redundant?) is 1,518,750 cubic feet or 43,006 cubic meters. That seems pretty big. But not 6.5 million species big.

In general, I'm okay with assuming the ark could have had some sort of magical God-given property that allowed more stuff to fit in the inside than the volume would seem to hold. If Mary Poppins and Hermoine Granger both had handbags that could do it, I'm sure God can handle making an ark the same way.

If you already believe in God, things like Mary-Poppins-magic don't sound so ridiculous. Unfortunately, to a non-believer, this is one of many things in the Bible that point toward it all being made up. We'll all have to agree to disagree on this part, for now.

The story doesn't just have space issues: 6.5 million species means 13 million individuals. If each of these 13 million individuals took just 1 second to cross the threshold to get onto the ark, it would have taken just over 150 days just to load them all up.

Also, the story definitely left out the part where Noah is terrified of half the things that come to hitch a ride on the ark. Think about it-- if you had never ventured far from your backyard (or read a book, or watched a movie) and at the ripe old age of 500 went to a zoo, wouldn't you be really horrified by all the crazy creatures? Imagine if you had to handle them! *Oh hey, silverback gorilla, if you'll just follow me right this way to your quarters...*

But the *biggest* problem I have with a flood wiping out all people and land animals on the planet in 2348 BC (Google tells me that's the current estimate for when the flood happened) is that it would have left a really huge and really obvious mark on the planet. This is where my "God trump cards" run out.

Geologists and anthropologists can see evidence where big local floods have happened across the world, even thousands of years in the past. But there's just no geological evidence that one big flood swept over the whole globe in 2348 BC, or ever. I don't think God would have covered his tracks (e.g. making sure there were no sediment deposits, and that all the riverbeds stayed exactly in place) but maybe that's just my interpretation of how God works. I don't think He's "tricky" like that.

Also, if *every thing* on Earth was destroyed, and re-populated from a single geographic point, it would be apparent in the fossil record. There would be a gap in places like North America while the two bison slowly walked back to their home. Maybe some random fossils of animals would appear outside of where they usually belong (a South American monkey here and there in Africa, perhaps, before it swam home across the Atlantic?) There would have to be *some* evidence, but there isn't any.

It wasn't until later in life that I learned about population biology and genetic bottlenecks. When a population gets too small (and two individuals would be the smallest possible "population"), the genetic variation of the group (or in this case, the entire species) is dramatically decreased. For example, if either one of those two animals of Noah's pair had a disease or other defect, the species would essentially be screwed. Even healthy individuals would create a highly inbred population, that is, when the two individuals had offspring, those offspring would have to mate with their siblings or their parents, which could cause all sorts of serious problems (Joffrey Lannister, anyone?). Additionally, a small population is particularly vulnerable to random fluctuations. What if one of the two happens to be infertile? What if they get eaten? (What are the lions eating when there are only two gazelles left, and we need them to repopulate all gazelles forever?) It's hard to recover from just two. In fact, I'd say it's impossible to recover from just two.

Christians can keep pointing to divine intervention every step of the way, but in the end, my brain has always steered me back to the same conclusion-- a global flood never happened.

Again, a lot of Christians don't necessarily argue that a global flood is reasonable, but they just don't really care that it doesn't make sense. I always cared, because I always felt sure that it did *not* happen. Which was confusing-- what parts of the Bible *should* I take seriously, then? I was okay with the "this particular story didn't happen" mindset for a long time, until I started to take my faith more seriously and wanted to figure out these Old Testament stories that didn't make sense.

Luckily, there's a good explanation for this one.

Unlike Genesis 1, the problem with this story isn't in our interpretation. It's in our translation.

hā·'ā·reṣ

The Hebrew word hā·'ā·reṣ (or ארץ) means "land" or "earth" (see here).

The first time it appears is in Genesis 1. God created the heavens and the hā·'ā·reṣ. He tells people to fill the hā·'ā·reṣ and subdue it. We learn about the beasts of the hā·'ā·reṣ, and the things that creep on the hā·'ā·reṣ.

Hā·'ā·reṣ clearly means "earth."

In Genesis 6, the story of Noah's ark, hā·'ā·reṣ is corrupt. God decides to destroy every living thing on hā·'ā·reṣ with a flood. This flood will cover the whole hā·'ā·reṣ. The Bible says hā·'ā·reṣ 33 times in Genesis 6-8, the story about a flood that covered the globe.

But then, in Genesis 10, we learn about Noah's descendants. One of them leaves hā·'ā·reṣ and goes to Assyria:

Genesis 10:10-12 *The first centers of his kingdom were Babylon, Uruk, Akkad and Kalneh, in Shinar. From that land he went to Assyria, where he built Nineveh, Rehoboth Ir, Calah and Resen, which is between Nineveh and Calah—which is the great city.*

So... if hā·'ā·reṣ is the whole earth, Assyria is another planet, right? Nimrod was building rockets?

Or, hā·'ā·reṣ has another meaning besides whole-globe-earth.

The meaning of "hā·'ā·reṣ" continues to vary throughout the Bible. In Genesis 42, Joseph (when in Egypt) is governor of hā·'ā·reṣ. In Exodus 8, God sends down plagues to ravage hā·'ā·reṣ. Finally, in Exodus 12 and beyond, God promises to deliver the Israelites from slavery and into the "promised land"-- the promised hā·'ā·reṣ. Meanwhile, there are other places where hā·'ā·reṣ could mean the whole world.

This means at some point in history, a Bible translator had a choice. In Genesis 6, did God flood the planet, or just that particular place? He chose planet. Seems to me like he chose wrong-- or at least *could have* chosen wrong, given the context.

A local flood is much more believable. And much more likely to fit with geological evidence-- in fact, there *is* evidence that some catastrophic floods occurred in Noah's approximate region at approximately the right time, though no particular flood has been pegged as "the" flood.

If the great flood was local, not global, then maybe all the species in the hā·'ā·reṣ *could* have fit in the ark, no Mary-Poppins magic needed. American bison and gorillas and representatives from the Amazon rainforest were *not* there. No species were dragged down to near-extinction. And all humans didn't re-populate from the

ark landing point, just the Israelites (Noah's people).

This makes even more sense in the context of Genesis as a whole, which is focused entirely on the Israelites. It makes sense in context of the story that the flood would have wiped out *all the ancestors of Adam and Eve*, except Noah and his family. This particular lineage seems to be all Genesis cares about, so why wouldn't the flood be restricted to just their homeland?

Finally, if you're a person living in the mid-east in 2348 BC, the world is flat, and it's not very big. You've never seen Europe. You definitely don't know about the Western Hemisphere (remember Christopher Columbus thought he was sailing to *India!*). If we asked Noah to draw a world map, how close would he get to representing the size of the Earth? Not very. But maybe his map would reach all the areas that flooded. His *whole earth*. His *hā·'ā·reṣ*.

Any Christian could argue with me that I'm wrong to choose the local translation of "hā·'ā·reṣ" over the global one. It has become very clear to me lately that people are not good at over-hauling their pre-conceived notions, even when they get more information. My pre-conceived notion is that a global flood that left no trace is highly improbable, for the reasons outlined above. But I think we all at least have to agree that "hā·'ā·reṣ" could be *either* global or local. I believe it refers to a small, local flooded area in the Noah's ark story because that makes the most sense to me, based on what I know about biology, paleontology, archaeology, geology, and whatever else. We have no *Biblical* reason to believe it means "whole planet" rather than "land where Noah & the Israelites lived," and we shouldn't claim things to be the Word of God unless we're actually sure.

Tradition is not a good enough reason to believe something is true.

I don't care what we learned in Sunday school, when we know that *hā·'ā·reṣ* appears 934 times in the Bible and it doesn't always mean "globe." We should at least be able to admit the translation can vary.

For me, this is really helpful for my faith. I believe, based on this translation, that the story of Noah's ark and the great flood *actually happened*-- which I didn't before. It's good for my faith, and doesn't challenge my common sense. Even if it doesn't bring you any peace, maybe you'll still be able to share this with someone else who needs to understand it in this way.

Inspiration for this post comes from Biologos.

P.S. Please excuse any grammatically-incorrect use of Hebrew words in English sentences!!



About the Author

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