

What is the most genetically diverse species? – A Spiritual Insight

By MATSATI - May 1, 2021



Researchers have been studying the genetic variation in different species and have recently published a paper on the species that contains the most molecular diversity, that is 150 fold greater than humans. [1] Scientists are approaching this topic from an evolutionary genetics perspective and the assumption that the diversity of life on earth originated from genetic variability within populations that transformed into differences between populations, species, and broad taxonomic groups. It turns out that the species that is the most genetically diverse is a mushroom which lives on decaying wood. It is pretty generally understood that the amount of genetic variability a species has the better it is able to adapt in their environment.

References

1. Dey, Alivia and Chan, Cecilia K. W. and Thomas, Cristel G. and Cutter, Asher D., "Molecular hyperdiversity defines populations of the nematode *Caenorhabditis brenneri*," Vol 110, No 27, 2013, p11056-11060, DOI: 10.1073/pnas.1303057110, <https://www.pnas.org/content/110/27/11056>

The genetic diversity is the measure of how often two pieces of DNA from the same genome location differ from one another within a population. DNA is composed of bases (A, T, C, G) that are grouped together and are known as nucleotides. Genetic diversity therefore can be considered nucleotide diversity. The percentage of positions within the genome where two individuals of a given species are expected to have differences in the DNA base arrangements. The split gill mushroom (*Schizophyllum commune*) genome has been sequenced and compared and researchers found the nucleotide diversity was around 20% demonstrating this species of mushroom has the greatest genetic diversity reported for any eukaryote. A eukaryote is an organism consisting of a cell or cells in which the genetic

material is DNA in the form of chromosomes contained within a distinct nucleus. Eukaryotes include all living organisms other than the eubacteria and archaeobacteria. It is interesting that the roundworm Caenorhabditis Brenneri has nucleotide diversity of 14.1%. Most plants and animals have genetic diversity below 5%, and humans have a genetic diversity of 0.1%. Bacteria and viruses tend to have very high genetic diversity, however, it's difficult to make an apples-to-apples comparison of genetic diversity between bacteria and viruses on one hand, and eukaryotes on the other, because species are defined differently in those categories. Key factors that influence a species' genetic diversity are its mutation rate, population size and population stability. Scientists know that the size of a population has a significant influence on genetic variability. If a population goes through a bottleneck, or an event that wipes out much of a population, spends some time as a smaller group and then rebounds, the genetic diversity of the resulting population will be lower. Examples of this are the modern European bison (*Bison bonasus*), which nearly went extinct during World War 1.

The Spiritual Insights that we receive from this type of research is related to what we read according to [Daniel 12:4](#) (וְאַתָּה דָּנִיֵּאל סֵתֶם הַדְּבָרִים וְחֹתָם הַסֵּפֶר עַד־עֵת קֵץ יִשְׁטְטוּ רַבִּים וְתִרְבֶּה הַדְּעוּת:), *But as for you, Daniel, keep these words secret and seal up the book until the end of time; many will roam about, and knowledge will increase. NASB*) Here Daniel reveals to us how God is concealing the meaning of this book until the "end of time." This idea to "shut up" or "seal up" means to hide or keep secret or conceal. This is a common methodology that God uses throughout the Scriptures, as God has hidden meanings for us which are left for our discovery. This revelation of the meaning of the Scriptures is revealed by the Spirit of God at the proper time. Take for example, many things were revealed to us during the life of Yeshua and the Disciples in the NT. This verse also speaks to today, this present age, that knowledge will increase in the last days. Most of these new discoveries in genetics is the result of increased knowledge concerning the fundamental building blocks in life, the structure and arrangements of genes. This increase in knowledge in genetic information is not just of mankind, but also of all the creatures on the earth. This increase in knowledge is accompanied by new developments in genetic mapping, new technologies for genetic testing, new tools for genetic manipulation like CRISPR being used today in molecular biology in which genomes of living organisms may be modified, and even visualization techniques, all of which these things were unimaginable back in Daniel's time. With the increase in knowledge in genetics comes great power and great responsibility. As having faith and believing in the God of Heaven and Yeshua the Messiah we are accountable to God in the use of the ability to manipulate genetic information. We have been entrusted with life on Earth, and so we are to be stewards of this planet as being accountable to the Creator of the Universe who holds us responsible for the care of not just each other, but to all of life that is on this planet.

If we take an honest look around us today, we are seeing in the last 20-30 years a significant increase in knowledge in all areas, computers, the internet, and the level of technology has grown astronomically, especially in the area of genetics. We note how Solomon wrote about the importance of our studying the Scriptures and drawing near to Him according to [Mishley / Proverbs 1:23](#), כֹּה תִשׁוּבוּ לְתוֹכְחָתִי הִנֵּה אֲבִיעָה לָכֶם רוּחִי אֲדִיעָה דְבָרִי, אֶתְנֶם: *"If you turn at my reproof, behold, I will pour out my spirit to you; I will make my words known to you."* (ESV) Here we find a promise of God to pour out His Spirit which leads to the revelation of God's Word to us. Now there are a few questions that may arise

that are related to these things, and this concept of increase in knowledge in the last days. These questions are (i) how do we obtain correct interpretation (knowledge) of the Scriptures, (ii) how does knowledge differ from understanding, and (iii) is wisdom the same as knowledge? There is some overlap in these concepts of knowledge (דַעַת), wisdom (חָכְמָה), understanding (תְבוּנָה), because they are interrelated. Sometimes these concepts get jumbled together when we read the Scriptures. Let's explore these words a little further as the Scriptures define them according to the book of Proverbs.

ספר משלי / MISHLEY / PROVERBS 2:1-4,

2:1 MY SON, IF YOU WILL RECEIVE MY WORDS AND TREASURE MY COMMANDMENTS WITHIN YOU (אֲבִנִי אִם-תִּקַּח אִמְרֵי וּמִצְוֹתַי תִּצָּפֶן אֶתָּה)

2:2 MAKE YOUR EAR ATTENTIVE TO WISDOM, INCLINE YOUR HEART TO UNDERSTANDING; (בִּלְהַקְשִׁיב לַחֲכָמָה אֲזַנְךָ תִּטָּה לְבָבְךָ לְתְבוּנָה)

2:3 FOR IF YOU CRY FOR DISCERNMENT (UNDERSTANDING), LIFT YOUR VOICE FOR UNDERSTANDING; (גִּי כִי אִם לְבִינָה תִקְרָא לְתְבוּנָה תִתֵּן) (קוֹלְךָ)

2:4 IF YOU SEEK HER AS SILVER AND SEARCH FOR HER AS FOR HIDDEN TREASURES; (וְדָ אִם-תִּבְקֹשְׁנָה כְכֶסֶף וְכַמְטָמוֹנִים תִּחְפָּשְׁנָה)

2:5 THEN YOU WILL DISCERN (UNDERSTAND) THE FEAR OF THE LORD AND DISCOVER THE KNOWLEDGE OF GOD. (הָאֵל תִּבִּין יִרְאֵת) (יְהוָה יִדְעֵת אֱלֹהִים תִּמְצָא)

2:6 FOR THE LORD GIVES WISDOM; FROM HIS MOUTH COME KNOWLEDGE AND UNDERSTANDING. (וְכִי-יְהוָה יִתֵּן חֲכָמָה מִפִּי דַעַת) (וְתְבוּנָה)

What is interesting about these verses from the Tanach are that if these words have similar meanings they would not have been considered as having separate or individual qualities as they are being used here in the text. These words are in fact being used separately but also jointly as defining the importance of God's mitzvot (וּמִצְוֹת, commands), the fear (יִרְאֵת) of the Lord, and for walking in His ways. When we consider the word knowledge (דַעַת) it is impossible to obtain wisdom and understanding without it. The dictionary defines Knowledge as "*facts, information, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject.*" Facts represent a statement of truth, as in the description of books as either "*fact or fiction.*" A fact is a true event, a person, place, or thing, or a law as in the mitzvot of God. Knowledge can be a dangerous thing as it is possible to gain knowledge of things that are untrue. Believing in things that are untrue can lead one down the path of sin and unrighteousness. Knowledge as facts can function also as logical operators, like 1+1=2 mathematical constructs. Another

example could be having knowledge on how to write a computer algorithm, depending upon the programming language, one can write the same computer program in various ways using the same programming language or even different programming languages. In addition to this, one can write the program to be secure from hacking, or if one has less knowledge on the techniques of hacking, may use their knowledge to accidentally write a program that is very hackable. Correct Bible interpretation follows along similar lines as the interpretive method, the presuppositions and assumptions that we couple with our interpretation can have a significant influence on the outcome of what we believe to be true. Examples of this may be found in the doctrine of dispensationalism, as some churches use this doctrine to teach that God does not have the power to heal, and deliver like He did in the Tanakh and the NT text. I have talked to pastors who have said this explicitly using dispensationalism as a proof. Our presuppositions and assumptions that we take with us into bible interpretation do have a significant influence upon our faith and relationship with God! As we read the bible, we begin to accumulate knowledge as we build our knowledge with biblical facts, i.e. people, places, things, concepts, laws, etc. This is what we see happening in the scientific community as these scientists are approaching this topic from an evolutionary genetics perspective and the assumption that the diversity of life on earth originated from genetic variability within populations that transformed into differences between populations, species, and broad taxonomic groups. The whole scientific effort is from the perspective of trying to prove evolution as opposed to "God created" according to the Scriptures! When one starts out with the wrong assumptions, it will actually take one further away from God as opposed to drawing nearer to Him. By acquiring knowledge of the facts in the Bible, we are experiencing what is called an accumulation of learning as our knowledge base increases. We note how knowledge is the accumulation of both explicit and implicit facts. We also know that without knowledge of these things we are in danger of destruction as we read according to Hosea 4:6

HOSEA 4:6

4:6 MY PEOPLE ARE DESTROYED FOR LACK OF KNOWLEDGE. BECAUSE YOU HAVE REJECTED KNOWLEDGE, I ALSO WILL REJECT YOU FROM BEING MY PRIEST. SINCE YOU HAVE FORGOTTEN THE LAW OF YOUR GOD, I ALSO WILL FORGET YOUR CHILDREN. (NASB, הַדָּעַת כִּי־אֱלֹהֶה הַדָּעַת מֵאֶסֶת וְאֶמְאָסָאךְ, נִדְמוּ עַמִּי מִבְּלִי הַדָּעַת כִּי־אֱלֹהֶה הַדָּעַת מֵאֶסֶת וְאֶמְאָסָאךְ, מִכְּהֵן לִי וְתִשְׁכַּח תּוֹרַת אֱלֹהֶיךָ אֲשֶׁכַח בְּנֶיךָ גַּם־אֲנִי)

Notice how the destruction of God's people is connected to forgetting the Torat (תּוֹרַת, instruction) of God. Not also how the word Torat is derived from Torah which is derived from Yirah meaning instruction. When we see the word Torat this speaks to us as something being a Torah based instruction from God. We see this usage in the Torah and we also see this usage while reading the NT this word is used all over the place in the gospels and the epistles. Here God is speaking through the Prophet Hosea warning them that rejecting knowledge of God's instruction, of His Torah, will cause them to perish, to be cut off, to cease from existence (נִדְמוּ). We note that Paul writes these things are written for future generations (1 Corinthians 10:6) for us so that we would not lust after evil things as the people previous to us lusted. Some people have said in the past what we don't know won't hurt us. This however is not true just as we are seeing in Hosea 4:6. As everyone knows in the chemical industry, one must be very aware of the hidden dangers that are present

during materials synthesis, such as chemical dangers, one must have knowledge of a particular chemical SDS (Safety data sheets), and basic laboratory safety skills, without which could lead to injury or even death. In the case of materials development, one must be very aware as not having knowledge will lead to serious problems. This is what the Scriptures are telling us that what we do not know will kill us or cause us to fail in life. Remember how the word הִדַּעַת here is a description of intimacy in knowing something. The implication here is that the Lord God Almighty wants us to know him intimately as he knows us and our ways intimately. This was the reason He sent His Son Yeshua into the world, to show us the way, giving us the example for us to follow so that we may walk in His ways of life and truth. When we study God's Word, we are involved in spiritual intimacy learning about God and His Son. When we do this, our lives change, our mind / heart attitudes also change, which as we know, the thoughts of our mind are the wellspring of either good or evil in our lives (Matthew 6:21, Luke 6:45).

Solomon wrote in Mishley / Proverbs 2:2 saying "*Make your ear attentive to wisdom, Incline your heart to understanding;*" (בִּבְהִקְשִׁיב לְחָכְמָה אֲזַנְךָ תִּטָּה לִכְרֹךְ לְתַבּוּנָה) which reveals to us that wisdom is what we should be aspiring for when we study God's word. Wisdom is the way in which we organize knowledge, and put it into practice. What all of these verses from Proverbs are speaking to us about is how we are to strive for getting God's wisdom and knowledge into our hearts, which is the ultimate goal of our studying God's Word. What is interesting is how Yeshua uses these things Wisdom, knowledge, and understanding in the parable of the sower.

MARK 4:1-23

4:1 HE BEGAN TO TEACH AGAIN BY THE SEA. AND SUCH A VERY LARGE CROWD GATHERED TO HIM THAT HE GOT INTO A BOAT IN THE SEA AND SAT DOWN; AND THE WHOLE CROWD WAS BY THE SEA ON THE LAND. 4:2 AND HE WAS TEACHING THEM MANY THINGS IN PARABLES, AND WAS SAYING TO THEM IN HIS TEACHING, 4:3 'LISTEN TO THIS BEHOLD, THE SOWER WENT OUT TO SOW; 4:4 AS HE WAS SOWING, SOME SEED FELL BESIDE THE ROAD, AND THE BIRDS CAME AND ATE IT UP. 4:5 'OTHER SEED FELL ON THE ROCKY GROUND WHERE IT DID NOT HAVE MUCH SOIL; AND IMMEDIATELY IT SPRANG UP BECAUSE IT HAD NO DEPTH OF SOIL. 4:6 'AND AFTER THE SUN HAD RISEN, IT WAS SCORCHED; AND BECAUSE IT HAD NO ROOT, IT WITHERED AWAY. 4:7 'OTHER SEED FELL AMONG THE THORNS, AND THE THORNS CAME UP AND CHOKED IT, AND IT YIELDED NO CROP. 4:8 'OTHER SEEDS FELL INTO THE GOOD SOIL, AND AS THEY GREW UP AND INCREASED, THEY YIELDED A CROP AND PRODUCED THIRTY, SIXTY, AND A HUNDREDFOLD.' 4:9 AND HE WAS SAYING, 'HE WHO HAS EARS TO HEAR, LET HIM HEAR.' 4:10 AS SOON AS HE WAS ALONE, HIS FOLLOWERS, ALONG WITH THE TWELVE, BEGAN ASKING HIM ABOUT THE PARABLES. 4:11 AND HE WAS SAYING

TO THEM, 'TO YOU HAS BEEN GIVEN THE MYSTERY OF THE KINGDOM OF GOD, BUT THOSE WHO ARE OUTSIDE GET EVERYTHING IN PARABLES, 4:12 SO THAT WHILE SEEING, THEY MAY SEE AND NOT PERCEIVE, AND WHILE HEARING, THEY MAY HEAR AND NOT UNDERSTAND, OTHERWISE THEY MIGHT RETURN AND BE FORGIVEN.' 4:13 AND HE SAID TO THEM, 'DO YOU NOT UNDERSTAND THIS PARABLE? HOW WILL YOU UNDERSTAND ALL THE PARABLES? 4:14 'THE SOWER SOWS THE WORD. 4:15 'THESE ARE THE ONES WHO ARE BESIDE THE ROAD WHERE THE WORD IS SOWN; AND WHEN THEY HEAR, IMMEDIATELY SATAN COMES AND TAKES AWAY THE WORD WHICH HAS BEEN SOWN IN THEM. 4:16 'IN A SIMILAR WAY THESE ARE THE ONES ON WHOM SEED WAS SOWN ON THE ROCKY PLACES, WHO, WHEN THEY HEAR THE WORD, IMMEDIATELY RECEIVE IT WITH JOY; 4:17 AND THEY HAVE NO FIRM ROOT IN THEMSELVES, BUT ARE ONLY TEMPORARY; THEN, WHEN AFFLICTION OR PERSECUTION ARISES BECAUSE OF THE WORD, IMMEDIATELY THEY FALL AWAY. 4:18 'AND OTHERS ARE THE ONES ON WHOM SEED WAS SOWN AMONG THE THORNS; THESE ARE THE ONES WHO HAVE HEARD THE WORD, 4:19 BUT THE WORRIES OF THE WORLD, AND THE DECEITFULNESS OF RICHES, AND THE DESIRES FOR OTHER THINGS ENTER IN AND CHOKE THE WORD, AND IT BECOMES UNFRUITFUL. 4:20 'AND THOSE ARE THE ONES ON WHOM SEED WAS SOWN ON THE GOOD SOIL; AND THEY HEAR THE WORD AND ACCEPT IT AND BEAR FRUIT, THIRTY, SIXTY, AND A HUNDREDFOLD.' 4:21 AND HE WAS SAYING TO THEM, 'A LAMP IS NOT BROUGHT TO BE PUT UNDER A BASKET, IS IT, OR UNDER A BED? IS IT NOT BROUGHT TO BE PUT ON THE LAMPSTAND? 4:22 'FOR NOTHING IS HIDDEN, EXCEPT TO BE REVEALED; NOR HAS ANYTHING BEEN SECRET, BUT THAT IT WOULD COME TO LIGHT. 4:23 'IF ANYONE HAS EARS TO HEAR, LET HIM HEAR.' (NASB)

We note there are several things that we observe in this parable. The first is that the same seed (the Word, knowledge) was distributed to all people, the Word of God, the same basic facts (knowledge) was given to everyone. Everyone was treated equally in the giving of God's Word. The issue was that the people who received God's Word were distracted by other things. The modern example today's perspective would be coupling one's life to critical theory, or liberal ideologies, of accepting LGBTQ as an acceptable way of life as a Christian, all of these things or each one individually lead to God's Word being stolen away by the evil one. The parable that Yeshua put together associated these truths (wisdom, knowledge, understanding) together and provide us a clear understanding of how the kingdom of God functions. This is why "understanding" is so critical because without

understanding all one is doing is going through the rites and rituals of religious practice based upon a bunch of random facts, or taking facts such as what we learn in Judaism from the Mishnah and Talmud Torah, and simply living them out in a way that is devoid of a relationship with Yeshua, the things of which should lead one to the Messiah and not away from Him! The parable speaks to these very things, of the evil one stealing away the truth, or of modern Ideologies that water down one's faith and relationship with God. Is it possible to see why having understanding is so critical for our lives today? The scriptures are much deeper than simply superficially reading a verse and assuming we got it and know all there is to know about that verse, or God's Word, etc.

Wisdom (חָכְמָה) is the principle of applying what we have learned from God's Word, the practical application of correct knowledge and understanding. By studying God's Word, believing in and applying God's Word, God will give us the wisdom to make the right choices in our lives. James writes according to *James 1:5 But if any of you lacks wisdom, let him ask of God, who gives to all generously and without reproach, and it will be given to him. (NASB)* this teaches us how wisdom is a gift from God and that true wisdom only comes from God. This means that making the right choices in life requires the help of God who is our source and guide. The scientific research which looks at the genetic variability in a species is analogous to a man or woman receiving this world's way of thought (i.e. woke culture) and integrating it into one's life become diverse in sin. If we choose to spend more time in God's word, it builds our character, guides our moral convictions, and directs us to a life of righteousness. What do you think will happen if one spends more time watching television? The Power of God in our lives hinges upon our willingness and desire to draw ~~✖~~ near to Him as opposed to drawing near to the world. Our understanding and knowledge of God's truth will always affect our decision making. This is why God said through Hosea my people are destroyed for a lack of knowledge. One of the most difficult things is how those who have taken hold of liberal or woke ideologies in pride believe they are justified (*right, correct, everyone else is wrong*) when one tries to mingle these demonic Ideologies with God's word. There is a self deception which occurs due to sin, and it is circular which reinforces the lie and never draws one to the truth. Only the Lord God Almighty and Yeshua can set us free from this path of sin and death. When we truly desire to wholeheartedly follow Yeshua, and draw near through the study of God's Word, only then can we be set free from the demonic ideologies of this world and bring our lives into order according to God's Word. Our faith and relationship with God hinges upon whether we believe the Scriptures to be true. The reason being again, knowledge and understanding of God in heaven, Yeshua, and His Word will influence our decision making in this life. This is why God said my people are destroyed for a lack of knowledge (Hosea 4:6). In this present age, we absolutely must get God's word into our hearts and our minds, and seek God in heaven in the name of Yeshua to help us overcome the world!

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