

The Relative Size of Footprints Found in a Substrate

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In sasquatch research, the main evidence we have at this time is alleged sasquatch footprints. Generally, a ruler or tape measure is set beside the print found and then photographed (Fig. 1).

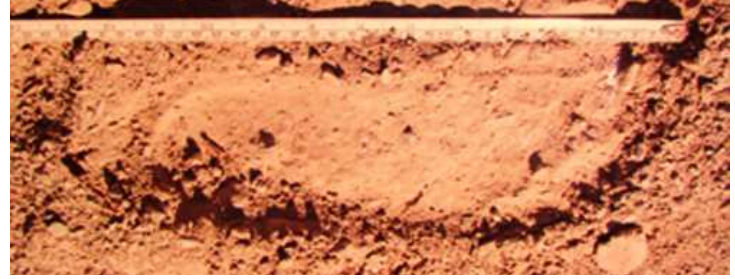


Fig. 1. Footprint with a tape measure.

The measurement taken represents the length of the print according to its depth in the substrate. If the substrate were harder, the print would be shorter; if it were softer, the print would be longer.

The reason for the difference is that the further the foot goes into the substrate, then the more displacement is registered. Keep in mind that the heel of a foot sticks out and the toes curve up.

The maximum difference between a footprint and an actual foot AS APPLICABLE TO HUMANS would be a wet print on a hard surface compared with the actual foot as shown in Fig. 2. The difference in length between the wet print and the foot is an average of about 8.6% for human males.* In other words, the actual foot is about 8.6% larger than the wet print.

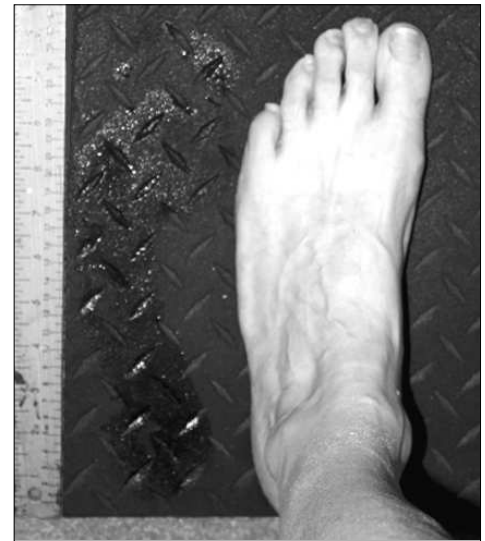


Fig. 2. Wet print and actual foot.

Shown in Fig. 3 are what we can call the “red zones.” They are the extra lengths a footprint takes on as it sinks deeper into the substrate. With a human being, about 6 feet tall, the depth would need to be about 1 inch to get the complete foot in the footprint.



Fig. 3. Human foot “red zones.”

Now, it stands to reason that the bigger the person, the larger the red zones. If a person were 7 feet tall and proportionate, then the depth would need to be 1.17 inches; 8 feet tall would be 1.33 inches and so forth.

*The average is based on human male footprints ranging in size from 8 inches to 13 inches long as determined by my own calculation using established statistics.

Fig. 4 is a clay model of a supposed sasquatch foot. The sole, completely buried in sand, is an actual 16-inch sasquatch cast, sanded down on the flat side to about three quarters of an inch thick. The heel has been “rounded out” to sort of match what one would see in a human foot if it were this large. However, it appears a sasquatch heel “sticks out” much further than a human heel. In this case, its heel “red zone” would be much larger than that of a human even if the human was the same size as the sasquatch.



Fig. 4. Clay model of a sasquatch foot.

We don't have anything concrete to ascertain the heel and toes “red zones” for a sasquatch, so I am going to guess they are UP TO 13% in total or about 1.5 times that of a human.

(NOTE: The average sasquatch footprint is about 1.5 times larger than the average human male footprint according to Dr. H. Fahrenbach's statistics. I accept that all of the prints in his study included the complete foot or would essentially “net out” to include such.)

Given a sasquatch print would have to be about 2 inches deep to register the entire foot (twice that of a human), then we can create a chart that shows one-quarter inch graduations. The increments are 1.625%

Wet print on rock	Add 13%
Print .25 inch deep	Add 11.38%
Print .50 inch deep	Add 9.75%
Print .75 inch deep	Add 8.12%
Print 1 inch deep	Add 6.5%
Print 1.25 inches deep	Add 4.88%
Print 1.50 inches deep	Add 3.25%
Print 1.75 inches deep	Add 1.625%
Print 2 inches deep	Add 0

Given the creature in the Patterson/Gimlin film left 14.5 inch footprints UP TO about 1 inch deep, then we have to ADD 6.5% to arrive at its actual foot size. This indicates a foot size of 15.44 inches. It is not hard to rationalize that prints in softer soil miles away from the film site, made by the same creature, could indicate a foot size of 15.5 inches. I will even go so far as to say 16 inches*. Keep in mind that one of the casts Patterson took measured about 15 inches, so if the print were 1 inch deep, the actual foot size would be 15.98 inches.

*Using the average of depths up to one inch, the prints come out at 15.80 inches long.

If one wishes to compare the size of a print found in one location with that of a print found in another location, simply determine the foot size of each print according to the chart.

EXAMPLE: Given a 15-inch print was about 1.25 inches deep, and a 16-inch print found at a different location was 1.75 inches deep, then the calculations are as follows:

15 times 1.0488 equals 15.73-inch foot size
16 times 1.01625 equals 16.26-inch foot size

Here we would be looking at a one-half inch difference, and I would not rule out the same creature for that small amount.

The area where this analysis significantly comes into play is when footprints are found that are considered in the “human range.” Generally, a length of 12 inches or shorter is considered in this range. Of course, the fact that the prints were made with a un-shod foot says something to begin with, however, it is difficult to win this point with skeptics. Saying that the prints were likely those of juvenile sasquatch has some merit, but again is questioned.

If a 12-inch print is found, and is about one-quarter inch deep, then the foot size is 13.37 inches, which definitely puts it “up there” in the sasquatch range. Often, footprints in the lower ranges are found on very hard surfaces, such as forest roads. They don't sink in very far—less than one-quarter inch. Adding say 12% to such prints is fully justified.

As to the higher range, prints measuring say 18 inches at one-quarter inch depth, adding 11.38% puts the actual foot up at 20 inches. This is certainly “uncomfortably” large, however, if the foot were measured in a proper measuring device for a “pair of shoes,” as seen in Fig. 5, that would likely be the result.

A bit of a complication arises when one wishes to determine the size of the actual foot when all he has is a cast of the footprint. Casts are always slightly larger than the foot that made the print—both in length and width. When casts are



Fig. 5. Foot measuring device.

duplicated by pressing them in sand (i.e., not a mold) they again increase in accordance with the cast generation. Fig. 6 shows the cast growth factors. What this implies, for example, is that if you have an original cast that is 16 inches long, then you must **SUBTRACT** .70 inches before you apply one of the addition percentages previously discussed.

CAST GROWTH COMPARISON TO ACTUAL FOOT — NO WEIGHT	
CAST GENERATION	LARGER BY (MAX.)
ORIGINAL CAST	.70 inches (1.8 cm)
FIRST GENERATION	.82 inches (2.1 cm)
SECOND GENERATION	.94 inches (2.4 cm)
THIRD GENERATION	1.1 inches (2.7 cm)

NOTE: The increase applies to both the length and the width of the cast, and all details within the cast are increased proportionately. Cast generation growth applies only to casts made by *pressing* the cast to be duplicated into sand.

Fig. 6. Cast Growth.

The application for a 16-inch cast if the print were one inch deep would be as follows:

Cast size:	16 inches
Less growth:	.70 inches
Adjusted Cast length:	15.3 inches
Addition for full foot:	6.5%
Actual foot size:	16.30 inches (i.e., 15.3 x 1.065)

What we have done here is to reduce the size of the cast to the size of the actual print in the substrate, and then added the additional percentage for the depth of the print.

Whatever the case, be it footprints in the soil, or casts made from a footprint, I would say that when a sasquatch foot hits the ground, it does so at about the red line shown in Fig. 7. What is above that line registers in accordance with the how far the foot sinks into the substrate. In this case, such would have been about 1 inch as the full extent of the heel is still visible in the other foot. How far does it extend out? I would say up to 10% of the foot length. So if the footprint measured 14.5 inches, then heel extended about 1.45 inches when on a flat, hard surface. This amount then increasingly **REGISTERS** in the print as the foot goes further into the substrate. When the depth reaches about 2 inches, the full heel registers. A cast taken of a print at this depth could be used to “make a pair of shoes.”



Fig. 7. Where the foot hits the ground.

EMAIL THAT ACCOMPANIED THIS PAPER
March 22, 2013

This paper which is posted at the following link <xxxxxxxxxxxx> addresses long-standing concerns as to the true size of the foot that made a footprint. It follows discussions I have had with Dr. Jeff Meldrum and Daniel Perez.

I first wish to thank Roger Knights for gifting me the book *Footprints: Collection, Analysis, and Interpretation* by Louise M. Robbins, PhD, 1985. (Charles C. Thomas Publisher, Springfield, Illinois. This is a truly marvelous work, but I doubt I have enough time left on this earth to truly “digest” everything it contains.

Although I have tried to explain everything as concisely and understandably as I can, I think a little preamble will be helpful.

There are actually TWO (2) aspect to the size of a foot. There is the size indicated by a footprint and the size of the actual foot. The footprint may or may not be the same size as the actual foot. It all depends on how deep the footprint went into a substrate. The deeper the foot sinks, the more it registers. A human foot would hit a maximum required depth at about one inch.

Feet are not like blocks of wood. They curve out and up on all sides, especially at the heel. Think of pushing a tennis ball into moist sand. To get an impression that shows the full circumference of the ball, it has to be impressed right up to its center. To get the full length of a human foot it has to be impress right up to the full extent of the back of the heel.

If you wish to see the difference in your own foot, simply make a wet footprint impression on your bath mat and then place your foot beside the wet print. You will immediately see that your actual foot is considerably larger than your wet footprint.

Now, with regard to the length of sasquatch footprints, they are all varying degrees of the length of the actual foot that made the print. The deeper the print, the more it approaches the length of the actual foot. A sasquatch foot would hit a maximum required depth at about two inches, or perhaps more. The larger the foot, the more depth required.

What this all boils down to is that a footprint found in one location may have come from the same foot (or length of foot) as a footprint found in another location that has a larger print measurement. One cannot simple take his/her measuring device as “gospel.” It does not work that way, and the “print to actual foot difference” is too great to simply say, “plus or minus one-quarter inch” or something along those lines.

When I first embarked on this project I sent preliminary findings to Dr. Jeff Meldrum and he concurred with the facts I have outlined here. I am not going to pin him down as to signing-off on all my numbers and speculations. That would not be fair. What you need to do is take what I present into account with regard to the works of others and what is stated in books, magazines, on-line, and in the media. Any official work in this regard should be coordinated with Dr. Meldrum.

Chris Murphy