

## Craig Calfee On The Beauty Of Bamboo

**T**o get more information about the rise in popularity of bamboo as a material to build bikes, we got in touch with Craig Calfee to learn more. We tracked him down while he was on a trip to Ghana, working with local builders and farmers.

*RBA: How and when did the idea/practice of building a bamboo bike begin?*

**Craig:** I built my first bamboo bike in 1997. It was to be a publicity generator at Interbike. I was interested in making a frame from a material that one would not normally think of as a bicycle frame material. Bamboo was chosen after playing with a piece of bamboo with my dog Luna. She was a Pit Bull/Lab mix that loved to get swung around while holding onto a stick with her teeth. Having been familiar with notch sensitivity in carbon fiber, I assumed that bamboo would break pretty quickly from her teeth gouges. But as I swung this 60-pound dog by a chainstay-sized piece, I was proven wrong. The first bike was built with cane harvested from my back yard and a couple of pieces from the local garden center. It was pretty flexy but rode super smooth. It reminded me of the first ride on my first carbon fiber bike ten years earlier. I decided to build another one with larger diameter bamboo; that one rode much better.

*RBA: What early hurdles did you face with frame production?*

**Craig:** I had to learn about bamboo from scratch. There's a huge body of knowledge and ancient culture around bamboo craft in Asia and South America. I had to figure out what bamboo was strongest, how to prevent splitting, how to finish it, where to get it, how to store it, etc. Having done a similar process with carbon fiber, I enjoyed the R&D.

*RBA: As bamboo is a natural product versus drawn tubes, how do you control wall thickness of the bamboo to provide durability and ride quality?*

**Craig:** My favorite task is selecting the bamboo for the customer. The bamboo cane is three years old, fully mature, and it comes from sustainable harvested groves that have been active for craft bamboo for a very long time. I pre-cut the bamboo for downtubes, toptubes, etc. Then I decide which tube will be best for the weight and riding style of the rider. We have a nice selection of carbon tubes to do the

same thing with those bikes, but the bamboo has an infinite gradation of stiffnesses to choose from. We also consider the color and patterns on the bamboo and try to match them up.

*RBA: What is the history of bamboo bikes?*

**Craig:** Some bamboo bikes were made in the early days of the safety bicycle, but they tried joining the bamboo with metal lugs. They suffered from lack of stiffness and lack of strength at the joints. You can see some of these early attempts in a few bicycle museums.

*RBA: As a slight digression, what exactly was the history with Greg LeMond in making his carbon bike, and were there practical lessons learned from building with carbon that applied to bamboo?*

**Craig:** We licensed the carbon frame technology to LeMond Bicycles for a few years in the early '90s. Greg appreciated the bikes for their low weight, smoothness and drivetrain stiffness. These same properties apply to bamboo, although the stiffness to weight ratio is not as high as carbon. So you just have to make the frame with larger diameter and thicker wall bamboo. The great thing about

bamboo is that there's an infinite variety of diameters and wall thicknesses to choose from. The cane is thick-walled at the base, stays the same diameter for four to eight feet and then tapers to a tip. The wall thins out gradually. We use a hand wrapping technique that was developed for use with our tandems. With this method, you can join any diameter or shape of any material tubing. It's rather labor intensive but the joints are super strong. Greg has just ordered bamboo bikes for himself and his wife. Always the early adopter!

*RBA: What are you doing in Africa?*

**Craig:** I'm in Ghana to introduce bamboo bike building here. We've got at least two groups started and a few more that want to learn. The cargo bikes are very interesting to farmers, who spend a good portion of their time carrying things around. Also, there is interest in using the bikes to transport children to school. Transport can make the difference between going to school or not. We're also looking at building a small fleet of mountain bikes here for tourists to rent or buy. Finding a local use for the plentiful bamboo has a direct impact on slowing down the cutting of the forest.