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# RENOVO RED STAG BADASH

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NOT ALL BAD. WE'RE ALWAYS SAD WHEN A TRAIL IS LOGGED IN THE WHAKA FOREST. AT LEAST IN THIS CASE, IT HAS GONE TO A GOOD CAUSE.



RIDING A WOODEN BIKE DRAWS PLENTY OF ATTENTION. MOST ONLOOKERS THINK IT MUST BE FAKED SOMEHOW, OR THAT IT WON'T BE PROPERLY RIDEABLE. THE BADASH IS REAL ALRIGHT AND IT IS A SWEET RIDE.

## 4 REAL?

Is it a real bike? Is it heavy? Will it break? Is it hollow? What happens if it gets wet? How does it ride? When you put a wooden bike on the showroom floor amongst a herd of carbon and aluminium bicycles, these are the questions you need to be prepared to answer. So having ridden the custom Red Stag Renovo Badash 29er, and not broken it, here are the answers:

As we head out onto the trails on our modern dream machines of carbon and

aluminium it probably doesn't occur to us that the very first bicycles were made of wood. Viewing the history of wooden bicycles requires an epic ride in the Tardis: the earliest sketches of a wooden bicycle are attributed, with some dispute, to a pupil of Leonardo da Vinci dated 1493. The first verifiable functional bicycle was invented by German Baron Karl von Drais in 1817. He was apparently inspired to invent an alternative to the horse after a crop failure in 1816 resulted in the death of the equine transport mode of the day. His invention looked more like an over-

sized runner bike and was nicknamed a 'dandy horse.' It was made almost entirely from wood and tipped the scales close to 22 kilograms.

Modern wooden bicycle frames have been popularized by Calfee, known for their bamboo bikes since 1995.

Leap forward to the present day and I find myself heading out into Rotorua's Whaka forest on a modern dream machine made of wood from this very forest - the Red Stag custom Renovo Badash 29er. Renovo is a bike manufacturer in Portland, Oregon USA. That matters because Portland

is a cycling mad city with even more cycling shops than Rotorua and is also home to some of the best hand-crafted bicycle manufacturers in the universe, so I figured the 'Badash' had to be at least a reasonable ride.

## RENOVO

Renovo was founded by Ken Wheeler, an engineer with a background in the design and manufacture of aeroplanes. Ken and his son Stuart developed and tested the first Renovo wooden bicycles in the

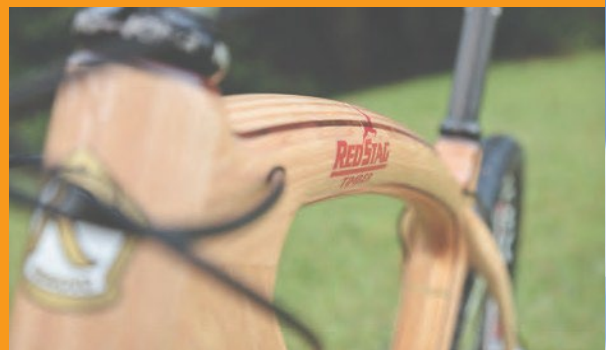
early 2000s. The small family company has since grown to a skilled group of engineers and designers producing six models of wooden frames, sold worldwide.

Interestingly, they did not specifically set out to make wooden bikes. The company has the skills, knowledge and tooling to manufacture frames in any material they wish. But, with Ken's background in aircraft engineering and an interest in wood, he simply believed wood possessed excellent properties for making superb bicycles.

So just what are those properties? Renovo wood frames are lighter than you would expect, ranging from 1.8 to 2.6kgs. In comparison my wife's medium 29er scandium frame weighs 1.6kgs and my large 29er 853 steel frame, 2.4kgs (the complete bike I rode tipped the scales at 11.7kg/25.5lb). Stiff? Oh yeah! According to Renovo, these frames can be engineered as stiff as carbon fibre, tailored to the rider. Stiff and smooth? Renovo say 'wood absorbs vibration better than steel, aluminium or carbon, producing a uniquely smooth ride.'



THE BB JUNCTION – SOLID AND STIFF ENOUGH FOR THE STRONGEST PEDAL-MASHERS



LOOKING DOWN AT THE WOODEN FRAME AS YOU BIKE ALONG IS PLEASURE THAT WE HAVEN'T EXPERIENCED RIDING ANY OTHER FRAME MATERIAL. THE LEVEL OF CRAFTSMANSHIP GIVES YOU SOMETHING TO CONSIDER AND TO BE PROUD OF RIDING.

FINGER JOINS. HONESTLY, LOOK AT THIS. IT'S HARD TO THINK OF A METHOD OF JOINING A FRAME THAT COMBINES FORM AND FUNCTION AS WELL AS THESE JOINS. ALL OVER THE FRAME THE HIGH LEVEL OF ENGINEERING IS CLEARLY VISIBLE, BUT NOT SO IN-YOUR-FACE AS TO BE ATTENTION-SEEKING.

And how about tough? Renovo's testing shows their frames can and have withstood impacts that ruin metal and carbon frames. A dent or scratch won't propagate into a frame-terminal crack as they can with other materials, nor is damage concealed as is the case with carbon fibre. Fatigue? The fatigue life of wood is similar to carbon fibre and is much greater than that of steel or aluminium.

It was only after testing the Renovo road frames for impact resistance that it occurred to Ken and the crew that these frames could stand up to knocks from rocks better than metal frames. Voila! The Renovo Badash 29er mountain bike.

## HOW TO

Would you believe Renovo frames are hollow? Each half is machined by computer, the two halves then epoxy bonded down the centre line, (known as monocoque). Each frame half is made up of four separate pieces with finger joints and laminations at critical high-stress areas. The wood used is selected for grain quality and tested for moisture content to ensure a lasting straight and true frame.

They are finished with two layers of epoxy sealing it inside and out. Then a final three coats of catalysed linear polyurethane create additional protection from UV, scratches and anything else you could throw at it (or it at). This is the same stuff coating high-end performance cars, aeroplanes and boats. Metal sleeves are used in the head tube, bottom bracket and seat collar.

Unlike other Renovo wooden frames which are made of a combination of hardwood such as hickory, walnut and oak, the custom Red Stag Renovo is built primarily from pine. Not just any Radiata Pine, but Rotorua-born and raised pine. New Zealand pine is steady growing and generally straight grained, making it suitable for this application.

Two frames were commissioned by Red Stag to showcase the wood's ability to perform in extreme situations. What better way to show that than to build a mountain bike from it? It didn't hurt that several senior staff members at Red Stag Timber are keen mountain bikers. These custom frames are the very first to be crafted by Renovo from Radiata Pine and have a unique geometry with slightly relaxed seat and head tube angles for maximum trail 'flowage.'

## GOT WOOD

The Red Stag Renovo 29er arrived at my door dressed to the nines with Shimano XTR Race 2x10 drive train, XTR brakes, Easton EA90 XC wheels shod with Crossmark 2.1 tyres, Talas 29 fork and Easton carbon seat post and handlebar. Needless to say the drive train worked flawlessly, leaving me with nothing to focus on but the ride quality of the frame itself.

So just how does it ride? Honestly, amaaaaazing. Having never ridden a wooden bike, I had no clue what to expect. The stiffness through the drive train exceeded all of the steel and ti' bikes I have ever ridden and rivals that of my current aluminium steed. And talk about smooth - the frame shaved the tops off the braking bumps in the way I have come to expect from the best high-end carbon frames.

The Editor gave me the same feedback, saying: "Despite the marketing message from Renovo about the ride-feel of wood, I was still surprised at how smooth this thing rides. I don't choose to ride hardtails a lot because I prefer the comfort offered by full suspension, but this thing is not the ride I've come to expect from aluminium hardtails.



IT MIGHT HAVE BEEN MADE IN OREGON, USA, BUT RIDING AMONGST THE PINES OF THE WHAKA FOREST IN ROTORUA IS STILL A HOME-COMING FOR THE RED STAG BADASH.

"I really enjoyed the way it feels over bumps and generally choppy ground. But it's also stiffer under pedalling than I could make use of. Who would have thought it? (sorry)."

It's hard to convey how smooth the ride was. The Renovo website calls it a 'silent magic carpet ride.' That's not marketing make-believe. I had plenty of opportunity to contemplate this, as for the photo shoot Nick had me riding the same drop over and over and over... The Red Stag was solid on landing without the harshness of most aluminium frames. The stiffness and efficiency was just as obvious climbing the gravel or stomping up the trail. A couple of local wood scientists and bike dudes did point out some torsional flex in the front triangle between the head tube and seat tube, but even under heavy pedalling loads the bike again felt as solid and efficient as any I've ridden. Carving through corners at high speed took some getting used to as my own bike is fully rigid. But once I got my head around the new-fangled suspension fork thing, the bike felt dialled on the new trail incarnation of Rotorua's 'Be Rude Not To.'

Descending on the Renovo was, and I have to keep saying it, smooth. The Fox fork took the edge off any poor line choice and the frame took the edge off the trail. Aside from a bit of chain slap noise, my ride was pleasantly silent. I have ridden carbon bikes that echo down the trail with hollow clunks but the wood seemed to absorb the noise as well as the bumps. Also unlike my old steel and ti' frames, the absence of flex in the frame made precise manoeuvres, predictable and effortless.

Unfortunately the opportunity to take it lake jumping did not present itself so I can't verify whether or not it floats.

The only apparent flaw in the production appeared to be the routing of the front derailleur cable along the back of the seat tube which limits the size of the rear tyre which would fit in the otherwise moderately-spaced seat and chain stays. My mental superpowers came up with two solutions to the problem; re-route the cable further to the outside of the seat tube or better still set it up as a single speed. Either way, problem solved. Ride it daily? Yep.

Race it hard? Hell yeah. Pass it onto the kids as a family heirloom? Of course.

Finally, a bike that your wife will let you park in the lounge. Some people may call it a work of art, others might consider it an expensive piece of high performance furniture, but it is definitely a real bike in all respects. If you prefer wooden blocks to plastic ones and the timeless beauty and durability of your grandmother's kitchen table, then this may just be the bike for you.

Come to think of it, I am mighty fond of my grandmother and her kitchen table...

Bike available from [www.renovobikes.com](http://www.renovobikes.com)  
Price: US\$2,999 frame only.