

## **Pursuing a Dream: Gliding on Snowshoes**

**By Tom Gibson**

On various trips in the past, several club members have seen me playing with some funny-looking short, fat skis that looked a bit like snowshoes. Club members have helped in my effort to develop these by trying them and giving me their input and by taking photos of me using them. And because they're so wide, I've been chosen on occasion to break trail after snowfalls as we head out skiing.

After pursuing development of these for more years than I care to remember as a hobby, it has now transitioned to more of a serious business. This season, I soft-launched this product, which I've dubbed Trackers Skishoes.

What does the term soft-launch mean? We haven't actually begun producing skishoes yet, mainly because doing so requires an investment of over \$50,000 for injection molding equipment. Rather, we're putting the word out this season via a website, sales brochures, and social media. We're also calling hundreds of ski and outdoor shops around the country to gage their interest and sign them up as dealers. Once we get enough shops to buy a few pairs, we'll pull the trigger to purchase the necessary equipment and begin production for next season.

My concept of skishoes originated many years ago when I found myself slogging through knee-deep powder on skinny skis after a big snowstorm (remember when we used to get those?). On other occasions, I tried to ski on ice or hard crust from a freezing rain that followed a dump of snow and slid all over the place. And we've all encountered narrow, steep trails occasionally and had to take our skis off and walk. There has to be a better way, I thought. I envisioned a fat cross-country ski or something that would float on deep powder and somehow grip the snow on ascents and slow you down on descents.

On a trip to my local hardware store, I came across some cheap plastic snowboards, so I bought a pair to try as my initial prototype and mounted a 3-pin cross-country ski binding on them. When I took them out in the front yard on some crusty snow, I could hardly stand up on them, as they wanted to slide all over. That's when I realized they needed something to stabilize them like grooves or holes in the bottom. I initially tried grooves and later bought a big piece of 1/2"-thick polyethylene plastic at a local surplus store and had skis machined from that. I tried many configurations of hole sizes and patterns before realizing I really needed something protruding from the bottom, like crampons on a snowshoe. I came up with what I call sliding crampons that consist of two rows of teeth running lengthwise along the bottom. These were plastic at first, but that didn't hold up well, so I later switched to aluminum. It took several iterations to come up with the ideal tooth size and pattern. As the net result, these allow the ski to track without sliding sideways when crossing the fall line.

In doing all this, I had prototype parts machined by local shops, and I assembled them in my garage and basement. Much to my wife's chagrin, I've collected a pile of prototypes in the garage.

The resulting product will ultimately consist of an injection-molded ski with the sliding crampons (a.k.a. tracking fins) pinned in grooves on the bottom and a binding screwed to the top. With this modular design, you can mount any type of cross-country ski binding, including NNN, NNNBC (backcountry), SNS (Salomon), or 3-pin. I've also designed adapters that mate a snowshoe binding to the skishoe, so snowshoers can use it.

Trackers Skishoes also come with two accessories: climbing skins and lateral crampons. At one point, I had a skin permanently affixed to the bottom of the ski, but I later made it removable to improve the glide, reduce weight, and lower the cost. The skin works just like ones you see for backcountry and alpine touring skis and has a sticky bottom with a tip loop and a hook in the back end to secure it to the ski. The fuzzy nylon surface grips going uphill but glides downhill (they slow you down slightly downhill, which is an advantage because it gives you more control on steeps). The crampons attach with hand-tightened nuts and effectively turn the ski into a full-fledged snowshoe.

As I've developed the skishoes and had various levels of success, I've worked with the Bucknell Small Business Development Center to develop a business plan and marketing strategy. We had to acknowledge that this is a niche product because it's made for extreme conditions, which are not for everybody. However, it has multiple markets including cross-country skiers, snowshoers, and winter enthusiasts who have never tried either. Snowshoers can add a gliding component to their sport, and wannabes can ski without owning any special equipment such as boots.

One interesting application of this type of ski you hear about is as an ascent or approach ski. For example, rock and ice climbers typically use them to get to where they do their thing, and rescuers can use them to reach sites in the backcountry.

This leads to the conclusion that skishoes are actually not a new concept. In doing patent research, I discovered that about everything you can try on this type of ski, including my components, have been tried. The woods are full of about a dozen competitive products. A few years back, we saw the Yupi Skishoes, an aluminum platform with skin attached permanently to the bottom. The Altai ski, which started life as the Karhu Karver and Meta Sweepers, consists of standard ski construction with a skin glued to the bottom. The Marquette Backcountry ski is a hollow molded plastic ski with fish scales on the bottom for climbing.

Although these companies advertise their products as skishoes, they're all more like skis than snowshoes. I like to think my sliding crampons offer an advantage

and improve the stability of the ski, and that, combined with the optional climbing skins and lateral crampons, shift it more into the snowshoe realm. I think of it as a gliding snowshoe with a modular platform.

This whole experience is a dream for a person like me. There's nothing more fun for a mechanical engineer than designing a product related to a sport they love, fabricating it, and then testing it. At least it's fun when things work; occasional disappointments occur such as a ski falling apart. Now the marketing takes center stage, and the hard part begins.

Another aspect to this is that I've made Trackers easy to assemble and disassemble. The plastic ski can be recycled easily, and a local sheltered workshop will assemble the skishoes, providing jobs for them.

### **Photos**

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Trackers Skishoes with snowshoe bindings

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The author skishoeing in R.B. Winter State Park

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Kick'N Glider Dan Eliff tries a pair at Highland Forest

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Member Tim Musser skishoes at Barnes Corners

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The underside of a skishoe shows the sliding and lateral crampons