

Nordic Backcountry Gear Discussion #3

Lightweight NNN-BC setups

Last time, I wrote about "XCD" or "Cross Country Downhill" gear for nordic backcountry skiing. That's the latest thing on the trails and in the woods, but it's not what you'll see most of the time, especially in the gear shops. What you will usually see is a slightly heavier, more rugged version of standard "track skiing" cross country gear, using "system" bindings. OK, that's a lot of terminology, so first some definitions...

At the nordic centers, skiing in the groomed tracks, you'll likely use plain-edged skis with soft, lightweight boots. Those boots will be held to the skis by light, free-swinging bindings called "system" bindings. The most popular is the "New Nordic Norm" or "NNN" system made by Rottefella. The slightly heavier backcountry version is known as "NNN-BC."

Here's a picture of the sole of an NNN-BC boot and the NNN-BC bindings:

http://www.skinnyskis.com/boot_binding_comp/nnn_bc_system.jpg

Notice the metal bar across the toe of the boot sole. That bar fits in a clamp in the top-front of the binding. Once in the binding, the ski stays attached to the boot by that bar, so your foot can swing off and back onto the ski for diagonal stride (kick and glide). Here's a skier demonstrating that technique:

<http://theflexibilitycoach.files.wordpress.com/2011/01/crosscountryskiing.jpg>

Here's a picture of how the NNN boot sole fits with the NNN binding:

<http://assets.k2sports.com/madshus/ftpmadshus/2010/technology/main/nnn.jpg>

The boot sole has recessed grooves that fit into ridges on the binding plate, so that when you put your foot down onto the ski, the boot is held in place on top of the ski. This helps keep your boots from sliding off the skis when you're holding a "snowplow" or trying to make a quick stop.

Skis to go with NNN-BC Boots and Bindings

The skis chosen for these system bindings are usually straight, narrow and lightweight. For backcountry use in the Northeast, the skis will have metal edges. The width of these skis will usually be from 65mm to 70mm at the ski tips, and from 50mm to 60mm in the waist (directly under your feet). The skis will be fairly long, at least a few centimeters longer than you are tall. I'm 170cm tall (5' 7") and my skinny skis are 185cm to 195cm in length. The skis are made narrow and long to decrease drag, so you can go fast in a straight line on a packed trail. However, the longer, straighter and narrower a ski is, the more difficult it will be for you to turn and stop on that ski. Longer skis also have a tendency to get tangled in obstacles. And man, do our backcountry trails have obstacles!

NNN-BC boots are usually light and flexible. They're quite comfortable, but that very lightness and flexibility will again make it harder for you to turn or stop on your skis. Light boots will flex, which means that when you turn your foot, you'll be flexing your boots instead of the skis. Your foot won't be applying much leverage against the ski. You want a stiff boot to turn the ski better. But a stiff boot slows you down on the straight and packed trails.

Compromises, lots of compromises...

Obviously, there are compromises to be made at every turn (sorry, I couldn't resist). The lightweight NNN-BC system is meant to give you freedom of movement and flexibility. It's a bit heavier and less flexible than systems dedicated to in-track skiing, but it's not designed from the ground up for turning and stopping on skis. Rather than being a rugged (albeit somewhat clunky) setup like the 3-Pin 75mm boots and bindings, NNN-BC is a beefed up version of a system originally designed for racing.

You can try using wider skis to get more float in soft snow, but you will find that the usual lightweight NNN-BC boots won't be able to control those bigger skis on hard snow. You can choose a shorter length ski to gain more control, but now you'll go slower on the packed trails, and the shorter skis won't float as well on soft snow. You can choose heavier, stiffer boots (if you

can find them) to help you control those wider, heavier skis. But now you've lost the flexibility you had for skiing in the tracks or on packed trails.

So everything's a compromise. There is no perfect system.

I've found that the NNN-BC system is best suited to the kind of cross country skiing one enjoys at the nordic center, but going off the trails and out into the woods. This is the kind of "backcountry skiing" most of us want to do – skiing on old woods roads or abandoned rail beds (like the Appalachian Trail in Fahnestock State Park), or on wider, flat or gently sloping hiking trails. The NNN-BC system is not so well suited to steeper terrain or twisty, narrow hiking trails with appreciable incline. However, this is what most of the hiking trails are like in the Catskills and Adirondacks. Now, a really good skier can make it work, and I've seen some skiers on plain-edged track skis whiz by me on the steeper sections of the Jackrabbit Trail or on the lower parts of the Van Hoevenberg Trail in the Adirondacks. But if you're on skinny skis with NNN-BC boots and bindings, and you're going to tackle the Avalanche Pass Ski Trail, you'd better have your game on.

To summarize:

- The lighter the ski, the faster and easier you'll go on the flats, and the easier it will be to climb. However, lighter skis give you less control on hard snow or steep terrain.
- The heavier the ski, the better control you'll have on steeper terrain or hard snow. Remember that heavier skis will slow you down on the flats or when climbing.
- The narrower the ski, the faster and easier you'll go on the flats, but the less it will float and the harder it will be to turn.
- The wider the ski, the better it will float in soft snow, but a wider ski will be heavier than a narrower ski, and thus a heavier, stiffer boot.
- The longer the ski, the better it will float in soft snow and the faster it will go on the flats, but it will be harder to turn, stop or climb on it.
- The shorter the ski, the better it will turn, stop and climb, but the slower it will go on the flats. A shorter ski will not float as well on soft snow as a longer ski.

The Battle of the Bindings

- NNN-BC setups are best suited for mellow-angle ski touring on narrower, lighter skis. These setups are a lot of fun for tooling around on woods roads, old railroad beds or wide and relatively gentle hiking trails.
- NNN-BC setups are less well suited for steeper terrain or narrow, twisty hiking trails. They offer less control when the going gets tough, steep and/or icy.
- Because the binding holds your boot onto the ski more firmly, the heavier 3-Pin 75mm setups are slower and less flexible than the NNN-BC setups. It takes more effort to climb a hill or stride along on the flats on a 3-pin setup than it does on an NNN-BC setup.
- However, 3-pin setups give you better control in steeper terrain or on harder, icy snow. They also work better with wider, heavier skis.

As you can see, choosing the best combination of skis, boots and bindings is quite a balancing act. Everything is a compromise. The trick is to find the best set of compromises for the type of skiing you enjoy most and for the terrain you'll be skiing in.

To make your choice, here's my recommended decision-making process:

- I. Choose the type of terrain you'll be skiing in. I'm assuming that you'll be on ungroomed 'backcountry' terrain, so metal edged skis are always recommended.
- II. Choose the style of skiing you enjoy most.

1. Are you most interested in straight-up nordic/cross country skiing? Is a solid snowplow or kick turn all you need for getting down the hills?

If yes, choose a purer cross country type of setup (i.e. NNN-BC with narrower/longer/lighter skis).

Here's an example of the most difficult kind of skiing I'd try on an NNN-BC setup:

<http://cdn.skis.com/docs/wp-content/uploads/2011/02/backcountry-cross-country-s.jpg>

2. Or do you want to make turns going downhill? Do you want more control in steeper terrain and/or icy conditions? Are you willing to lose some speed and lightness to gain this extra control?

If yes, choose an XCD or Cross Country Downhill type of setup (i.e. 3-pin or cable bindings, wider/shorter/heavier skis, heavier 3-pin boots).

Here's what a 3-Pin 75mm nordic backcountry ski setup looks like:

http://wintertrekking.com/wp-content/uploads/2011/10/Gaiters_boots_bindings.jpg

If you're interested in tackling the higher mountain trails in the Adirondacks like the Wright Peak Ski Trail or the Mount Marcy Ski Trail, some of the "downmountain" trails in Vermont or New Hampshire, or the Thunderbolt Ski Trail on Mount Greylock in Massachusetts, then stay tuned for the next discussion...