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TOM BARRATT, WITH LISA RICHARDSON

RIDING TECHNOLOGY'S WILD INTERFACE

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FOR BC PARKS, the South Chilcotin Mountains Provincial Park presented a daunting dilemma: how to oversee a 56,796 hectare unstaffed, off-grid wilderness park, where self-sufficient mountain bikers re-purpose old horse-trails, where summer snow storms arrive without warning, where floatplanes turn glacial lakes into adventure landing strips...and where grizzlies roam?

Although protection of grizzly habitat was a major reason the park was created in 2001, today its 200 kilometres of single-track trail are shared by a growing cast of users – deer, bears, hikers, horseback riders, mountain bikers, hunters – all with competing needs, all drawn by the untrammled wildness of the place.

And the allure of the vast and remote South Chilcotins is precisely its biggest

challenge. Management takes on a different meaning when there is a complete dearth of infrastructure and servicing. The Park is five-hours from Whistler, and the drive includes long stretches on rough, steep dirt roads. Access to many locations within the park requires a float plane. What to do?

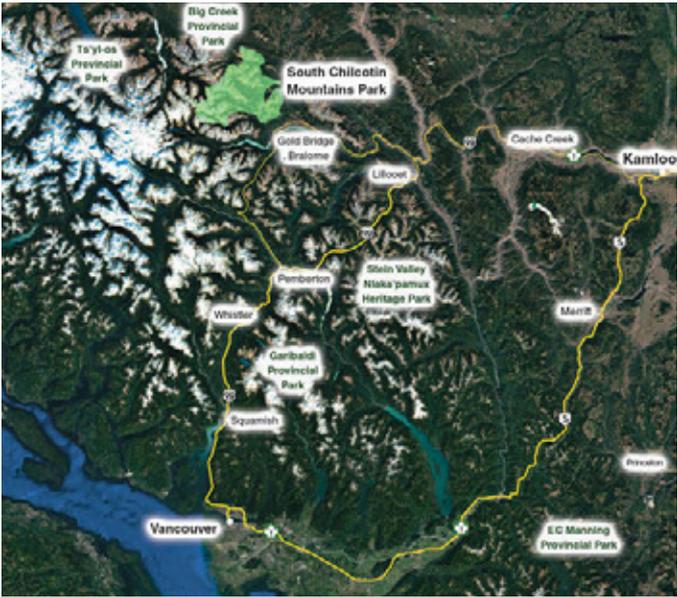
SEND IN THE LAS

BC Parks urgently required a Facility Design Concept Plan to guide their planning. In 2016, they hired Tom Barratt Landscape Architects Ltd., and Barratt in turn, turned to the community. "The depth of professional skills in Whistler allowed us to draw on skillsets you just couldn't find elsewhere," said Barratt. "Whistler is full of these mountain bike nuts who have a built-in set of know-how on how to develop huge trail systems and who happen to be planners, architects, biologists or GIS specialists.

It's rewarding to have these homegrown skills applied to nurture sustainable recreation up in our hinterland."

GIS specialist Todd Hellinga, with Whistler-based Cascade Environmental Resource Group Ltd., was one of the first professionals Barratt called. "The South Chilcotin is one of those special places that grabs you straight away," said Hellinga, who is a mad keen mountain biker, and a leader in planning and trail development within Whistler's zealous mountain bike community. Mountain

1 FLOAT PLANES DROPPED MOUNTAIN BIKES ON HISTORIC HORSE AND WILDLIFE TRAILS **2** THE SOUTH CHILCOTIN MOUNTAINS PROVINCIAL PARK IS 56,797 HECTARES OF VISUALLY SPECTACULAR LANDSCAPE, 150 KM NORTH OF WHISTLER **3** SOUTH CHILCOTIN MOUNTAINS LAS AND BEAR BIOLOGISTS ASSESSED RISKS OF DISPACING BEARS AT 14 CAMPGROUNDS + RISKS TO HUMAN SAFETY
ALL IMAGES COURTESY TOM BARRATT



...the allure of the vast and remote South Chilcotins is precisely its biggest challenge.

The team had a limited timeframe to track huge distances and inventory a laundry list of items. The first field tests revealed that an iPhone would work even better than an iPad. With a bit of practice, they became adept at standing astride their bikes to record observations of invasive plants, windfall, erosion and grizzly bear sign. Just tap once for the category, select from a pull down menu of trail conditions, write a comment, take a picture and be on the way again.

bikes were just one of the two key pieces of technology required to enable the team of landscape architects, GIS specialists, and grizzly bear biologists to physically survey 14 remote campgrounds and 146 km of wilderness trails over the summer of 2016.

THE ENORMITY OF THE PROJECT

“Once the enormity of the project started to drive home, we imagined being out on bikes in the pouring rain with reefs of paper, stopping continually to record trail conditions and problems,”

said Barratt. “Each coordinate would have to be recorded from a GPS tool and individual comments for each spot made on forms. It was just untenable.

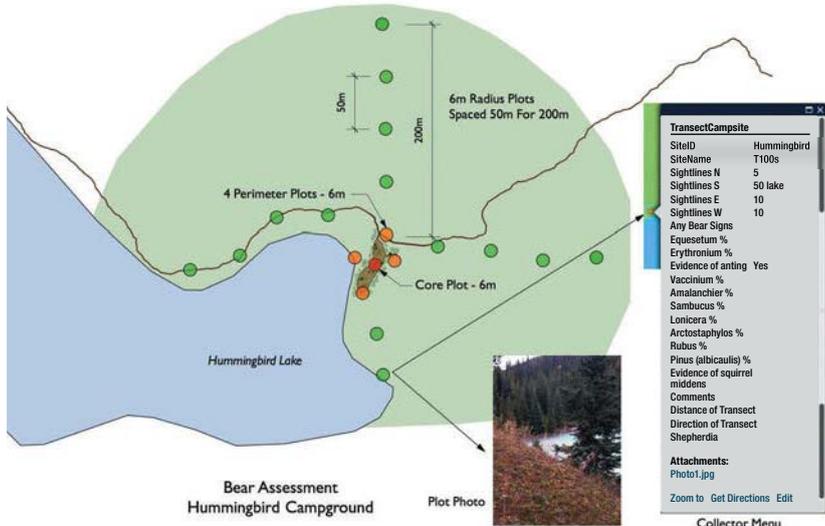
“We started to consider data entry criteria to match our needs, with a capacity to make comments and recommendations on the spot along with a photo: perhaps iPads and a customized Esri Collector in the ArcGis program. This would save the need for manual record taking requiring later digital entry,” explained Barratt.

BONUS FEATURES

Even better, the app could be fine-tuned throughout the process, with new categories added as needed. And although the team’s mandate was primarily to inventory campgrounds and record trail conditions, thanks to the app, any wildlife encounters, invasive plants or historic structures could be recorded, as well as the numbers of hikers, campers and bikers. “We could track almost anything that would be of interest to a land manager, to help inform future planning. And most critically, we were able to do it without losing time,” said Barratt.



SOUTH CHILCOTIN MOUNTAINS PROVINCIAL PARK





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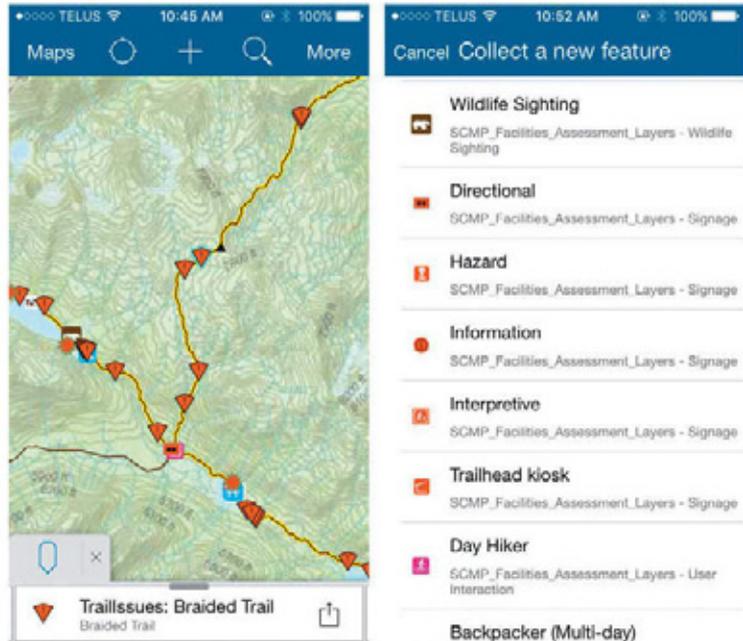
AND WHAT OF THE BEARS?

Since the driving purpose of the study was to better manage users and facilities to reduce human-bear conflict, the team worked with bear biologists to assess risks to human safety and the relative risk of displacing a bear from habitat, prioritizing mitigation measures. The grizzly population in the Southern Chilcotins is considered threatened. Its population of 203 animals (a density of 13 bears per 1000 square kilometres), is just half the carrying capacity the land base could support.

The team completed mapping, site plans and detailed grizzly bear assessments for 14 campgrounds. The collection method made it clear that experts aren't best deployed in silos. By riding together, the landscape architects lent their knowledge of native plants to the bear biologists, while they themselves learned more about grizzlies than they ever imagined possible.

4 ASTRIDE THEIR BIKES, TEAM MEMBERS LIKE ANNIE OJA ENCOUNTERED STEEP TERRAIN, DETERIORATING TRAIL CONDITIONS AND INCLEMENT WEATHER 5 A PRIMARY TOOL: A CUSTOM APPLICATION FOR SMART PHONES

With a bit of practice, they became adept at standing astride their bikes to record observations of invasive plants, windfall, erosion and grizzly bear sign.



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Additionally, the team examined wayfinding signs and trail conditions over 140 km of trail, noting priorities. "There was a lot of cross referencing and overlap in our duties. And later, sitting around the campfire in the evening, we discussed all that we were discovering," said Barratt.

TECH SUCCESS

Cascade Environmental Resource Group is adapting the technology for future environmental assessment and data recording. And for landscape architects, the new app offers the option of maintaining a continual dynamic database that anyone can help update. Barratt compares the method with his arduous work less than a decade ago, to plan the 2010 Winter Olympic cross-country skiing venue. "Sports experts from the National Sports Federations would bushwhack through the site marking up maps and flagging trails. We

would have to take their information and digitize it to try and plot where they were. Imagine if we'd had this technology then, and could have captured all that collective wisdom from their years creating other venues, along with their observations, photos and insights. They tended to be suspicious of computers and CAD in general, but this method would have enthralled them."

PARKS IN THE BLOOD

For Barratt, a landscape architect for 35 years with deep experience in resort development and municipal parks planning, the South Chilcotins project was a chance to work with the BC Parks office in Kamloops for the first time since 1979, when he worked a summer as a parks planner. "Once you've worked for BC Parks, it never leaves your blood," Barratt admitted. "You're outside, dealing with huge landscapes. It felt a bit like coming full circle."

This time, he was back in the saddle with the right tools to stretch a budget and crowd-source the best intelligence one can gather. The South Chilcotin Mountains are simultaneously a recreational refuge, an economic engine and an endangered habitat. The dynamics can't easily be navigated in focus groups and off-site stakeholder meetings. On the ground, in the field, amongst the wild skies, around the campfire, however, answers were more evident.

"It's easy to understand why so many users are protective of this place," said Hellinga. "We strived to ensure BC Parks has all necessary data to help make the park safer and more sustainable for all the users and wildlife."

But it's not just the recommendations that BC Parks is interested in. They've asked for a detailed follow up presentation on the methodology as well. Dynamic landscape warrants a dynamic interface, after all.

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6 COLLECTING DATA FROM MOTION DETECTING CAMERAS AT TRAILHEADS: IMAGES FROM THE SAME CAMERA 7 LANDSCAPE ARCHITECTS WITH BIOLOGISTS & GIS EXPERTS

PROJECT TEAM

LANDSCAPE ARCHITECTS
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DAVE WILLIAMSON, CASCADE ENVIRONMENTAL RESOURCE GROUP,
GIS SPECIALISTS
TODD HELLINGA AND NICOLA CHURCH
BIOLOGISTS
LORI HOMSTOL, KERSTI VAINO + NATASHA DUDLEY

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