

NAOC & COCs 2018

The North American Orienteering Championships was coupled with the Canadian O Championships from 18-24th August in Whitehorse, Yukon, Canada, to make a 7-race programme in 7 days. Kicking off with the NAOC Long. Middle and Relay, Day 4's Sprint was both the NAOC and COC race. In the afternoon an HPP (High Performance Programme) Fundraiser took place in the format of a Score event. Then a rest day which led onto the COC Long and Middle; the final 2 days using the same arena.

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Liz Drew EBOR comments:

'We found that, after WMOC 2018 (over 4,000 runners) & the Swedish O-Ringen (14,500), the N. American & Canadian O Champs week, was refreshingly small, with less than 600 competitors. Orienteering in N. America has moved on over the past decade, from Championships with just 4 courses & winning times around 90 mins, to a fairly complete range of age-class courses, run over Sprint, Middle & Long distances. There seems still to be a difference between European maps, which display vegetation on the basis of runnability, versus N. American maps which seem to concentrate on visibility thro' the forest, with thigh-high undergrowth and thick deadfall (brashings) being generally unmapped. So, for Yukon forest running speeds, think EBOR 2018 Club Champs! The forest competition areas around Whitehorse were in steep terrain, liberally pock-marked with deep depressions, pits & re-entrants, around sharp ridges. These remnants of the area's mining heritage were all thickly covered in trees & shrubs. At times, the multitude of contours on the map made visualisation of the terrain quite tricky. The relay was great fun, held at the Whitehorse Biathlon forest, which also provides a Field Archery range. The fastest routes were up and down

© Nick Barrable



The view towards Whitehorse from the NAOC Long arena.

the steep, convoluted ski tracks, with short dashes into controls placed behind moose & bears shooting targets, in addition to the usual boulders. The Sprint, around the old mining village of Carcross, provided not only 4 streets' worth of "urban" running, but also, alongside the lake, a desert complete with sand-dunes! Sadly, a huge forest-fire obscured many of the wonderful views from Carcross.'

Wilf Holloway was also present and he noted:

'The week in the Yukon was extremely well organised and the town of Whitehorse will remain positively in most memories because of a myriad of interesting elements. Not only the fact that the place was so worth a visit that Queen Elizabeth and Prince Philip were there half a century ago, but also that it was one of William & Kate's first post-marriage stop-offs. They probably didn't actually go searching for any orange and white flags, although they too must have been as impressed as we orienteers were with all the outdoor activities for both summer woods-and-water and winter snow-and-skis.

© Heidrun Weismuth



Fox with wood(!) crossing road in Whitehorse.

There are all-year-round direct flights a couple of times every week from Europe to this small but international airport situated on one of the massive forested 'sandbanks' spread over a million square kilometres of north-west Canada. Many well-mapped local forests are usefully challenging with their complex contours and combined with hiking Vancouver Island and the Rockies, they can produce the holiday of a lifetime. Especially the unusual wildlife experiences and the fascinating o-areas made the championships a wonderful week, but there were nevertheless a few side issues which produced competitor discussion. Some of the more relevant quotes have been collected here:

❑ I thought that in 60 years of O I had



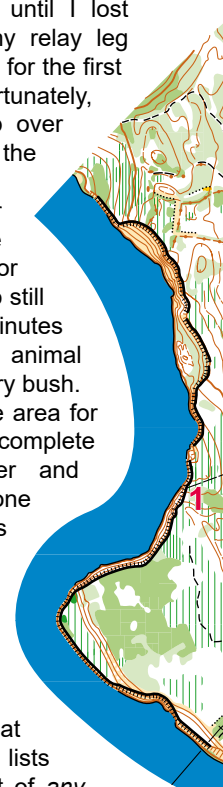
© Robert Svoboda

Timo Sild at the finish of the NAOC Middle - he won all the races at the NAOC and COC week.

made all possible errors - until I lost a minute at the start of my relay leg frantically searching the map for the first four control circles. Unfortunately, nobody had told me to flip over the double-printed paper for the map change...!

- ❑ Perhaps that black bear at control number five looked peaceful enough for knowledgeable Canadians to still risk punching but I lost two minutes before the Briton-menacing animal moved on to the next full berry bush.
- ❑ Having a strict quarantine area for elite runners, praiseworthy complete with toilets, drinking water and practice maps, is a bit overdone when these top runners can then converse with everybody else anyway at the ensuing common start!
- ❑ Does a massive old steam locomotive on an urban map really constitute a statue or cairn, or does that figure in the IOF description lists mean *any* man-made object of *any* size deposited there for *any* reason?
- ❑ No, no. The route to the COC Middle and Long pre-start was not especially steep. No way. But I must admit that I have never before encountered fixed ropes to help runners get up a hill.
- ❑ It might be good to get the IOF mapping commission to enforce all start triangles to be double-inked on maps, or even completely inked-in so that sprints are really exactly that, and not a variation on 'stand-still-and-search'.

It was good to see Japan's Takashi Sugiyama JOK competing in the well-mapped areas because I seem to remember that whilst studying at Oxford he helped produce the first excellent map



of Methyr Mawr's intricate sand dunes back around 1970. (See *BNOC 2018 Coverage in CompassSport Vol. 39/2*) With one noticeable difference to the Yukon: I remember the drafter in Wales saying that at the end he put easily-visible tag lines all over the contours so that orienteers could quickly see what was up and what was down on the complex map...

NAOC Long WRE M21E Course 11 – Croucher Creek. 18th August

1st Timo Sild KJSK – EST 70:16

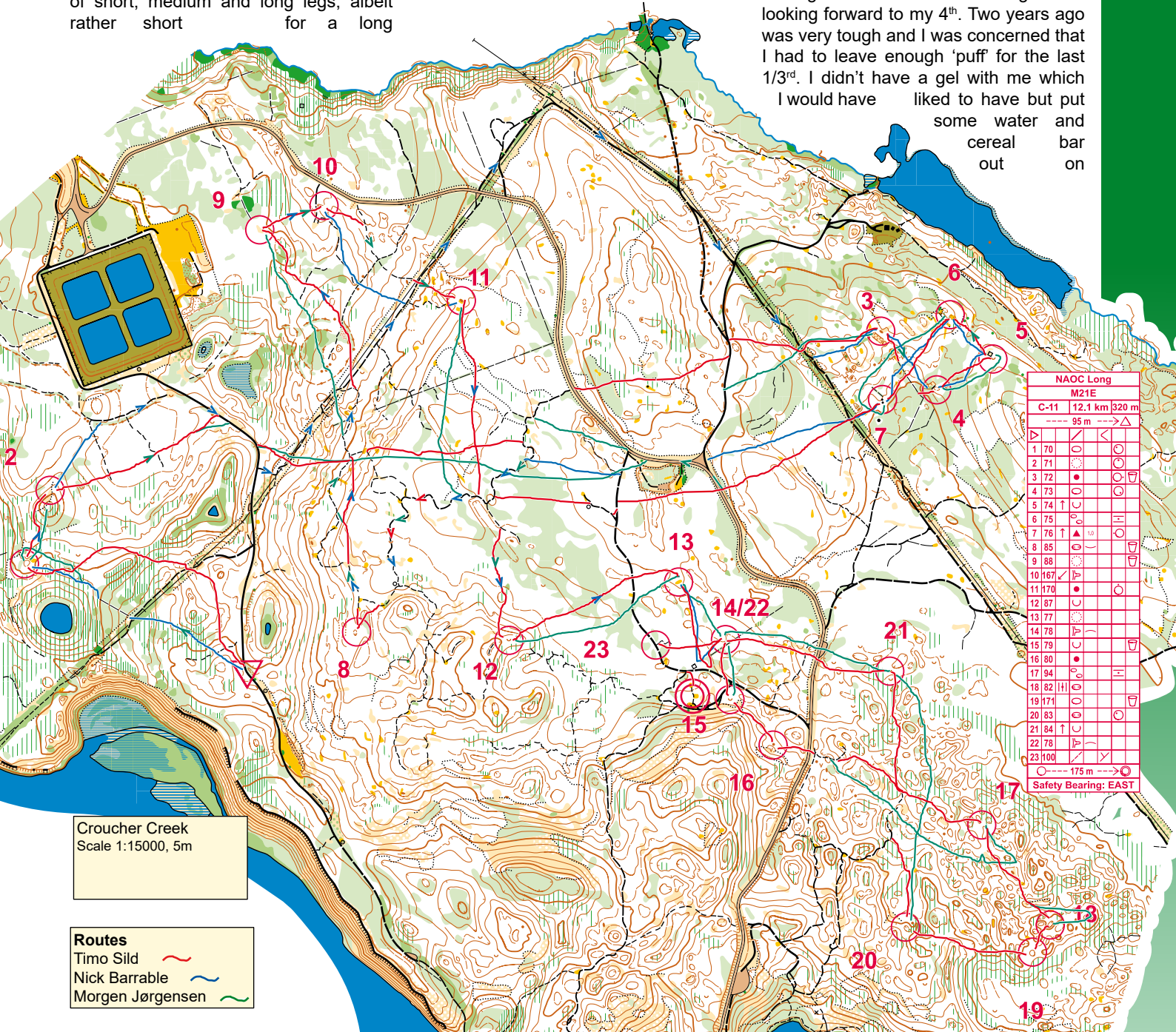
The NAOC long distance was a good course on a good map with a mixture of short, medium and long legs, albeit rather short for a long

distance. On the other hand, it was the first competition of a long week of amazing races, and it was nice to ease into the racing. The last part of the course had strong middle-distance elements, which was made much more difficult by the 1:15000 map scale and non-spot colour offset-printed map. My strategy was to stay quite close to the red line as the forest had mostly good runnability, and I was only somewhat hampered by deadfall at places. I liked the feeling of flow that came from orienteering on the last frontier: being in a totally new as well as an exciting environment makes one enjoy and concentrate on orienteering on a different level than at

home. I ran all of the races at NAOC as well as COC and did some extra trainings on terrains that were not used for the competitions. I like night orienteering a lot but could not get over my fear of the wilderness in the Yukon and did not manage to do even one short training at night. Of the day orienteering, I must say the terrains and the maps are good, although some of them are outdated. Whitehorse could have potential of being a place for orienteering camps if it wasn't so far away, but I guess that's also part of the allure of the Yukon.

2nd Nick Barrable SYO 82:32

Having run the last 3 NAOC Longs I was looking forward to my 4th. Two years ago was very tough and I was concerned that I had to leave enough 'puff' for the last 1/3rd. I didn't have a gel with me which I would have liked to have but put some water and cereal bar out on



Long	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Finish
1 Timo Sild	4.07 (1)	1.17 (1)	13.13 (1)	1.26 (1)	1.11 (2)	1.01 (1)	1.40 (1)	8.40 (3)	5.46 (1)	1.04 (1)	2.29 (1)	4.58 (1)	2.57 (2)	1.54 (25)	0.51 (2)	0.51 (1)	3.27 (1)	1.48 (2)	0.39 (1)	2.20 (1)	4.49 (2)	2.19 (1)	0.56 (1)	0.33 (10)
KJSK	4.07 (1)	5.24 (1)	18.37 (1)	20.03 (1)	21.14 (1)	22.15 (1)	23.55 (1)	32.35 (1)	38.21 (1)	39.25 (1)	41.54 (1)	46.52 (1)	49.49 (1)	51.43 (1)	52.34 (1)	53.25 (1)	56.52 (1)	58.40 (1)	59.19 (1)	1:01.39 (1)	1:06.28 (1)	1:08.47 (1)	1:09.43 (1)	1:10.16 (1)
2 Nick Barrable	5.47 (8)	1.43 (13)	15.43 (6)	2.41 (27)	2.08 (19)	1.33 (18)	2.20 (9)	9.46 (10)	7.20 (10)	1.23 (7)	3.00 (9)	5.36 (5)	2.54 (1)	1.57 (29)	0.48 (1)	0.51 (1)	3.28 (2)	1.47 (1)	0.41 (2)	2.22 (2)	4.45 (1)	2.20 (2)	1.02 (3)	0.37 (23)
SYO	5.47 (8)	7.30 (9)	23.13 (6)	25.54 (7)	28.02 (7)	29.35 (7)	31.55 (7)	41.41 (7)	49.01 (8)	50.24 (8)	53.24 (7)	59.00 (5)	1:01.54 (4)	1:03.51 (5)	1:04.39 (5)	1:05.30 (4)	1:08.58 (4)	1:10.45 (3)	1:11.26 (2)	1:13.48 (2)	1:18.33 (2)	1:20.53 (2)	1:21.55 (2)	1:22.32 (2)
3 Morten Jørgensen	5.12 (4)	1.25 (4)	14.55 (4)	1.52 (7)	1.57 (15)	1.01 (1)	3.01 (21)	10.00 (14)	6.04 (2)	1.14 (2)	2.56 (7)	5.33 (4)	3.27 (7)	1.07 (1)	0.52 (3)	1.01 (5)	6.36 (22)	3.24 (23)	0.51 (7)	2.32 (3)	5.48 (4)	2.54 (7)	1.01 (2)	0.36 (19)
Kristiansand OK	5.12 (4)	6.37 (2)	21.32 (3)	23.24 (2)	25.21 (2)	26.22 (2)	29.23 (3)	39.23 (5)	45.27 (3)	46.41 (3)	49.37 (3)	55.10 (2)	58.37 (2)	59.44 (2)	1:00.36 (2)	1:01.37 (2)	1:08.13 (3)	1:11.37 (4)	1:12.28 (3)	1:15.00 (3)	1:20.48 (3)	1:23.42 (3)	1:24.43 (3)	1:25.19 (3)

the athletes' refreshment table at the spectator control. As it turned out, the course was a little on the short side and I didn't need any calories on the run.

Having done the model the day before, I had an idea of what the terrain would be like. The forest floor could be very soft and energy sapping. The under-vegetation was deceptive at times as it swallowed up your feet. Then there was the deadfall, which was mixed, but generally ok until after the spectator control. Then it got pretty full on and you had to be agile and light on your feet at times.

2 years ago we had Thierry Georgiou to show us how these races should be done. This year it was regular WOC top 10 placer and OMM Elite winner Timo Sild. Last NAOC the start lists were done on World Ranking in one block, and this resulted in Thierry pulling a few bodies around in his wake to NAOC medals and WOC places. (Regional Champions in Middle and Long get a 'free' slot at WOC – although with the return of middle qualifications at forest WOCs, the 'free' Middle slot is surely likely to disappear.) This year a new procedure was in place whereby the start list was split into 2. Non-eligible NAOC runners started first in reverse World Ranking order, then the eligible runners. I had Timo 12 minutes behind me and knowing that he would catch me at some point, I tried to make that point as late in the race as possible. Unusually I had to stop to tie a shoe-lace on the way to #12. As I crouched on the track some rustling and a body appeared to my left. Timo! As I cranked up a gear and slipped into pursuit mode, we managed to spoon #14. Nevertheless, Timo was to be my saviour as he smoothly flowed round the tricky last section, an area which caused much time loss for most of the field at some point or other. When I got caught I was in 5th. My run had been ok. Many of the short legs I was hesitant and unclear on. Bearings seemed iffy and visibility wasn't the best.

After going straight on #1 I did not want to risk the straight option on #3 and went round. For me I think this was good and saved my legs from too much terrain slogging early on.

Overall, I thought it was a great course, and some debate was had as to if the courses should be a 90 minute winning time for the best North-American or Olav Lundanes. Either way the course was short, but conditions could have been slower on the day. As it was it was sunny and dry. I did wonder if it wasn't as good as the Canadian Championships Long at the end of the week. Perhaps too tricky to call...

3rd Morten Jørgensen Kristiansand OK 85:19

If you think Morten's name doesn't sound too American, it's because he has Norwegian connections. He actually

runs for Kristiansand OK in Norway and is a 23-years-old Mechanical engineer student in Trondheim NTNU at the moment but about half of his family live in Houston, Texas, where his Mother lived. He has grown up in Norway, but has been to Houston frequently with his family, and to Orienteering events all over the USA!

#1 Right off the start we got to choose whether to go straight or around the green. I choose straight, and think it was fastest, but made a small mistake going in.

#2 Followed a good bearing and hit the depression.

#3 Nice, first long leg. I felt like there was no other option other than some sort of straight route-choice. Was nervous going into the control but hit it ok.

#4 - #7 On 3 of the next 4 controls I ran too much to the right but managed to adjust quite fast and not lose too much time.

#8 After some mistakes on the short legs, I chose a conservative route the last half of the leg, and probably lost some time.

#9 Again going for a straight route and using the path the first half.

#10 - #12 More or less straight, using some prominent features to be sure I was going in the right direction.

#13 Just following the compass and using the bend on the path to readjust.

#14 - #16 Short legs running through the arena, drank some sports drink and heard I was leading coming through the spectator controls.

#17 - #19 I did not manage to change my orienteering technique from mostly following the compass over to really reading the small contours. Lost several minutes on #17, #18 and some to #19.

#20 - Finish. I knew the first part of the race was quite good, so I thought there still was hope for a good place. I pushed out a last big effort and hit the controls well. It was just enough to secure the victory and get the WOC Long spot.

NAOC Middle Course 6a 2.3km – Lewes Lake 19th August

1st Ruth Lynam CNOG - IRE 38:32

Many of the Canadian maps I had come across at various times looked really technical and testing, so the North American and Canadian Champs in Yukon seemed a great chance to run on good terrain and visit the fabled Yukon at the same time. To be honest the first day, the North American Long champs, was disappointing, lovely runnable forest and nice to be in a strange area but the terrain was rather bland and my course not testing.

Day 2, the Middle Championships promised to be completely different, though the courses seemed short, the previous maps showed a myriad of small contour features in fairly runnable forest. After the high-speed running of the



Ruth Lynam CNOG - seen here at the 2010 November Classic.

Long, I failed to find the right speed for the first 2 controls and made a couple of very basic mistakes. I picked up the spur leading to #1 but turned back too soon, realised and had to retrace my steps. Then I ran merrily along the wrong ridge heading for #2, and got a bit flustered looking for the depression, 3 or 4 minutes gone! After that all went well. The next few controls circled around and though a vague area of very undefined knolls and depression, with fairly close-packed trees, quite runnable but with limited visibility. I am not technically proficient enough to navigate that kind of terrain at speed. For me it was quicker to use the compass to get near the control, and on each leg, the features round the control fell into place when I got there. The last few controls were in much more definite terrain and it was back to fast running. The middle section though was superb, intense concentration, on the alert the whole time, and everything fitting into place when I wanted it to. I was stretched to my technical limit but still succeeding. As good a challenge as some of the best of Finland, Estonia, or most recently the French OO cup.

It is a difficult area to map. It did take me a while to get used to the mapping style, but once I understood it I found the map communicating everything I needed to know. I did think rather it odd though that for the Long we were using 1:7500 maps, and the scale for the Middle on this very complex and very compact area was 1:10000. With my eyesight issues I would have appreciated the bigger scale. But that would be my only complaint. I enjoyed the terrain, the course kept us in the interesting area as much as possible (and as I was 38 minutes for 2.3 km I could understand the reason for the short course lengths), and the arena on a peninsula jutting into Lewes Lake was

just beautiful in the sunshine. We went to the Yukon because it sounded an exciting place to visit, and because we hoped for top-class orienteering in a new place. Travelling to lower key events one takes what one gets, but for a continental championship I would expect the best courses on the best terrain, and apart from the slight disappointment of the NAOC Long, that is what we got.

before I wasn't sure what to expect. I have a tendency to think of everything in the West as being open but knew that Canadian forest might be different. I really enjoyed the terrain. It was generally open enough for good running and the technical difficulty played to my strengths. I'm not a super-fast runner, but am a top navigator, and good at contour interpretation. I trained pretty hard to peak for this competition with the hope to take home a few medals. After a Gold medal in the Long, I was really looking forward to the even more technical Middle distance. Right out of the start, I was confused because the triangle was covering the small depression, so it looked like a top to me. I finally realised I should ignore that and paid attention instead to the ridge to the left and managed to get going, keeping in touch with the depressions and ridges. Coming out of #1, I tried to find the trail headed north, but instead ended up on a trail going east along the ridge. This didn't take too long to correct and the approach into #2 from the hillside was straightforward. The whole area from #3 to #6 was very vague. It was extremely difficult to match specific terrain features to the map, so I tried to use my compass

as well. I made a small mistake at #4 stopping in the re-entrant to the east, but also met up with Andrea Opplinger there. We managed to stay close together through the middle of the course until wandering around in the hills just before #7. I couldn't figure out how to match the depressions to the map and lost at least 10 minutes on this control. Eventually I bailed to the hilltop and attacked from there. In the meantime, Andrea found the control and I didn't see her again. The rest of the course was more open and I didn't have any problems. Ruth zoomed past me around numbers #9 and #10. The technical terrain took its toll on everyone. Despite my mistakes, I still managed to take the silver medal for North Americans. I like using difficult terrain for Championships like this. I much prefer a competition that truly measures navigational ability as opposed to strong running, and that's especially true of the Middle distance. It would be interesting to be able to go back and check out the map in the area between #6 and #7. I was surprised when I finally saw my GPS track because I thought I had been further west than it showed. The hills were more



Clare Durand LAOC W55 was best North American at the NAOC Long.

7th Clare Durand LAOC 59:43
(2nd North American & current Orienteering USA President)

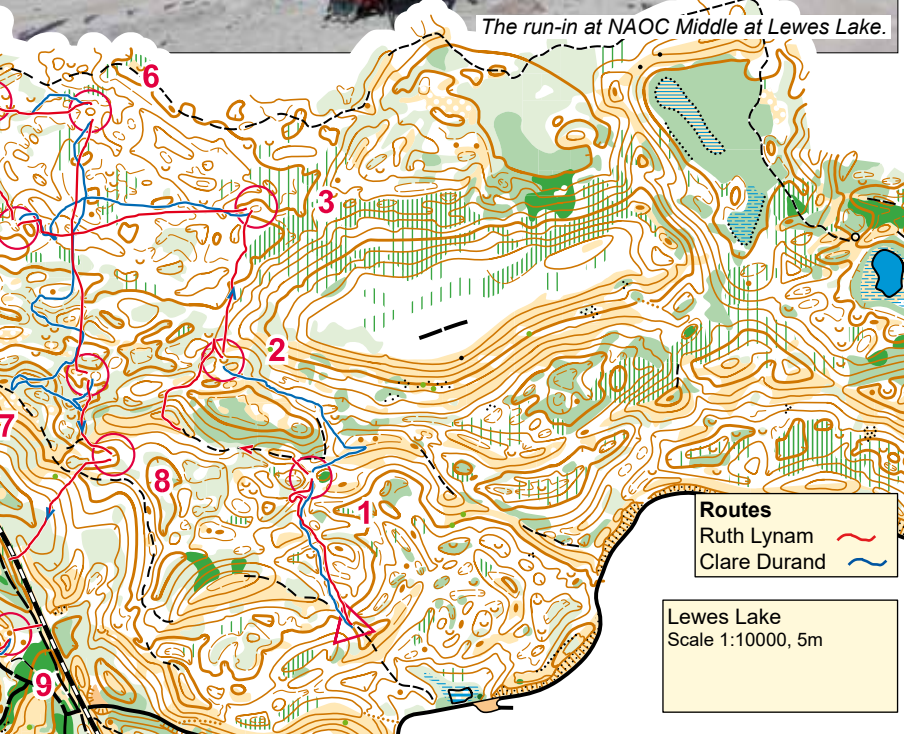
I was excited to attend the NAOC in Yukon this summer. Having never visited that area



The run-in at NAOC Middle at Lewes Lake.

NAOC Middle	
F55	
C-6a	2.3 km 90 m
--- 40 m --->△	
1	139
2	131
3	151
4	123
5	205
6	164
7	158
8	130
9	178
10	153
11	100

○--- 90 m --->△
Safety bearing: WEST



Middle	1	2	3	4	5	6	7	8	9	10	11	Finish
1 Ruth Lynam	4.14 (5)	6.51 (21)	2.57 (1)	4.38 (1)	2.30 (2)	2.09 (2)	5.52 (1)	2.18 (4)	4.12 (2)	1.33 (1)	0.46 (2)	0.32 (3)
CNOC	4.14 (5)	11.05 (10)	14.02 (4)	18.40 (2)	21.10 (2)	23.19 (2)	29.11 (1)	31.29 (1)	35.41 (1)	37.14 (1)	38.00 (1)	38.32 (1)
7 Clare Durand	4.42 (8)	6.41 (18)	3.53 (9)	8.50 (13)	2.33 (4)	2.21 (4)	20.03 (20)	2.30 (5)	4.25 (3)	2.06 (6)	0.55 (12)	0.44 (23)
LAOC (Los Angeles OC)	4.42 (8)	11.23 (11)	15.16 (7)	24.06 (7)	26.39 (6)	29.00 (6)	49.03 (8)	51.33 (7)	55.58 (7)	58.04 (7)	58.59 (7)	59.43 (7)

open than mapped and I wasn't truly understanding the low area between the two ridges shown by the index contours. But as frustrating as it can be, I really like this sort of orienteering.



Sari Nurmela from Finnish club Anttolan Urheilijat finishing the NAOC Middle.

NAOC Middle

by Donald Petrie CLYDE

Amelia and I have orienteered in Canada's Western provinces twice before and really enjoyed it, so when we found out that NAOC & COCs were going to be held in The Yukon Territory in 2018, we jumped at the chance to compete there.

The previously used map and area for the Middle, Lewes Lake South, looked fantastic and the assembly area on a peninsula jutting out into Lewes Lake was the most scenic we have seen for many years.

The area was a jumble of small, intricate hills and depressions with a patch-work of different runnability screens across it. There were no line features in the area except for a few indistinct paths running through it. An orienteers dream?

It should have been, however things were very different for many in the forest. Many competitors were out for a very long time on their courses and there were a large number of DNF's. (On Course 6a: 33 finishers, 2 over time, 1 mp, 5 dnf) Amelia spent 90 minutes in the forest on Course 6a without finding the first control, despite having relocated at least five times from the start triangle and from another control. We went back into the forest afterwards to try and find out where she went wrong. The first control was approx. 250m from the start and when walking through the forest to the control picking off the features, even I as an experienced and confident navigator was having difficulty in relating what was on the map to what was on the ground. White shown on the map didn't appear

to correspond to what was on the ground and this had confused her. We found 7 other competitors (approx 90 minutes after the last start!) who were completely lost, and we had to point them in the right direction and help some out of the forest. Some of them thought that they were 400-500m to the east of where they actually were!

The main issue was the complexity of the terrain and the way it was shown on the map. The mapper had used very few tags on the contours, and those that were there on the map were at the bottom of the depressions, often obscured by the various shades of green on top. There were virtually no water features to help assist in deciphering the map, so no matter how the courses were planned in this area, they were going to be extremely technical.



Totem Pole at Carcross - NAOC Sprint.

One experienced orienteer on my course decided that the best way to cope with the map was simply to run towards each control on a compass bearing and then see whether it was a hill or a depression when he got there. Great as long as you don't wander off the line, but if you do then it could have been really difficult to relocate.

While the event was a Championships race and the best orienteers won anyway, we wonder if this type of area really helps the sport attract and retain participants? It's very off-putting for people to invest a lot of time and money into travelling to events if they then spend a lot of time lost in a forest and / or unable to finish the course. Would it not be better to select more suitable areas and make the courses easier so everyone had an enjoyable experience rather than a frustrating and unhappy time wandering about a forest trying to decipher a very complex map? At the end of the day for the majority of competitors it was a holiday event, and for many in a foreign country.

As another experienced orienteer has commented to me, a slightly easier

area might have found a few people complaining about the terrain, but they would compete again, whereas this type of area had a great number of experienced competitors unable to complete their courses, and possibly feeling, as Amelia did, a bit disheartened and reticent about going out the next day. What would a newcomer to the sport have made of it?

It's worth adding that the North American and Canadian Championships were an excellent series of well-organised events in a wonderful, remote part of the world, which we thoroughly enjoyed and the comments are more to try and stimulate a debate about making the sport more user friendly.

Editor comments – *'Unlike the European Championships for example, the North Americans is a Regional Championships, like Oceania, not just for Elites. It aims to find age-group Champions for all. The comments above put forward views from the top and bottom of the results list. Should the biggest 2-year event in North-America be planned for all-comers or should it be 'hard as nails?'*

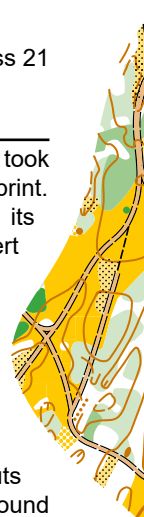
NAOC & COC Sprint WRE, Carcross 21 August 2018

by Sarah-Jane Barrable SLOW

A 46-mile drive south of Whitehorse took us to the town of Carcross for the sprint. The town is most well-known for its tiny desert – a 1 square mile desert considered the world's smallest. Originally the town was called Caribou Crossing, as it was a land bridge between Lake Bennett and Nares Lake used by huge numbers of migrating Caribou. Now it is a popular stop for tour buses and offers a cluster of painted wooden huts selling handicrafts and ice-cream, around an open pedestrian area containing a totem pole. A train line runs straight through the map and was crossable at only certain, marked points. A disused boat on the river's edge provided more intricate detail and interesting control sites. Outside of this small, touristy area, the town comprises only a small number of residential buildings arranged more or less in a grid format, so the surrounding runnable forest was also utilised.



How would you map this?



Running the Women's Open course meant going to quarantine first, as it was a World Ranking Event (WRE), then starting with the other courses just out of the town centre and quickly being thrown into the detailed centre. Athletes immediately noticed how faint the purple overprint showing control circles and lines was – it was hard to pick out the first controls especially, partly because the multiple train line crossing points obscured them or meant that the circles were broken significantly, and sometimes just running straight and flag-spotting was easier than trying to figure out exactly what features would be in the circle. #4 was under the boat – fun – and then #5, #6 and #7 were very tightly packed before some longer legs and route-choice around the simpler blocks and forest.

Unfortunately, these tightly packed controls proved problematic – winner Tori Borish (Cascade OC – USA) ran to control #7 before

#6, luckily noticing when she checked her codes. She reckons she lost about 20 seconds doing this. This was after making her mistake running towards #3 en route to #1. Sari Nurmela from Finnish club Anttolan Urheilijat mispunched as she missed seeing #6 on the map. She ran 14:09 for the course, compared to Tori's time of 14:27 so was undoubtedly a contender for the top spot. The fact that a cairn, monument, small memorial or boundary stone symbol (black circle with dot in it) was used for a control that was a train locomotive was also confusing for some.

The forest was very open although sandy, making the tracks tough-going, so it could be a benefit to go around back into the streets and around on the longer legs. A spectator control provided entertainment and a little added pressure, as the North Americans know how to cheer on their athletes!

Anna Sheldon (Ugly Gully - AUS) took second place in 14:50, ahead of Emily

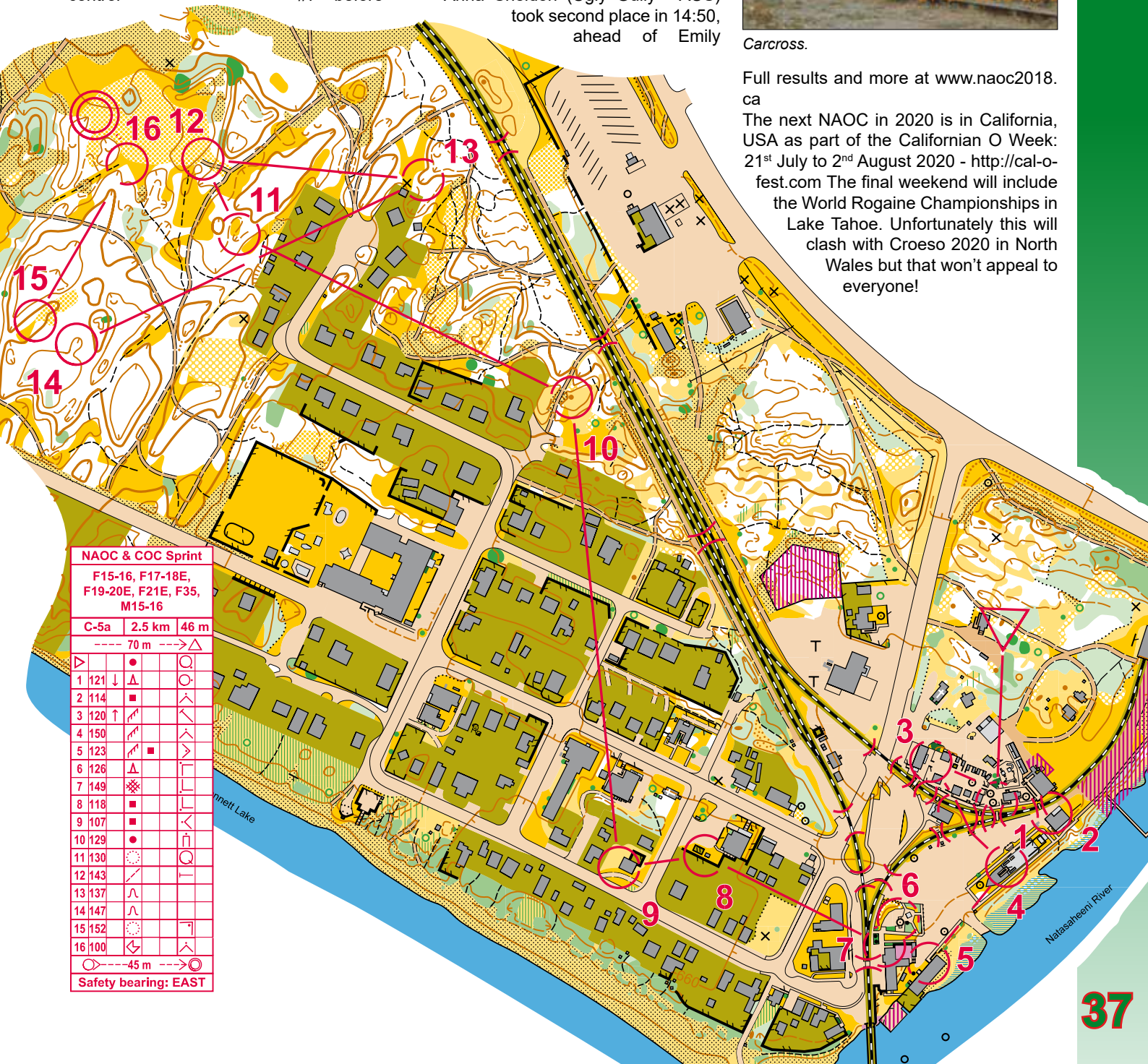
Kemp (Orienteering Ottawa therefore winner of the Canadian Champs), on her return from injury, in 14:56. Ali Crocker (Columbia River OC / JOK (UK)) was a notable absence from the start as a timetable change to her flight home meant she regrettably had to miss the race.



Carcross.

Full results and more at www.naoc2018.ca

The next NAOC in 2020 is in California, USA as part of the Californian O Week: 21st July to 2nd August 2020 - <http://cal-ofest.com> The final weekend will include the World Rogaine Championships in Lake Tahoe. Unfortunately this will clash with Croeso 2020 in North Wales but that won't appeal to everyone!



NAOC & COC Sprint			
F15-16, F17-18E, F19-20E, F21E, F35, M15-16			
C-5a	2.5 km	46 m	
---	70 m	---	---
1 121	↓	▲	○
2 114	■	▲	▲
3 120	↑	■	▲
4 150	▲	■	▲
5 123	▲	■	▲
6 126	▲	■	▲
7 149	▲	■	▲
8 118	▲	■	▲
9 107	▲	■	▲
10 129	▲	■	▲
11 130	▲	■	▲
12 143	▲	■	▲
13 137	▲	■	▲
14 147	▲	■	▲
15 152	▲	■	▲
16 100	▲	■	▲

○---45 m ---○
Safety bearing: EAST