‘Herping against the weather’

Bangor University Herpetological Society (BUHS) and Captive & Field Herpetology (C&FH) Croatia/Slovenia field trip report

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This field report has not undergone academic peer-review and is used only to briefly discuss Captive & Field Herpetology’s latest expeditions, for further information contact the above authors

Bangor university is well known in the UK for its wealth of experience in herpetological research. The university also has an extremely active student herpetological society which arranges site visits, training and conferences on a regular basis and has a meeting every week. A student committee arrange a herpetological seminar every week which in the past has included other students, zoo workers, ecological consultants and researchers and plenty in between! The committee also organises a short field excursion abroad, yearly in the Spring for some lucky members. In 2018 the logistical side of this trip was being handled by a new organisation, Captive and field Herpetology, which is itself owned and founded by a Bangor alumnus. C&F lead herpetological excursions, primarily to India but with more destinations on the horizon, with an emphasis on community engagement and research and try to escape the well-trodden herping paths wherever possible. Slovenia and Croatia were chosen as this year’s BUHS trip destination, following a successful visit there by a previous student group. Unfortunately only a single member from that previous trip managed to join us this year and so most of us had no experience herping whatsoever in these countries. We visited (or attempted to visit!) a few locations used by the previous group but largely relied on opportunistically identified habitat from satellite images and records of species from social media. The rest of this report consists of day by day accounts of the places we journeyed to and the amphibians and reptiles found at each, with healthy doses of field observation and anecdote thrown in for good measure.

March 25th London Stansted ---> Ljubljana
The first day didn’t see much in the way of herping. Our evening flight from London to Ljubljana was delayed and after losing a further hour to the time difference and

arriving at the address of a horse stable instead of our accommodation everybody was thoroughly exhausted! A few unidentified amphibians were spotted in the car headlights on the way from the airport to the accommodation and plenty of mammals were spotted either side of Slovenia’s twisty mountain roads, including a suspected stone marten (*Martes foina*). We suspected some truly amazing views were in store for us the following day but couldn’t help but notice the abundance of snow either side of the road and the temperatures, far lower than what we had left behind in London!

March 26th Herping near Kočevska Reka, Southern Slovenia
Sunlight confirmed our two major impressions from the previous night’s drive. 1: Slovenia is a very beautiful country, 2: it was currently also

a very cold country! Not an ideal start to a trip looking for animals that depend on heat for their activity above ground. After a lovely breakfast in the attached restaurant the organisers decided to break everybody in gently with a hike up a logging road into the mixed forest above the accommodation. The weather remained well below 10°C and the ground was soggy, feeling very familiar to the Welsh students on the trip, and the snow wasn't going anywhere soon. A small, deep pool on the logging trail produced our first herps of trip: the common frog (Rana temporaria) and some newts which we would identify later at night. The cold conditions hadn't perturbed the local amphibian life as the frogs were already in amplexus when found. A nearby rock was flipped to confirm our second species in quick succession- the beautifully coloured alpine newt (Icthysaura alpestris). This was the first new species to many members on the trip although the Welsh contingent were already familiar with this as an invasive species in numerous places in N. Wales. In the UK they are suspected to be vectors of the *Batrachochytrium dendrobatidis ('Chytrid')* fungus, thus posing a threat to the native great crested newt but it was a relief to finally see this species in its native range, and not having to feel slightly guilty about it!

A hike further into the snowy forest eventually led to a promising looking rocky outcrop. The previous visit had found the nose-horned viper (*Vipera ammodytes*) in Slovenia in similar situations however we only got the considerably less exotic common toad (*Bufo bufo*) for our efforts. It proved a charming subject to photograph however as is usual with toads and, with many amphibian lovers in the group, morale was still high despite the frostbite and runny noses.

The afternoon saw us venture out in overcast weather (which will become an oft-recurring theme in this report) to the Kolpa (=Kupa in Croatian) river, the natural border between SE Slovenia and Croatia. Here, the previous group had found dice snakes (*Natrix tessellata*), an interesting, highly aquatic piscivorous relative of our native grass snake in addition to the green lizard (*Lacerta viridis*) which got the lizard guys excited. Unfortunately the weather was once again not on our side with no signs of snakes or large lizards, or even consolatory amphibians near the river. A ruined building and cliff wall did turn up our first reptile species of trip however, the common wall lizard *Podarcis muralis*. This is another species familiar to British herpers as an invasive in several parts of the country, where even in the depths of December it has been observed basking outside holes in walls on sunny days. This cold tolerance helped our species list creep further towards our goal of 21 from the previous trip (a little competition always keeps things interesting!). Another night time torch of our previous pond revealed the same newts and frogs as before (with the same pair of frogs still in amplexus!).

A return to the local pond that night with some powerful torches revealed many more common frogs and the newts here were also confirmed as alpine newts. Luckily for us, a lek had aggregated in a shallower section of the pool where several males were observed wafting pheromones with their tails at a single, massive female. This was a hit with the group and everybody went to bed happy and ready to venture further afield the following day.

Figs: Alpine newts breeding and bufo, Podarcis muralis on wall

March 27th lost in the mountains

Today was the big day, some marginally less grey weather was being hailed as our shot at *V. ammodytes* and we ventured forth into the

Left. *Salamandra salamandra* **Right** Bear tracks (*Ursus arctus*)

higher altitude coniferous forests to try to reach a viper site given to us by the previous group. GPS coordinates showed a rocky ridge and cliff face, surrounded by verdant forest with obvious trails and tracks leading nearby. Reality gave us a single muddy logging road, bounded by knee deep snow and the hazy memories of the single veteran from the previous group, who hadn't been a driver at the time. We reached the end of the track we thought we needed and alighted, shivering, in a small quarry. The group got out to stretch their legs and another *P. muralis* was found and photographed. The cold tolerance of this species is astonishing as the slightest hint of slightly-less-grey clouds seemed to summon them from their rock crevices. Luckily they are very easy to photograph when unable to move at their usual rapid pace! We returned down the hill, searching for any landmarks to jog our veteran's memory of the parking space for the trail we needed, eventually reaching the suspected side road to find it blocked by a drift. Minibuses and Opel astra estates are not known for their rallying prowess and so we decided to improvise and try what had looked like another trail further up.

We were greeted by ominous looking tracks in the snow. Bangor University runs an undergraduate field course to Arizona where some lucky members had come into contact with black bears (*Ursus americanus*). These are impressive beasts but the tracks here indicated a much larger animal. The park we were staying in is famous for its brown bear (*U.arctos*) population with bears adorning signage and murals in many places and these tracks drove home the presence of megafauna to many members of the group who had yet to experience anything larger than a rabbit by the side of the road in the UK. The tracks led up the trail we wanted to take but with a less-than-stealthy group of 11 students we reassured them any self-respecting bears in the area would hear us coming from miles away. Several stumbles into knee deep snow later we reached the rocky brow of a kaarst which looked ideal habitat for vipers. We proceeded to check under at least 90% of the rocks and cover on the hill top to no avail and as rain had just started to dampen spirits a little our leader bellowed from behind a tree.

We gathered quickly to see something at odds with the grey and white landscape. The black and yellow aposematic colours of a fire salamander (*Salamandra salamandra*). This was a dream species to find for the amphibian crew and deeply impressed even the most stalwart ophidiophiles too. Their slow biology is well adapted to such a cold environment and captive specimens suffer at even slightly high temperatures. It is not a common species to find in the area, less so at a site where they are not already known from. Our individual was a

Image. Olm (*Proteus anguinus*), captive specimen

very large adult and made the whole ordeal of reaching the location more than worthwhile. On the return to the cars a small wooden structure was located near the road, containing several small pools full of *Salamandra* larvae and mating common frogs. The karstic limestone landscape of the area means that water erodes and flows through the rock, collecting in caves deep underground and makes surface water fairly scarce and so amphibians are mostly concentrated around these sporadic resources. The water that drains down into the rock carves out subterranean caverns that present novel, highly stable environments for colonisation by organisms, including Slovenia's most famous herp.

March 28th : In search of the human fish I

In one town this famous herp species is the lifeblood of the tourist industry with signs displaying it, gift shops selling fluffy versions of it and even restaurants named after it. It is the bizzare troglodyte salamander: the olm (*Proteus anguinus*) or 'human fish'. This species is endemic to cave water courses under the Dinaric alps. The more familiar, white olm was first discovered, resembling an elongated albino axolotol, their eyes have regressed and become covered in skin and their snouts have become elongated and covered in sensory organs. They are neotenic, like axolotols (they do not undergo metamorphosis and retain larval gills etc) and display very slow life history strategies to survive in the nutrient deprived water systems they inhabit. A black form was discovered at a later date with less troglodytic characteristics and more developed eyes. It is thought this form is the result of a second, more recent colonisation of the cave systems, resulting in the less extreme adaptations to caves than the white form. Originally described as a sub species (*P.a.parkelj*) (Stet & Arntzen, 1994), genetic evidence points to this form being well nested within several populations of the white form (Trontelj et al., 2009) despite its distinct

Left. *Zamenis situla* **Right.** Views from the Slovenia - Croatia border

morphology (Ivanović et al., 2013) and olms likely represent a species complex. The white form is visible in breeding tanks in the town of Postojna however the black form is not and occasionally washed to surface water after heavy rains. We had managed to identify some promising looking springs for the black form in the towns it was described from and found them all to be fenced off on arrival. Some consolation frogs and a toad at a nearby stream helped to dull the disappointment of not actually herping our own wild olm but the chances had always been slim to none. On the way back to the accommodation we stopped off at some large ponds near the accommodation to witness large breeding congregations of *R. temporaria* and *B. bufo*, including lots of spawn of the former. Walking back up the road we rescued many migrating toads from the wheels of oncoming traffic.

Figs: frog orgy and spawn, toad on road

March 29th : In search of the human fish II

Today was a tourist day and to make up for our failure to find a wild olm we headed to the town of Postojna, olm central where a thriving tourist industry is built largely off this single amphibian species and the caves it inhabits. We all booked onto a tour that led into the cave where we were promised a look at some captive olms at the end. The students mulled around behind the main group, paying varying amounts of attention to the geology of the system and varying amounts spotlighting the numerous pools. The whole system was brightly illuminated to serve the thousands of tourists that visit here and so was now useless as habitat for our photosensitive quarry. We reached the end of the impressive subterranean system and finally got to see what we came here for. In an unlit section of cave and with several guides and warning posters around, prohibiting flash photography was a large aquarium with several of the elusive cave dwelling salamanders inside. This species is truly bizarre, reacting to the slightest light from a camera's autofocus and hiding its head in the gravel substrate. They move very slowly, preferring to crawl along the bottom of the tank rather than use their relatively small tail as propulsion. The experience was an excellent herpetological highlight to end our time in Slovenia with and we would urge anybody to visit these caves if you get the chance. The guide conveyed the possibility of organising special tours into the deeper parts of the cave with wild olms for us in future trips which is something I'm sure we will eagerly pursue!

March 30th : Finding the silver lining around the clouds

It was finally time to say a bittersweet goodbye to Slovenia. It had been a lovely place but the better weather the forecast promised us at the coast meant everybody was raring to head to the island of Krk in Croatia to hopefully see some more reptiles. We were stopped at the border crossing for what seemed like hours as

Top Left. *Bufotes viridis* **Top Right.** *Bufo bufo* **Bottom.** *Podarcis siculus*

an amusing border officer rooted through our bags, giggling at the mostly alcoholic content (you can't take undergrads anywhere) and bizarre zoologist paraphernalia dangling from the bags. A ram's skull was unearthed from one bag (you can't take wild animals or parts thereof over the border, officially) but as it was a domestic animal the student was allowed to keep the festering memento and we were eventually on our way.

We had several hours to pass before we were allowed to check in at our apartments on Krk and so stopped at some coastal scrubland on mainland Croatia we had identified previously from satellite imagery. We spent some time hiking through the scrub and scouring rock walls but the weather, although warmer now, was still overcast and didn't produce anything of note. A suspected scheltopusik (*Pseudopus apodus*), a very large anguid related to slow worms, was glimpsed under a turned rock but retreated down a burrow faster than an identification could be confirmed. It is a species I have previously found in Turkey and was disappointed to not get the chance to show the students their incredible ability to produce foul smelling musk continuously for minutes at a time. We returned to the road when a small group ahead of the rest of us shouted the word which gets everybody on a herp trip running, no matter the sore legs "SNAKE!". It turned out to be a Leopard snake (*Zamenis situla*), arguably the most beautiful colubrid in Europe and the species I had personally most wanted to see on the trip. It was a good sized male with prominent dark edging to the scales and an overall orange hue which seems to be common here in the Northern part of the species' range. *Zamenis situla* are a fairly cryptic, rock-favouring snake and are not often found in the area (only a few records exist from the rocky areas of neighbouring Krk). It was active on the surface in overcast conditions (surprise,

Left. *Zamenis longissimus* **Top Right.** *Algyroides nigropunctatus* **Bottom Right.** *Hyla arborea*

surprise) and had not had the chance to reach near its optimum temperature, judging by sluggish movements, which were nonetheless ample to draw blood from one unsuspecting handler. It was released after an eager photo session and we proceeded onto the picturesque island of Krk.

Our apartments on Krk were situated in the coastal town of Silo. Here in the off season we were greeted by a very friendly host and a near-silent town. There were few supermarkets and fewer restaurants open so many students reverted to their barbaric primal ways (cold frankfurters and beer became the staple diet of one such specimen) while the postgrads enjoyed a much more sophisticated Mediterranean diet of cold meats, bread and smoked cheese all of which are apparently delicious in Croatia. We were kindly presented with slices of one of Croatia's favourite dishes: whole roast suckling pig, by our host, which went down a treat with the carnivores among us. After stuffing ourselves we set about tracking down herping destinations on an island entirely covered in favourable habitat and juggling the now mangled itinerary to best combat the unpredictable weather and hopeless forecasts.

31st March: Krk; slightly less soggy

Our first full day on Krk consisted of a visit to a well-known reservoir with a very diverse herp assemblage that had been given to the previous Bangor contingent by local herpers. It consisted of a walk along a track with very enticing stone walls on either side to a large reservoir, bordered by a dilapidated building and woodland edge vegetation. We had been promised the site to be crawling with *Natrix* however a soggy Italian wall lizard (*Podarcis siculus*), a few small marsh frogs (*Pelophylax ridibundus*) and an enormous female common toad were all that was found during our first visit here. Two students reported seeing a large

black snake that retreated into a rock wall which we couldn't identify conclusively from the photo taken at the time but would return to the part of the wall it was seen in later. We vowed to come back to the reservoir in "better weather", which ended up applying to most places we visited during this trip. After pushing the Opel out from the mud we headed home to dry off and went out for some more substantial food at one of only two restaurants seemingly open in the whole town.

After food we headed out to a pond on the South of the island which looked like ideal habitat for green toads (*Bufotes viridis*). This species is restricted to the Southern end of the island in rocky coastal habitat and after a roadkilled adult was found on the journey down our expectations rose. Sure enough we located several large adults floating on the surface of the pond and photographed a particularly nice individual, another score for the amphibian crew.

1nd April: April fools hunting for treefrogs

For our second day we targeted a fairly exotic looking and sounding species, the European tree frog (*Hyla arborea*). These had been recorded, along with smooth newts from a different pond, North of our previous day's destination. The newts were found immediately, bumping our amphibian species count up to five but there was no sign of the elusive tree frogs. A *P.siculus* was found drowned in an old bath but otherwise the morning remained devoid of reptiles. As we returned to the main road to attempt access to the far end of the pond we noticed a smaller track running parallel to the main road. We drove down here for a while until we came across every herper's dream- a giant pile of rubbish. As the sun actually begun to make a rare appearance we descended like vultures and it wasn't long before an aesculapian snake was unearthed, this time of the normal form I was more familiar with. It showed none of the usual snappy attitude of juveniles of this species and was amenable to a short photo session. As the temperatures warmed, *Podarcis* emerged in good numbers and another familiar species, the slow worm (*Anguis fragilis*) was located under some more rubbish. A brief photo shoot later and herps were turning up all over the place with the final new species of the afternoon, a Dalmatian algyroides (*Algyroides nigropunctatus*) spotted by the lizard crew basking on a rock wall. This species is reminiscent of a dwarf cordylid with its bright display colours on the ventrum and enlarged keeled scales and spiny tail elsewhere, no doubt convergeantly evolved traits for a crevice dwelling lifestyle.

That evening we returned the treefrog pond on a mission. Further rain had made the bank waterlogged, to the detriment of an idiot in flip flops (yours truly) but the brief spell of sunshine earlier had resulted in a much warmer (and mozzie-r) night. Anuran calls were heard almost immediately after turning off the main road and continued down to our previous parking place. The majority were identified as *Hyla* calls from youtube videos (herping is far too easy these days), to building excitement from the student mob with a few *Pelophylax* and squeaky *Bufo* thrown into the cacophony too. *H. arborea* seemed to stop calling when spotlighted and the first was found through trial and error and brief beams of torchlight. A calling male was found and photographed and a female full of spawn was also found shortly afterwards. Success!

2nd of April: Praise the sun!

We had thus far missed out on *V.ammodytes* to snow and bad directions and had decided to take the situation into our own hands. The

Images. *Natrix natrix persa,* image on right shows the individual feigning death, a common defensive strategy observed in this species.

experienced field herpers had managed to triangulate records and reports of vipers from the island to some favourable looking rocky habitat from satellite images and found some likely looking roads and trails to get the cars close enough to hike there. We prioritised this activity for the ***single*** full day of sun we experienced on the whole trip and set off in search of the nose-horned viper. Initial expectations were high as we trekked up through unforgiving vegetation and very sharp rocky terrain to a rock strewn hillside that looked very similar to previous wide angle shots from the island (a good lesson of why not to post images with plenty of background scenery of sensitive species, we could've been poachers). After a while of scouring south-facing slopes and wind-sheltered bushes no snakes were found and even the *Podarcis* were thin on the ground. Once the group dropped our collective guard and splintered off a shout was carried on the wind from the opposite side of the hill and some garbled sound came through the radio. We managed to call the other group over a stable 4G signal (herping is definitely way too easy these days) and it transpired a *V.ammodytes* had been seen but had retreated into a rock crack. We converged to find the main group sitting, staring desperately at the rocks. There was no sign of any snakes and so we began to explore around. Another *V.ammodytes*, this time a female, was soon found nearby in a much more open location with a third, a beautifully coloured small male, found under a rock next to it. We gave the spiel about not posting photos or disclosing locations to avoid poachers replicating what we had just done, took our photos and then headed back to the cars. We briefly observed a juvenile Balkan green lizard (*Lacerta trilineata*) retreat into a thorny bush under a crag, found another green toad in a rocky valley and came across some ponds containing more marsh frogs and smooth newts on the way down.

On the drive back to the accommodation both drivers simultaneously spotted a likely looking pond near the side of the road with some familiar looking dark shapes on the rocks within. Upon parking up and exiting the cars we heard the splashes of the ever-wary red-eared slider (*Trachemys scripta elegans*) as several large adults fled at the first hint of danger. This large turtle has been introduced to waterways worldwide where it tends to outcompete whatever native chelonian life is present. In N. wales several are known from ponds but the cold winters and meagre growing season are thought to, at least currently, curtail their breeding success. A third, smaller and darker coloured turtle remained basking and

allowed us to get fairly close for better photographs. This was the species we had hoped for, the European pond turtle (*Emys orbicularis*) a near threatened chelonian with a black carapace and yellow speckling. We also heard the high-pitched squeak of suspected yellow bellied toad (*Bombina variegata*), a species suspected of occurring on Krk, from across the road but could not locate them and suspect they were further back on private land.

In the late afternoon we returned to the water reservoir where *Podarcis* and *Algyroides* were now evident, basking on the rock walls and several snakes were witnessed zooming off into undergrowth or under large rocks including a melanistic *Natrix* and a Balkan whip snake (*Hierophis gemmonesis*) which eluded the organisers' best efforts of diving into a thorn bush to get to it. The more elusive wall lizard in the area, *P.melisellensis,* was also seen amongst the gaudier coloured *P.siculus*. As the sun was setting the organisers redeemed themselves with a nice striped grass snake (*Natrix natrix persa*) that was moving along the edge of a field.

April 3rd : back to the reservoir yet again

Some marginally nice weather saw us returning to our favourite reservoir with a big target in mind. The previous Bangor group found the majestic four-lined ratsnake here (*Elaphe quatorlineata*) without much trouble. We scoured the place, turning up several of the black form of the western whipsnake (*Hierophis viridiflavus carbonarius*) which the mysterious 'big black snake' from the previous visit turned out to be. This species showed a strong preference for the stone walls at this site, retreating into them immediately when disturbed. Unfortunately one individual showed signs of snake fungal disease caused by the pathogen *Ophidiomyces ophiodiicola.* This condition is specific to snakes and causes skin lesions. The snake was in generally poor condition with cloudy, dirt-encrusted eyecaps, several lesions dorsally and ventrally and a partial tail with many more lesions and heavily damaged skin. The same baby combinations of young *Natrix* and *P.siculus* were seen and the giant toad was back under its paving slab.

The afternoon saw us venture further afield to the South of the island in search of an elusive colubrid that was high on many people's wanted lists. I tried to manage expectations of finding the crepuscular European cat snake (Telescopus fallax) by pointing out how few had been recorded on Krk but to no avail. The site looked promising and will be revisited in future but pessimism proved the winner on this afternoon as our most significant find turned out to be a large *Scolopendra sp*. that bit Ben's finger.

Left. *Vipera ammodytes* **Right.** *Emys orbicularis*

April 4th

Using familiar looking scenery from photos we set out in search of *Pseudopus apodus* and *Testudo hercegoviensis*, both rare species on the island. We managed to find suitable habitat for both species including likely looking burrows and gaps under vegetation for the latter but the weather once again had the last laugh and not even a *Podarcis* was seen on the way back to the cars as the rain started. In the afternoon we headed to the larger town of Krk for boring touristy stuff and consumption of ice cream before heading back to the apartments for some tasty fajitas cooked by the C&F crew.

April 5th

It was our last day of a fun if somewhat chaotic trip. We had planned to stop off on the three hour drive back to Ljubljana at sites for *Malpolon* and *N. tessellata* on the mainland but rain soon put a stop to that plan. A brief stop at a confirmed locality for *Pseudopus* in Northern Krk however was braved to make sure everybody that joined was thoroughly soaked before the flight home, to end the trip as it had began. An excited cry from Ben turned out to be the result of the smaller, more familiar anguid of the area and so we once again returned to the cars defeated. After cranking the heaters up we set out for the remainder of our journey where this time the border crossing from Croatia into Slovenia took no more than a few minutes and we returned to Ljubljana airport to find that our flights had, once again, been delayed and that a new dent had mysteriously appeared on the Opel. We said a fond goodbye to Slovenia and €300(!) before heading back to the more predictable grey drizzle of the UK. Slovenia and Croatia are both beautiful countries with friendly people, tasty food and great herps. Another two weeks would have likely seen our herp count rise even more but the snow storms of March 2018 had delayed herp activity and emergence in our case. It had nonetheless been a great trip and despite the weather's best efforts we had still racked up an impressive 23 species in 10 days, improving on the previous Bangor trip's count without using many of the previously known localities. I would like to once again thank everybody involved and to thoroughly recommend these great herping destinations!

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