

the
species
recovery
trust

2024 Slovenia
Expedition Report

New Forest Cicada

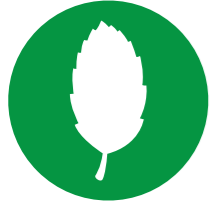
This project is part funded by
the Natural England Species
Recovery Programme



Summary



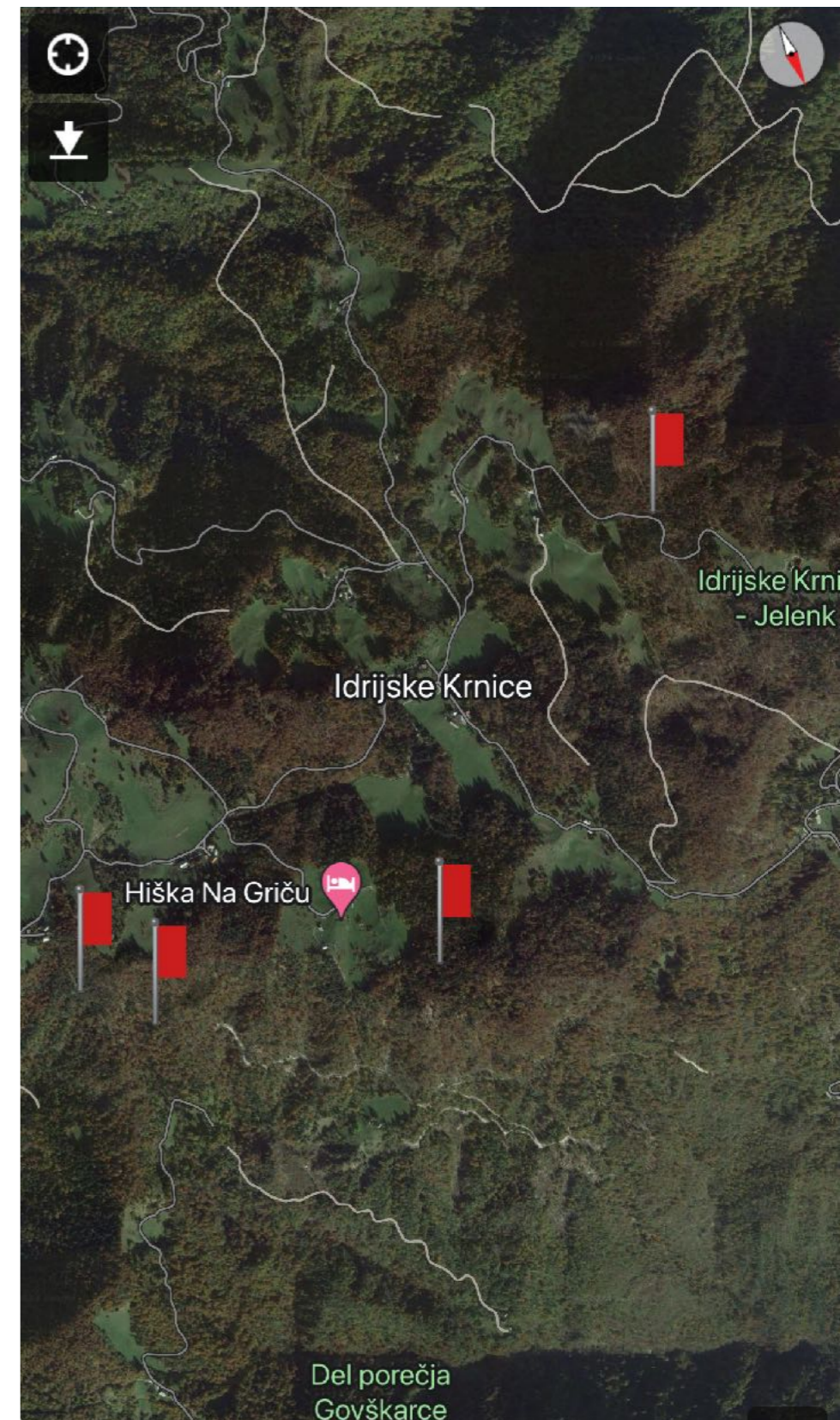
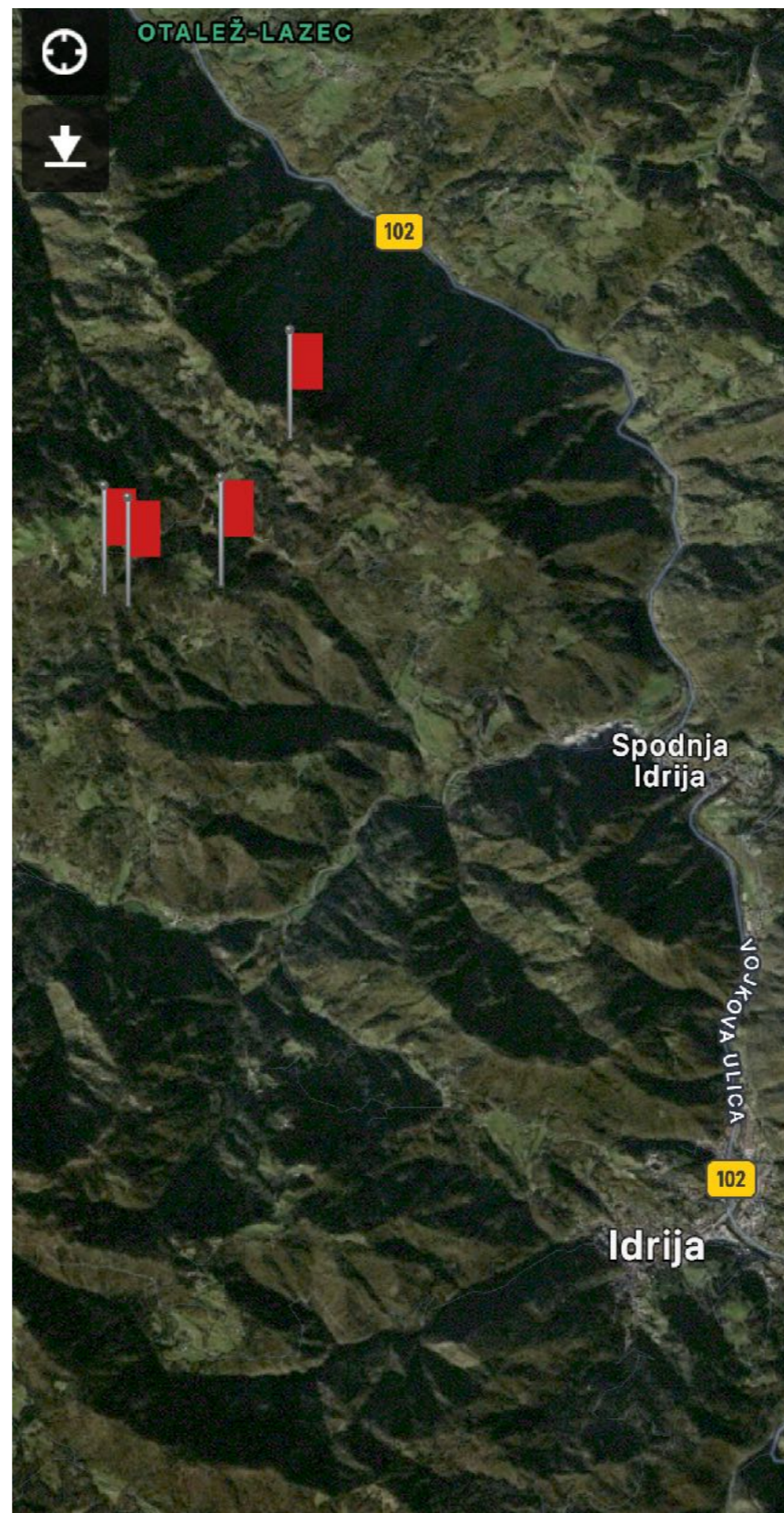
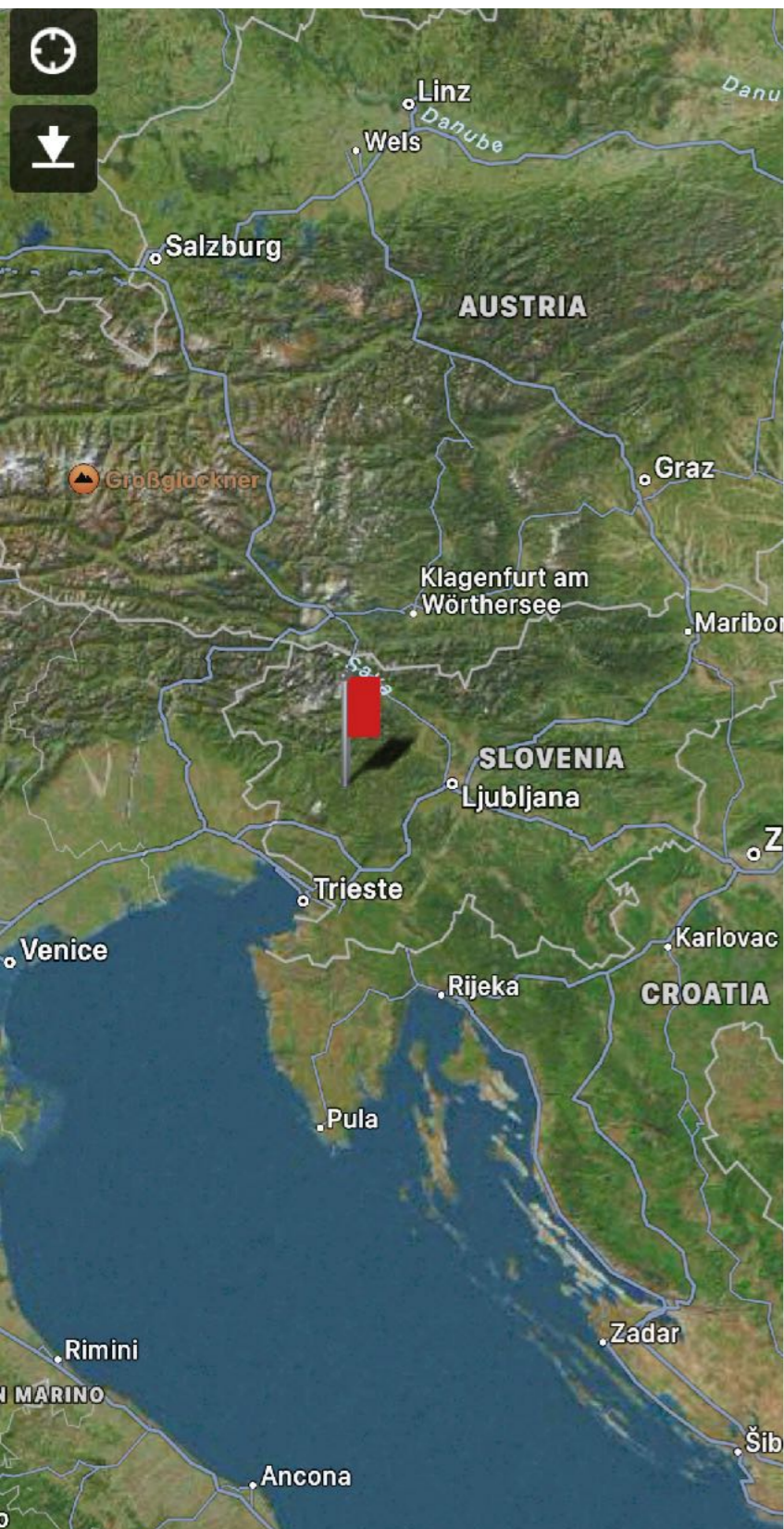
An expedition was undertaken to the Idrija region of Slovenia in June 2024 with the aim of gathering data and possibly collecting individuals



Several Cicada sites were located and a range of techniques used to track animals, however we were unable to collect any individuals. Despite this a great deal was learnt, we have hugely increased our knowledge of the species and have more detailed plans for a return visit

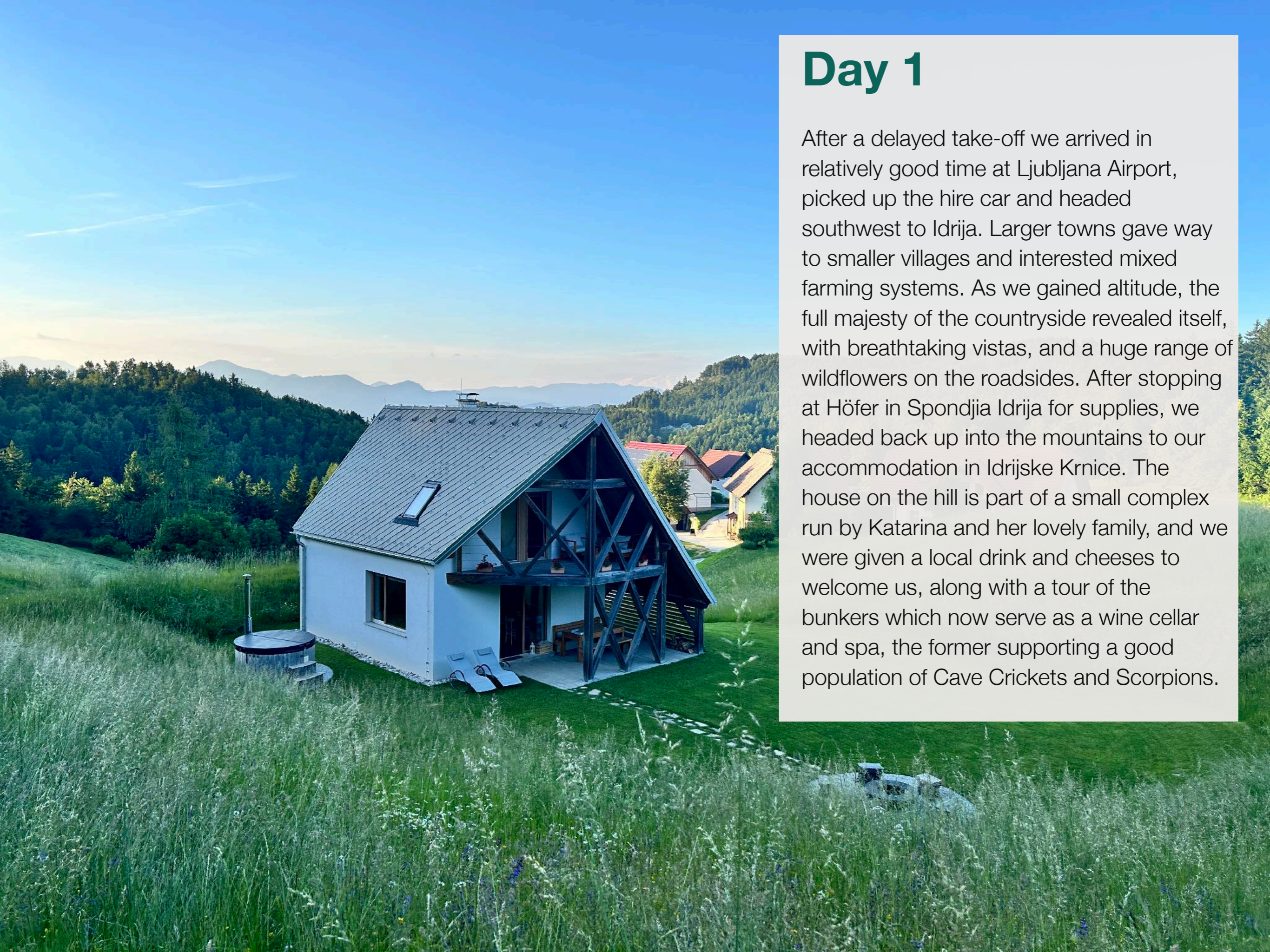


Locations



Day 1

After a delayed take-off we arrived in relatively good time at Ljubljana Airport, picked up the hire car and headed southwest to Idrija. Larger towns gave way to smaller villages and interested mixed farming systems. As we gained altitude, the full majesty of the countryside revealed itself, with breathtaking vistas, and a huge range of wildflowers on the roadsides. After stopping at Höfer in Spondjia Idrija for supplies, we headed back up into the mountains to our accommodation in Idrijske Krnice. The house on the hill is part of a small complex run by Katarina and her lovely family, and we were given a local drink and cheeses to welcome us, along with a tour of the bunkers which now serve as a wine cellar and spa, the former supporting a good population of Cave Crickets and Scorpions.





Day 1

Night expedition to test acoustic gear and look for cicada emergences.

Day 2 - Kemutajse

In the morning we headed out on foot along the road to the west, trying not to be distracted by the large numbers of Spiked Rampion and Orchids growing on the road edges. We picked up the southern track and headed down into the woods, running Song Meter Touch on our phones to listen for any calls. We located a few promising glades on the path sides and then to our great excitement on the way back out found one solitary turret. This occurred on a trackside in a flat area with bare ground and a stand of Glaucous Sedge, on the edge of Bracken. Once our eyes were focussed we then located a cluster of roughly 20 turrets on the way back up the hill, this time in an area of slightly more tussocky Brome grass. These were documented before we headed home for lunch.



Day 2 - Kemutajse



Day 2 - Jelenk

In the afternoon we headed east to where we had been told about a protected meadow/ woodland high up on a plateau. We parked at the bottom and walked up through the woods, where we came across an open glade surrounded by Beech and Pine. Almost immediately we started finding turrets, with a total of over 100 turrets.

At this point we started to pick up a faint signal at 13khz on the Song Meter Touch app, making the distinct 'stop' at the end of the signal. We made an extensive search of the area but could not find any adults. We did however notice that the tops of most of the turrets were damp, and appeared to be freshly made (more info in later section).

We walked up to the plateau, finding turrets at regular intervals in clearings in the wood, before descending back to the woodland edge. At this point we picked up clearer song, although still seemingly at some distance.



Day 2 - Jelenk

Turret with fresh deposits at top



Day 2 - Jelenk

Turrets in amongst tussocky sedge



Day 2 - House on the Hill

Due to the fresh deposits at the top of the turrets we decided it would be worth inspecting them in darkness to see if any deposits were added and nymphs might be visible. On return to our accommodation, the owner said they had seen turrets on their land, so we went into the woods and indeed found a low density of turrets. We marked them out and then returned at 9:45 pm in the dark. We spent some time looking at them and at one point observed a very rapid movement at the top of the turret. In many ways it resembled an earthworm retracting back down the hole but we were unable to confirm what we had seen.



Day 3 - Jelenk

Today we were extremely lucky to host Matija, a Slovenian cicada expert, for the day and with our positive heads on we headed out to Jelenk to show him the turrets & search for further signs of the elusive *Cicadetta montana*.

We trekked up to the first site where we'd found a good density of turrets the day before, and Matija got all his kit together whilst we searched for cicada cases around the trees. Matija had a Petterson 200, Zoom recorder & parabolic mic with headphones.



Day 3 - Jelenk

Matija quickly picked up the song of *Cicadetta montana* within the forest, but the songs were faint, so we decided to move further down the hill where the forest edge met meadow and scrub. The songs here were clearer and the animals closer, but still moving around. Matija explained that he'd only ever seen one adult come to the ground in all his years of surveying.

After a couple of hours listening, we got to grips with how the calls looked on Song Meter Touch and deployed the Audiomoth to get clear recordings. With our chances of catching an adult cicada being minuscule, we altered our thinking and moved towards the idea of catching the nymphs in the ground.

At this site, the previous day, we had knocked over a couple of turrets which had been closed over by the animal inside, and so we checked those again to find they had been rebuilt overnight. This gave us hope that some of the cicadas were still in their nymph form in the soil, and were yet to emerge.



Day 3 - Jelenk

Turret knocked over on day 2 to test theory that closed off turrets are rebuilt overnight

Turret was rebuilt overnight and new wet soil deposits were found on day 3

Additional deposits were added to the turret which was found to be slightly larger on day 4

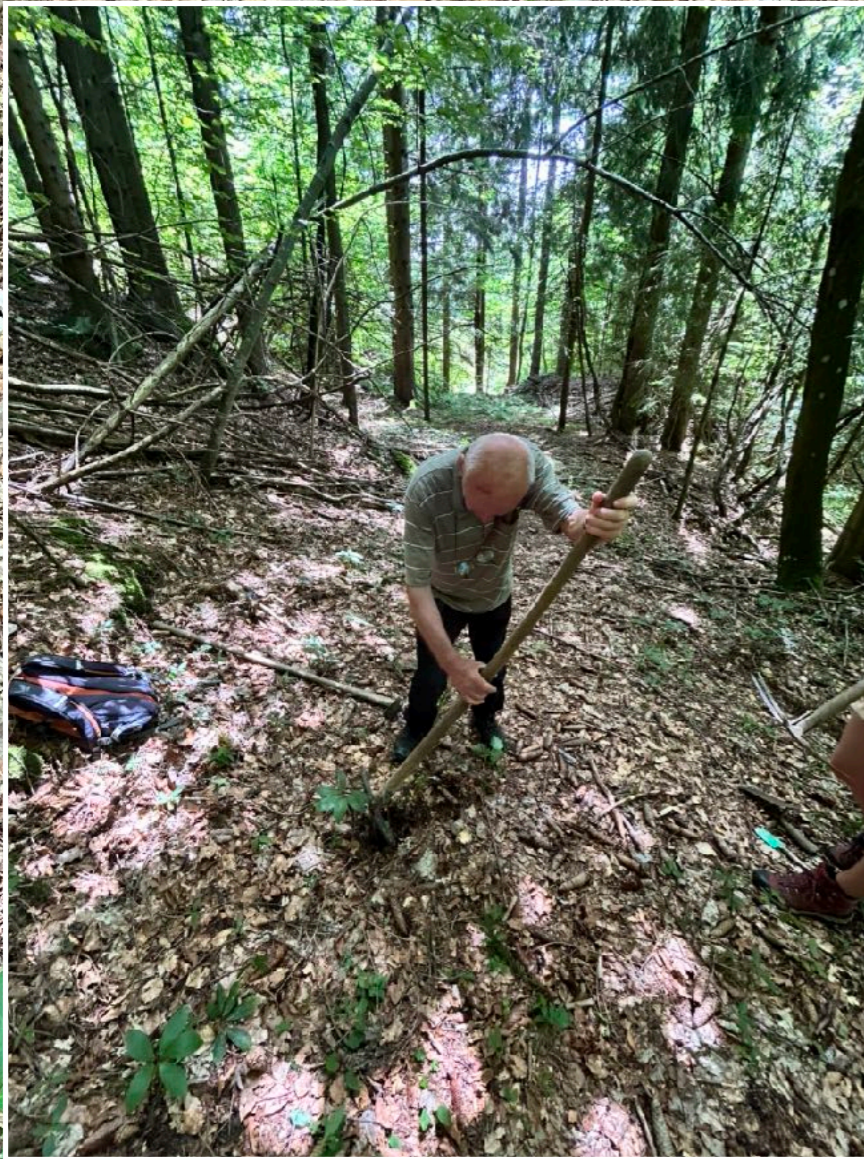


Day 3 - Jelenk



Day 3 - Jelenk





Day 3 - Jelenk

After a quick bite of lunch, with Matija & Kristina (Katarina's daughter) in tow, we headed back to Jelenk to see if we could dig up the nymphs by following the turret tunnels. The first turret seemed to have quite a wide, smooth tunnel (2-3cm in width), which we followed but this eventually ended and no nymphs were found. We then dug up 4 additional turrets, and for each we lost them fairly quickly as they were 0.4cm in width. We concluded that the first tunnel must have been made by a rodent or other larger animal, rather than a cicada. With no success at digging them up, our next thoughts focussed on catching the nymphs as they emerge from the turrets to start their journey into the trees.

Day 4 - Jelenk

At dawn, we followed our bleary eyes back over to Jelenk, and sat at two sites with good densities of turrets. We sat, and sat a bit more, listened to deer calling & worried about bears, and sat a bit more. With no movement on the turrets, and clear signs that turret extension had happened overnight, we decided another sunset trip may help us undercover a bit more about their lifecycle. We picked up the audio moth and moved it to the forest edge, and then headed home for breakfast.

With our chances of catching anything falling away, we started to plan the year ahead and our next visit to Slovenia. Where to focus our efforts next?



Day 5 - House on the Hill

Having established that a future expedition may involve leaving a fairly significant amount of equipment out over night, we returned to the woods by the house to see if we could find a site with a higher density of turrets. After some searching we found another perfect spot, in a clearing with a patch of loose tussocky sedges, and around 100 turrets; many with fresh deposits on. We then located an access forestry track leading up to the site, providing good access for transporting any equipment.

The weather on this final day was hazy and cloudy (it did rain on the way to the airport) and our phones were not picking up any calls.

We said our farewells to Katarina, Mitja and Kristina who are hugely excited to be involved with the project and the role their woodland may play in it.

We leave Slovenia with mixed emotions - disappointed that no individuals were caught, but hugely excited for the project and what the future holds.



Key findings

ADULTS

- The adults are in the canopy and rarely come down to the ground. Even if they do they would tend to all be males
- The adults are very quick flyers and move around the trees
- The females, if calling, click once or twice every few minutes
- The songs are above 13kHz, between 13 & 30kHz
- No obvious leaf scars were found, and we need to research more about choice of host plants
- The adults feed by puncturing stems and drinking sap, so ideally would need to be transporting with stems rather than leaves (or might insect jelly work?)
- Further kit needed to detect the adults - Peterson, zoom recorder and parabolic mic. Video equipment to film the turrets at night
- Light may tempt the adults down from the trees at night

Key findings (cont.)

NYMPHS

- The burrows are concentrated in glades and wood edges, but also occur under continuous canopy in the shade
- Many are linked with the growth of tussocky grass, but some were found in areas where the only roots would be from nearby trees
- They can occur in areas of deep leaf litter, and even emerge through piles of brush, but always consist of a more clayey soil which appears to have been brought up from some depth. These new deposits were always damp. There had been a significant period of heavy rain for weeks before we arrived, and we are not sure if this moisture came from damper soil beneath or the nymphs mixing soil with saliva
- It is extremely hard to dig out the burrow by following the holes, which are no more than 7mm wide, though perhaps a fine endoscope could be used to follow them down
- We believe the cicadas do not emerge at dawn, and after more research, we believe they may emerge just before sunset and climb the trees and metamorphose during the night when chances of predation are lower. No empty exuvial were found so we suspect they hatch higher up in the trees
- Every morning there are fresh deposits on the majority of turrets, and any damage to turrets is repaired. Some turrets have fresh 'bungs' of material blocking the entrances whereas some are left open, which we suspect is when they have left the burrows
- We are unsure of the purpose of them emerging and adding fresh deposits to the turrets each night

Key findings (cont.)

HABITAT AND RANGE

- Once we had our eyes focussed for the turrets we were finding them quite easily in a fairly wide range of woodlands. They were typically concentrated in glades, track-sides and woodland edges, but were also found more sparsely throughout woodland
- The favoured sites appeared to be where there was a light growth of tussocky sedges/grasses but at the lower Jelenk site there was no ground cover at all, implying the nymphs were feeding off tree roots
- We need to do more research into the range of this sub-type of Cicada, but certainly the area northwest of Spodnja Idrija supports large populations which could easily support collection of individuals with no significant impact on numbers



Turret with freshly barricaded entrance



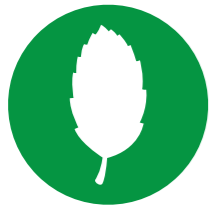
Unusual burrow with two entrances; both open

Looking forward

Project aims 2025



Return to Slovenia with an attempt to catch nymphs emerging



Ensure receptor tubs have good network of roots in them ready to feed



Carry out extended research to fill gaps in knowledge, liaising with other researches across Europe



Continue to prepare receptor enclosures for the insects



The Species Recovery Trust is a charity set up to tackle the loss of some of the rarest species in the UK.

There are over nine hundred native species in the UK that are classed as under threat, with several hundreds more currently widespread but known to be in significant decline. The countryside is now bereft of many species that were a familiar sight a mere generation ago.

A small number of these species are on the absolute brink of existence, poised to become extinct in our lifetimes; our goal is to stop them vanishing.

Our aim is to remove 50 species from the edge of extinction in the UK by the year 2050. In addition we are reconnecting people with wildlife and the natural world through training programmes and awareness raising.



A photograph of a forest floor in spring. The ground is covered with a dense carpet of purple bluebells. In the foreground, a large, moss-covered tree stump lies on the ground. The background is filled with tall, slender trees with green foliage, creating a dappled light effect on the forest floor.

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