

T H E M Y S T E R I E S O F F A L C O P O L I S

Hungarian researchers found the place in Africa where, year after year, almost every red-footed falcon in the world gathers for a while.

Words by **BÁLINT GILICZE** Photographs by **ÁKOS STILLER**

Through receivers on the ground the Hungarian researchers every night downloaded data from transmitters attached to the returning red-footed falcons. They tried to find out the extent of daytime meeting places, so they could call for protection of these world-wide unique locations.



Two inquiring looks collide. Péter Palatitz is examining a male after being freed from a net at the nighttime resting place of the red-footed falcons in Angola. Later, teammembers will attach a transmitter to the bird.


**The red-footed falcon
is a fantastic hunter.
Their eyes are eight times
sharper than humans',
they see the colours more
vividly than us, even in the
ultraviolet range.**

The feathers of the male and female red-footed falcons have different colours, but their common feature is the orange-red feet which would – with deadly precision – grab anything that interests them, let it be insects flying in the air, grasshoppers resting on a bush, locusts and voles hiding in grass, or even an unsuspecting toad. Its tight flight, its threateningly fast body in the sky shows that the red-footed falcon is the hawks' relative. However, it's a surprisingly colourful bird, and in sharp contrast to our normal idea of solitary predators, they live in almost parrot-like, noisily chirping colonies.

The red-footed falcon is a strange puzzle even for nature conservationists and migration researchers, and the loose ends to solve the mysteries cover half of the world – from the steppes to the savannahs.

A male red-footed falcon in his second year. The colour diversity is the result of a mixture of the brownish leftover feathers from chickhood and the first slate-grey and red adult feathers replacing them in Africa.

PHOTO: MILÁN RADISICS

 *Ákos Stiller took part in the 2023 expedition sponsored by the National Geographic Society.*



FROM THE TOP OF a slowly rolling Land Rover we are watching the burnt-out “puszta” near Jászboldogháza, in the middle of the Carpathian Basin. It's the last day of August, the heat hasn't lessened for two weeks. Nearly a meter (three feet)-tall sunflowers' heads are turning towards the bone-dried soil, the

lines of the withered corn are blurred together with the scraggy reed growing in the ditch. “Look, how it destroyed it”, our guide points to the farm-building passing by on our right while casually hanging his legs onto the wind-screen. Last June a heavy storm ripped beams and corrugated sheets off the roof, and now it all lies showing its yellow insulation covered



Egg count in the artificial nests placed for the red-footed falcons, in Jászság Puszta.

belly up to the sky next to good-sized holes. “The storm also did a lot of serious damage to the biggest nesting area, more than fifty nests were lost with the knocked down trees”, our guide adds, and points to the gap-toothed poplar row next to the road in the distance. The trees lined up along the narrow channel are obviously suffering from water shortage, their crown is mainly bare. Some have already given up the fight, their grey bark is falling off in large pieces revealing the pale colour of the dry trunks. “Lately, the water authority doesn’t run water to the channel under the tree line, either because there is none, or because they need the water somewhere else”, says Peter.

As we are approaching, slowly we spot the wooden boxes attached to the tree trunks at about two people’s heights. Their size is just

big enough that a soccer ball would fit in them, but luckily their purpose is much more sensible: mostly for falcons to incubate their eggs. It is the end of summer, the chicks have already flown out, but the group of poplars – one of the rare tree enclaves of the Great Hungarian Plain – now provides an excellent gathering place for the birds preparing for the long migration again.

First, the nearby falcons assemble here to spend the lengthening nights together. Then, as the daily adventures take them to longer distances, the separated groups merge. At the end, several thousands of them wait for the almost scheduled, end of September cold front from the northeast to push them onto the back of the strengthening winds and send them out for their journey towards the Equator. Cold within, flying-out beyond – we came here to meet one



Attaching the transmitter; on the young falcon’s head we can still see the fine down-feathers which is typical for chicks.

of the first gangs of red-footed falcons.

We climb off the top of the rover and set off scanning the grass. The three of us are walking under the dying trees: our driver, a local photographer who he himself usually puts out breeding boxes with a farmer, and my fellow traveller, who is – the owner of the rover –, Péter Palatitz from the Hungarian Ornithological and Nature Conservation Society.

“This is a tail-feather ... female, red-footed falcon ..., the outermost left, or maybe one back”, he says turning a fine, oval patterned feather in his hand. He’s giving all the information confidently, without any expert allures, he works with that clear, effective practicality what is needed for following the falcons all the time. There are not many people in the world who would know more about these birds than Péter Palatitz, and

maybe there is no one who would have done more for them than Péter.

THE WHOLE THING started with the hunter grandfather; in summer, the little Péter was walking the forests of the Mátra with him. “There was a high rock opposite our holiday house, one of its caves was painted white around. They said it was a nest sometimes for ravens, sometimes for saker falcons. As a young child, during breakfast, I was always scanning the hollow with my binoculars, so that maybe I could catch a glimpse of the falcon.”

Later the grandfather moved into the city and his grandson, as a secondary school student, fell in love with ornithology, and joined to work with

Red-footed falcon
Falco tinnunculus

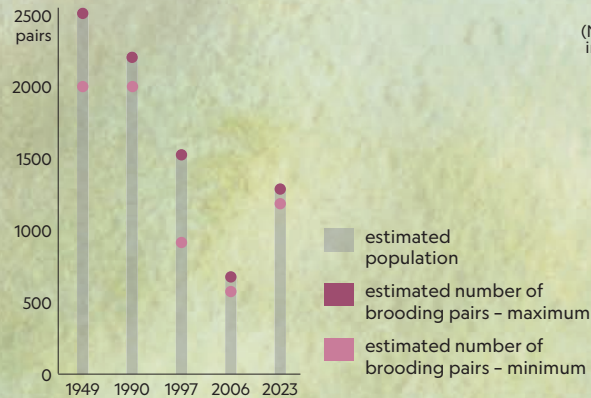


Tenants of the “puszta”

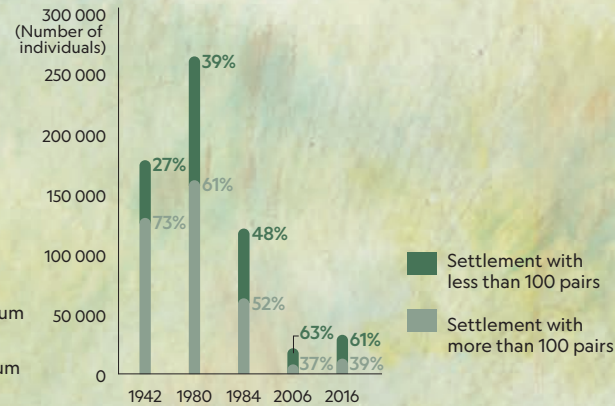
Like other falcons, the red-footed falcon does not build a nest. Their settlements form naturally in colonies of rooks. But as the rooks used to be considered as pests, they were poisoned, so by the end of the 1990s their numbers dropped back to one tenth, their nests were empty or vanished.



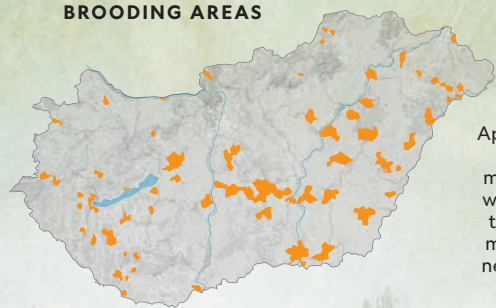
CHANGES OF THE RED-FOOTED FALCONS' CONDITION



CHANGES OF THE ROOKS' CONDITION

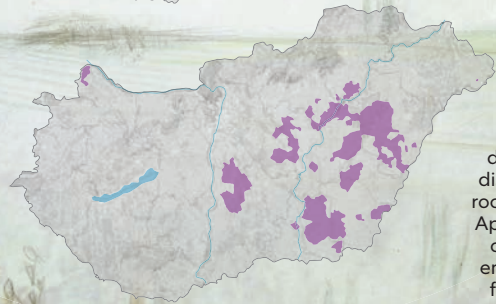


CHANGES IN RED-FOOTED FALCONS' BROODING AREAS



1949

Apart from enclosed forests of the midmountains they were widespread in the whole country, mainly brooding in nesting areas of the rooks.



2006

Their numbers decreased with the disappearance of the rooks' nesting colonies. Apart from the region of Lake Fertő, they entirely disappeared from Transdanubia, including the pastures at the feet of the mountains.



Rook
Corvus frugilegus

a bird-ringing camp. But the close encounters with the birds couldn't substitute the excitement of hiking in the woods. So, after a while, he said goodbye to the bird nets and returned to the forests. Now, without the grandfather he was hunting – with binoculars – for birds of prey.

In his university years, Péter Palatitz spent his summers with roaming the Great Hungarian Plain. In winter, on backpack tours, he was following the birds in Africa. “A migration researcher”, he might have been savouring the expression, though he probably had something else on his mind, when in 1996, carrying several rolls of films, he was thought to be a spy, and even though only for a couple of hours, he got insight into the world of Nigerian prisons.

After basic university training Péter had the idea to do his thesis for the doctor's degree about

rooks seemingly adopted well to the changes, easily switched to a less meat/more crop diet and the numbers of their nesting areas started increasing. According to estimates of that period, in the four decades following the 1940s their numbers quintupled.

“The black army can be defeated”, informed the article of *Nimród* hunter magazine's 1980 February issue, recommending to farmers, hunters and nature conservationists a real magic potion which was developed after a lot of research and field experiments. “The F1 substance” provided a cure for a long-existing and increasingly serious problem.

Thinning was the solution. As the estimates talked about 650,000 brooding pairs, hunting didn't promise an effective solution, and poisoning didn't select the victims – buzzards, eagles,

The never seen decreasing number of brooding pairs was concerning, but even more alarming was that the red-footed falcons had totally disappeared from huge areas.

birds of prey. With two colleagues, Szabolcs Solt and Péter Fehérvári – who had just returned from Israel –, experts of the Ornithological Society and national parks they started an ambitious challenge: they decided to save the red-footed falcon.

This was because it seemed that the population of the species in the Carpathian Basin would disappear by the beginning of the year 2000. Even the never seen decreasing number of brooding pairs was concerning, but even more alarming was that the red-footed falcons had totally disappeared from huge areas.

For a long time, rooks were considered as agricultural pests. However, by the 1940s, after long disputes, academics concluded that rooks have more beneficial qualities by decimating vermin, than destructive ones by pilfering crops. They reached this conclusion just before the quantum-leap industrialization of the agriculture happened, more and more natural grasslands and pastures turned into cultivated fields, and more effective technologies were used. The

foxes and other carnivores were endangered after consuming dead rooks.

But “the F1 substance”, as a strange trick of biochemistry, was only deadly for rooks and their closest relatives. The rooks, after eating hens' or pheasants' eggs injected with poison, were killed by the accumulated uric acid crystals in their body.

The article, which put the new method into common knowledge, emphasised that during the experiments not one protected species died. So, a perfectly selective solution was created which – it seemed – harmed only the rooks. The popularity and efficiency of the process was beyond belief. Farmers and hunters placed poisoned eggs by the hundred-thousands near rook nesting areas, and their numbers started decreasing dramatically. Seeing the shocking pace of the proceedings, the authorities tried to limit the poisoning. After joining the EU, they didn't renew the relevant permits, and declared the rook to be a protected species ... but they

were late. By the end of the 1990s the number of the rooks dropped back to one tenth, most of the population retreated into city parks. The “black army” mostly disappeared from the countryside. Not much later even their abandoned nesting places decayed.

THE RED-FOOTED FALCON loves company. According to the newest genetical studies, this is not surprising, because it belongs to a strange group of falcons which has close relationship to parrots. Their flocks – especially when the older birds gathering with that year’s young ones – live their social life among loud chirping, and the conflicts around the nests are not solved quietly either.

Even the colours and the body structure of the red-footed falcon are like parrots; there is a strong contrast between the male’s blueish slate-grey feathers and the colour around the eyes, the beak’s yellow, the orange red of the legs and belly feathers around the thighs – especially in the affectionate weeks of spring. The distinction on the hens and youngsters is not as striking, but the orange colour appears on their bellies and backs, and gives a marbled image.

They certainly take after their cavity inhabiting ancestors in the fact that they wouldn’t put one dry little twig on top of another to make a nest, so they rely on other birds’ abandoned structures. *The tenants of the puszta*. Says the title of the short film about them. They are not really picky about nests, but as their basic need is a big company, they most of all feel happy in extensive nesting areas where there are enough abandoned nests for dozens or even hundreds of brooding pairs. Such nesting places in the Carpathian Basin only rooks have. Or rather used to have.

The mass poisoning of the rooks might have been lucky for the red-footed falcons in the early months or years, but with the first bigger storms and winter snowfalls reality “knocked on the doors” of the freshly emptied “rentals”. Without careful repairs the deserted nests



On the way to Falcopolis
Péter Borbáth and Péter Palatitz
seize every opportunity
to observe and collect data
of the local wildlife

disintegrated or with storm-broken branches fell on the ground, and there were no replacements. Only a few daring falcons followed the rooks to human settlements, others had a crack at the smaller nesting places of magpies or hooded crows, but as the number of the “rentals” drastically dropped down, the number of the falcons’ brooding pairs started decreasing rapidly, as well.

Péter Palatitz and his colleagues revived an old technique when they started to set up artificial nests. That this method is working was clearly shown a century ago; the story gives us a glimpse into the agricultural conditions of that time, too. To prevent a locust invasion – which was a real danger before the age of insecticides in the Carpathian Basin – they wanted to settle

down the red-footed falcons with wicker baskets. The experiment was successful, the falcons fancied the fake nests, and the conservationists during the decades developed the box model and ended up with covered nesting crates – yes, we saw these attached to the trunks of the withering poplars.

After a while the Hungarian ornithologists with the support of an EU conservation project stepped up a level, they put up breeding boxes by the thousands to places where they hoped the red-footed falcons would return. They walked through the sites where the rooks used to nest, and discussed with farmers and nature conservation experts to place the boxes where there was enough food.

The result was positive. The red-footed falcons happily occupied the nesting boxes, and the number of the brooding pairs finally moved up from the bottom. The programme was so successful, that now about 80 percent of the Hungarian red-footed falcons nest in nesting boxes. In a decade, the new, bustling nesting areas had another result: after a long time, the rooks started to breed again in many places.

With the mass-placement of nesting boxes there was a chance to consistently observe the falcons' behaviour. As the conditions were created by the conservationists, they could also serve the purpose of the observations. For example, they invented a simple and effective method: by attaching a small mirror on the inside of the nesting box, they could easily, even from the ground, inspect the contents of the nest.

THEY MANAGED TO MAP the areas where the red-footed falcons travelled by attaching a tiny transmitter, weighing about 3.5 grams (0.12 ounces). As it turned out, females most likely stayed close to the nest, while males were carrying prey from further away, often quite vehemently – Péter Palatitz witnessed it not once as the male, on impulse, just chucked the captured vole into the nest of chicks and turned back right away to bring the next.

However, the light weight of the transmitters had a disadvantage; the researchers constantly had to locate the position of the tiny equipment with an antenna, which meant that they had to follow the “bugged” birds on site. The mini transmitter provided a lot of useful information about falcon behaviour, but without independent localization and data transmission there was no possibility to examine long-distance migration.

It was a relatively long wait until – by the end of the 2000s – electronic miniaturisation got to the point when lightweight transmitters were on the market. Their weight was insignificant compared to the falcons' 150-200-gram (0.3-0.4 pounds) body weight – about 3 percent, and they were able to automatically locate the birds' positions and transmit the data to the right places. Today, there are units which can measure GPS coordinates and upload the data to satellites, as well, and they can be attached to even smaller birds without any problems.

The observation of the red-footed falcons' migration was revolutionised by an even more simple, only 4.5-gram (0.16 ounces)-weight transmitter, whose position could be followed by the ARGOS satellite system, so through the tiny transmitter they could collect more and more data about the falcons' migrating routes. And from the data, in a few years, the picture was formed.

As autumn colds approach, the falcons' daily wanderings cover bigger and bigger areas, meeting falcons from other gathering sites, and slowly merging into larger groups. Finally, when the first cold, wet autumn air-masses stream in from the northwest, they depart in a few enormous clusters. The North-Eastern Passat helps them on their journey, so they quickly – the more experienced ones usually without stopping, without rest – can get through the Sahara.

The flocks have a short rest around Lake Chad, then cross the dangerous realm of rainforests surrounding the Equator. They must hurry because this region has frequent wild storms, and heavy rainfall could force them to stop. As the crown level of the jungle is the home and hunting ground of monkeys, snakes and other predators, this leg of the journey is the riskiest,

most dangerous part of the migration.

If they get over this obstacle, they arrive at the catchment area of River Okavango by the beginning of the wet season, where the huge amount of rain has just kicked off the swarming of termites. So far, it has taken only 16 days for the fastest – transmitter-equipped – red-footed falcon to cover the 8500-kilometre (5280 miles)-long trip.

The early transmitters had a small deficiency: because of energy-saving, they located themselves in random times and inconstant precision, that's why it was hard to determine whether the randomly arriving data from the transmitter-equipped falcons came from the same gathering place or the paths of the falcons merely crossed each other. From the data, a few promising areas were outlined, but in the early 2010s Péter's team searched in vain in Namibia,

The turning point, surprisingly, came at a family party where Péter Palatitz, with everlasting enthusiasm, described his African plans

Botswana, Zambia and South Africa, and they couldn't find the assumed big gathering place. At the end, what was left was Angola, every sign showed that the solution would be there. Péter felt more and more sure: they could count on a big discovery.

Soon it turned out that getting forward wouldn't be easy. In Angola, after a quarter century of desperate struggle, the civil war ended in 2002. The fights left immeasurable destruction in human lives and infrastructure. But the shadow of war stretches even longer: the opposing sides had planted massive numbers of landmines, so – despite of all the efforts of the country – Angola still counts as a landmine zone until now. Accidents still happen often; almost 90,000 people have suffered from exploding mines – mostly loss of limbs. Since the end of the civil war, the country has been trying to open to the world, but to reach distant corners far from the big cities is hard even today, especially for foreigners without local connections.

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It turned out that a distant relative he hadn't met for years, knew the problems very well, and what is more, knew someone who would be perfect to organise the African mission. A little more than three months later, in March 2019, at the Luanda airport, the small team of Hungarian ornithologists shook hands with José Pedro Agostinho, aka Zeca – who, at that point, didn't suspect that in a few days would witness an amazing natural wonder. They couldn't have found a more suitable guide; on the one hand, Zeca worked for HALO Trust, a minesweeping company, on the other, he easily could get on the same frequency with the locals – and with-

out their help this research would have been a failure. Zeca illustrated the seriousness of the danger with the example of a football ground next to a busy road: The field was easily cleared, but around it landmines remained. Kids lost their legs because, despite it being prohibited, they ran out after stray balls. There was a strict rule: no matter what, you mustn't step off the road, not even to relieve yourself. Even when the place seemed secure, Zeca bombarded the locals with cross-questions, if he saw a suspicious sign, for example, an abandoned house: “Why is this house empty? Was there an explosion hereabout?”

After long years of searching, Angola finally fulfilled the hopes of the Hungarian ornithologists. “Before we got there, we hadn't seen any red-footed falcons”, says Péter. “But as we were approaching the hypothesised gathering place, and stopped for a few minutes, a group of three hundred falcons whooshed away above our heads.”

“Then we were more and more sure that we were at the right place. Near the gathering place, at the authorities’ checkpoint set up at the city boundary, termites were swarming, and the falcons were picking them right above our heads. Thousands of them were flying above the mayor’s office, so official protocols here or there, we were not able to concentrate on anything else”, remembers Péter.

At the gathering place, the view was indescribable. “As we got there, it became clear that there would be an incredible number of falcons here. We practically couldn’t see the sky from them. It was dusk, we stopped somewhere where we could see all the surroundings, and just watched as the birds were surging in – there were much, much more of them as we had hoped. They were such an unbelievable crowd that we could literally feel the wind produced by their flapping wings. They were still hunting here and there in the air, and as they settled down on the trees, the branches visibly sagged under the huge weight”, Péter recalls the unforgettable moments; in his voice you can still feel the emotions mixing with amazement.

“We were standing under the gathering place. My tears were falling. And Zeca, who had binoculars but who had never pointed them at a bird, because he had always been looking down for mines, even as a layperson could feel that something like this doesn’t exist anywhere else in the world. Now he got really close to God, he said. He felt that this would be his mission for life: to try to protect people and animals here in Angola.”

The members of the expedition couldn’t get over their first amazement. Despite being experienced bird counters, they still didn’t have enough equipment to measure such a number, but they were sure this was a crowd of multiple hundred-thousand or even million birds, much more than the current estimated world population.

According to the transmitters attached to the birds in various locations, from the Carpathian Basin to Kazakhstan, falcons assemble here from all over the world at the end of the wintering season. So, we can say, that the little Hungarian research team found the red-footed falcons’ capital – they named the place *Falcopolis*.

BUT WHY exactly there? According to the transmitters, at their African winter site, the red-footed falcons, in total, fly around as much as the distance of their migration route; surely, they follow the termite swarms induced by the rain fronts. A unique feature of Falcopolis is unlike many parts of the woodland savannah, in this area there is a large group of tall, old eucalypts and mango-trees offering resting spots. And as it turned out, it’s not a coincidence: there used to be a settlement here, so people also contributed to the existence of the right conditions. And what might be even more important: according to satellite photos, there are several characteristics of the terrain here, of which the falcons can use like beacons to find their way back even in poor visibility or during storms.



Top: Patients needing rehabilitation in Huambo. Ten-thousands were crippled by the landmines buried during the civil war. The minesweeping is ongoing even up to this day, so fortunately, the number of the newly injured people is decreasing.

On the left: Children play “Elastics” (a backyard game) at the main square of the village; they are finally can grow up during peace. Angola is a country rich in minerals, has great agricultural potentials, so a population explosion is expected in the near future.



In Angola, the road conditions, especially in the wet season, don't let explorers get lazy.

The features of the land can also help to remember this place in the long run, so the falcons can probably navigate themselves here quite easily year after year. The Hungarian researchers, who teamed up to protect them, have identified so far more than 900 autumn gathering places on the Northern hemisphere by studies and the transmitters' data, but from the research it became clear that these sites were far from permanent. The Angolan falcon capital on the other hand, as the scientists learned from the locals, seemed to have been existing for at least a decade at the newly discovered location.

The fact, that most of the world's red-footed

falcon population turns up here once a year, means grave danger to the species. One, hard to estimate, danger is the consumption of illegally killed animals' meat. Angola legally banned poaching and trading bushmeat, and the red-footed falcons are already protected species in the country, but all this doesn't really matter far from the big cities where lack of protein is a daily problem, and selling bushmeat is a good source of income. It's not so difficult to catch a red-footed falcon, anyway. In the dark of the night, young lads sneak out to the gathering place. From the trees, with sticks they arouse the falcons who are soaking wet from the night

rains. A few hours later, at daybreak, they go out again and collect the wet birds from the ground. The news quickly spread about the foreign ornithologists, who were interested in the red-footed falcons but least of all in gastronomical aspects, so naturally, the locals became more careful. It's hard to estimate the extent of the damage caused by hunting but it's a fact that, while Péter Palatitz and colleagues were working in the area, several identification rings of falcons killed in the previous years were brought in by local youths, and it – considering the rate of the ringed falcons – can suggest several thousand preys yearly.

We must consider the collateral damage, as well, as many of the soaking wet birds – knocked down from tall trees, unable to escape – might become victims of predators – which can comfortably move around on the ground even in the dark –, or stray dogs.

The bushmeat problem is a great danger even beyond the destruction, as it's possible that because of the disturbance, the gathering place will cease to exist. The developing economy could mean even greater danger.

The increasingly intensive Angolan agriculture is using more and more insecticides, and regulations are not strict enough, even for the types of chemicals that can accumulate in the top predators' body causing fatal poisoning. The whole world's red-footed falcon population can suffer even if just one farmer unthoughtfully and irresponsibly deploys an insecticide near the gathering place.

Aware of all these, the Hungarian ornithologists who discovered Falcopolis, the worldwide gathering place of the red-footed falcons, four years later returned with their second expedition in 2023, and apart from research work, they also delivered informative courses. Local young fellows arrived from every direction with the captured falcons. First, they chose names for the birds, and after attaching the rings and the transmitters, let them go.

"If we think about it, the red-footed falcon is in fact a bridge between Angola and Hungary. With a few weeks difference, the same falcons are snatching the termites there, in Africa, as the voles here, at home. It's moving to see that this intercontinental natural phenomenon connects so different lifestyles and people", says Péter Palatitz.

It is important to mention that the African transmitters had some specific nature conservation purposes, as well; with their help, the researchers could measure the area that the falcons use. As it turned out the extent of the gathering place is only about 5 x 5 kilometres (3.1 x 3.1 miles); beyond that handkerchief-size land, on an approximately 50 x 50-kilometre (31 x 31 miles) core area is where the falcons usually



Falcons caught in the evening get rings and transmitters, then are released the next day. Here, Szabolcs Solt is waiting to take a photo of a bird that is being measured by Péter Palátitz. Next to them Péter Fehérvári inspects the shedding patterns, and Péter Borbáth records all data. On the left of the picture is the member of the Angolan Nature Preservation Office: on the right, the field guide, José Pedro Agostinho, aka Zeca is watching the “bird tricks”.



Hunting in groups, the multiple hundredthousand red-footed falcons very effectively gobble up the quickly running-out meals of insect restaurants offered far from each other. The short-lived swarming termite clouds make the most important winter feed for the falcons.

hunt, and altogether they roam around a 100 x 100 (62 x 62 miles) kilometre-territory.

While chasing termites, the falcons utilise their acrobatic abilities and collect an amazing quantity – by the time they return to the gathering place, their maws are puffed up as big as a tennis ball. Living in groups can be useful even now. There are so many swarming termites that the falcons are not rivals to each other – on the other hand, they can signal to each other when they come across some tempting opportunities, delicious prey.

For the red-footed falcons this is the time of abundance and harvest. The swarming, protein-rich flood of termites and the fact that they are catching them while continuously moving, is a perfect combination to build the muscle-mass which gives them enough energy for the way back.

In spring, when rainfall gets scarce and the termites' swarming time is over, the red-footed falcons go back north. As the defining winds now work against them, they cut through the airspace above the Sahara in the west of Africa. The majority enter Europe in a wide stream over Italy and Greece, some groups bypass the Alps from the west, and return to their brooding areas, which run from the Carpathian Basin, through the Ukrainian and Russian steppes, all the way to Kazakhstan. Muscled up from the termite feast, they arrive back just in time for the April beetles to start swarming and the first generation of voles to move about the fields. "In our country there is no other bird of prey which would be so comfortable with living in groups and travelling long-distances fast", says Péter Palatitz. The red-footed falcon takes amazing distances in incredible speed, arriving at the right time to the right place where living in groups has mainly advantages only because there is plenty of food. The timing is perfect: they just get to the termite-swarming or the accretion of voles on time, and if there are still locust invasions in certain areas, they gorge themselves there, as well.



On the wings of winds

More than 30 000 flown kilometres within one year, and they are capable to repeat this incredible performance again and again, for even one and a half decades. There are very few birds which could compete with the red-footed falcon for "The Most Persistent Air Acrobat" title.

THE MAP FOLLOWS THE - AT THAT TIME - TWO-YEAR-OLD FEMALE FALCON (MARKED IN ROMANIA ON 22ND SEPTEMBER 2016), RINGLÓ'S YEARLY MIGRATION ROUTE. RINGLÓ'S TRANSMITTER SENT THE LAST SIGNAL FROM AFRICA ON 6TH APRIL 2021. MAP: NG, SOURCE: PÉTER PALATITZ AND ASSOCIATES, BLUE BOOK (2018); SATELLITETRACKING.EU

Because of humans' increasingly intensive activities, these large-scale natural phenomena are driven back. There can still be locust invasions in Kazakhstan but not anymore in the Carpathian Basin. When we ride on the freeway, there are less and less insects smeared on our windscreens; and that's how the feeding possibilities are decreasing for the falcons. And not just the number of insects and rodents count, but their occurrence and availability in time, as well. If ten or hundred hectares of ploughed fields take over the grasslands next to a falcon nesting place, it doesn't matter if there are abandoned rook nests or nesting boxes available, the closed lines of corn or sunflowers would hide the ground and the food from the falcons. These problems are clearly showing in the Carpathian Basin.

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The LIFE-sponsored nesting box project was successful because the Hungarian researchers made sure to expand the earlier nesting settlements where the agriculture offered food almost on a "conveyor belt" to the red-footed falcons, which means some kind of prey would be available all the time from the diverse supply.

The success of the nesting boxes, however, also meant that the falcons practically became dependent on the artificial nesting possibilities. The boxes need to be replaced every ten to fifteen years, and the returning of the rooks - if there is a realistic chance for that at all - would obviously encounter serious resistance from the farmers. How Péter Palatitz sees this: the agriculture practically turned into an industry, with industrial expectations, industrial profit margins, and this way, there is an enormous pressure on growers even with the best intentions, and that pressure is transferred to Nature. "We spent twenty years and found out how to save the red-footed falcon, but in the meantime, I see that everybody else

whose task was to change the human system, "failed", points out Péter. On top of all that, even the climate change decreases the possibilities of brooding: if the small groups of trees disappear from the puszta because of increasingly wilder storms or water shortages in summer, we would have nowhere to put up nesting boxes, either. The red-footed falcon can adapt to a lot of conditions, but there are things it would not want to.

"Goshawk", Péter is turning a thumb-sized feather in his hand. From its bottom, narrowing, curved, brown diamonds pattern the stumpy, light feather. Péter picked it up from under one of the nesting boxes, and as he mentions, the goshawks feather doesn't mean much good. "If a goshawk gets used to come here, it will rob the whole nesting area by the end of the brooding season." This is a big disadvantage of living in

groups, and it explains - researchers point out - that when choosing a brooding spot, the red-footed falcons always avoid the larger, continuous woods where a goshawk would settle down. For the nesting area martens also mean deadly danger, they don't leave survivors, either.

THE DUSK IS DESCENDING slowly, the heat hardly easing. We are waiting for a group of about 150 falcons, that was seen here two days ago, to appear among the clump of drying poplars. From a hunter's stand, with a spotting scope I'm trying to find the falcons, looking where they are moving around, but I can only see a few of them, sometimes, half a meter above the lucerne stubble, searching the ground. The summer-end harvest opens the ground level, and the falcons react quickly, watching each other, scanning the land with their collective sense.

We are waiting for them from the East, but



The teenage boys used to hunt them, but now they are watching the redfooted falcon and the high-tech, solar panelled transmitter on its back in awe. As they caught the falcon alive and handed it over to the researchers - as a reward - they can name the bird.



The town authorities are symbolically setting free a red-footed falcon which was confiscated from hunters. The Hungarian researchers with the involvement of the community are trying to achieve that the locals would maintain and use *Falco* only for tourist purposes.

something might have happened; maybe a bigger parcel was ploughed. “They are coming from Györgye ...”, whispers Péter, and we watch as the slate-grey and pale orange feathered birds arrive from the direction of the setting Sun, with fast wingbeats.

Some of them, for a few seconds, without any effort, stop in the air, quickly flapping above a spot. Then, they and the others, as well, slowly find their place in the balding, half dried-out crowns of the poplars. They start a game of “General Post” with a group of jackdaws, their parrot-like chirping is mixing with the jackdaws’ complaining chack-chack. “They need this, have to get used to the company”, says Péter.

EVENING FALCON, *Falco vespertinus*: that’s the red-footed falcon’s scientific name, and it suggests that Linné who named them, almost three centuries ago, referred exactly to the experiences of such evenings preserved in the common conscience. Farmers, travellers and naturalists were surely touched by the sight of the falcons gathering at dusk with the cacophony of the flocks breaking out of the tree crowns then slowly gliding back.

Even then, the sky bridge built of gracefully curved wings, connecting the steppe with the savannah, had existed for many thousands of years; for many millennia, ten- or even hundred-thousands of falcons had struggled against the scorching sand of the Sahara, the cruel tropical storms and the predators living in crown of the rainforest. While they were tirelessly wandering in the sky, year after year, down here the world changed a lot since Linné’s time.

The structure of the land is more and more dominated by the human mind, and the climate of the Earth bears the consequences of this: the former predictable or only slowly changing weather systems show more and more extremities. The same human mind created tiny transmitters, smart satellites – and don’t forget, landmines crippling lots, as well. A big question is: what will we do with the red-footed falcon? □



The sky practically darkens as groups of thousands of falcons returning to their nighttime site. It's a unique phenomenon that a significant part of the current estimated worldwide population has a rendezvous here at the end of the winter season. On the other hand, from nature conservation point of view the gathering falcon folks of Falcopolis are extremely vulnerable.