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Birds of a feather

Starlings are fêted for their murmurations, yet not everyone loves the spectacle. In Italy, roosting en masse brings these birds into conflict with human residents.

Words James Lowen

Photos Sergio Pitamitz
and Joe Petersburger





In Rome, the sky above the Verano monumental cemetery turns stormy dark with thousands of starlings, as the birds prepare to descend to roost for the night.

Valentine's Day in Rome. My partner and I should have eyes only for one another. Yet our attention keeps wandering. For in the rosy skies above the Vatican, an immense

gathering of starlings swirls hither then spirals thither. The morass of feathers changes form incessantly – from farfalle to penne then fusilli. Forget love – these aerobats make our weekend.

Yet not everyone in Rome, or other Italian cities, appreciates the free spectacle. Many even despise it. French-Italian photographer Sergio Pitamitz set out to document the tensions between Italy's avian and human urbanites. In doing so, he discovered that there is much more to *Sturnus vulgaris* than its justifiably celebrated murmuration.

But before we delve deeper into the starlings' world, let us get to grips with that airborne phenomenon. After all, it has become trendy to admire murmurations, whether at first-hand or via various media. The 2016 series *Planet Earth II*, on BBC One, showcased the Rome display in its *Cities* episode. A YouTube video of the spectacle, shot by two canoeists in Ireland, has since garnered over 10 million views. This is big stuff for a small bird.

A murmuration is the evening flight of a flock of starlings, 'performed' collectively prior to roosting in a mass slumber party. Tens of thousands of individuals – up to a million, in the case of Rome – coalesce as if into a single, giant, wondrous organism. They wisp and whirl, billow and balloon, spiral, seethe and slump. For most of us, it suffices to gawp upwards. Scientists, however, demand to understand starling choreography. How do birds move in unison without colliding – and why do they do it at all?

Fancy flight

Attempts to understand and explain the acrobatics have variously deployed high-speed cameras to capture movements, and computers to model behaviour. The combined results, unsurprisingly, scupper the 1930s postulation that starlings communicate by telepathy. Instead, each starling copies the tiniest movements of its seven closest brethren, micro-adjusting its flight to remain in synchrony. Remarkably, a signal to shift direction from a single decisive individual can cross a 100m-wide flock in under three seconds. This process results in a rapid chain of communication without substantive loss of information.



“Many residents are impressed by the nightly *balletto* – people stop and gaze upwards.”

Studies at the University of Warwick have further determined that each starling maintains a position that maximises its view of the sky beyond the flock. This explains why murmurations are not simply dense black pools, but shapes through which light can be seen. “An individual starling within a flock can see areas of light and dark in front of them created by other birds”, says researcher Daniel Pearce (now at the University of Geneva). “This forms a dynamic and changing silhouette. Large flocks organise themselves so that each bird can still see pale sky through gaps in the throng.”

Starlings' need to keep their eyes on the skies hints at the rationale for murmuring. Italian physicist Andrea Procaccini explains: “Where a predator approaches a group of prey, those nearest the predator become aware of it first and react, by accelerating, for example – this alerts group members that

were previously unaware of the threat.” In starlings, the ensuing wheeling and dipping seemingly bewilders predators – a strategy simply called the ‘confusion effect’.

A researcher at the University of Bristol, Benedict Hogan, demonstrated that this shape-shifting makes it harder for a peregrine to single out and nab a victim. Remarkably, he did so by testing how well experienced computer-gamers, acting as airborne predators, locked onto virtual starlings. “Participants had more difficulty in capturing a target starling in larger flocks and in denser flocks”, Benedict says. “This suggests that starlings could indeed be safer from predation in bigger, more compact flocks.” Getting lost in a crowd seems like a good idea.

This is certainly a tactic employed by starlings in Rome, where an “already sizeable resident population of peregrines is augmented by others that follow the

On closer inspection: Plumage appearance

From a cursory view, you might easily dismiss a Eurasian starling as a nondescript, black bird. Up close, however, the truth could not be more different. In breeding plumage, there is no glossier British species, with the sheen flickering from purple to green (right) as the birds' movements catch the light. Once nesting is over for another year, gaudiness is unnecessary. The post-nuptial moult results in duller plumage, with black feathers tipped white, creating a spotty appearance. By spring, the iridescence returns once again.



Clockwise from above: attracted by the relative warmth of the city, starlings return to Rome each evening after spending the day feeding in rural

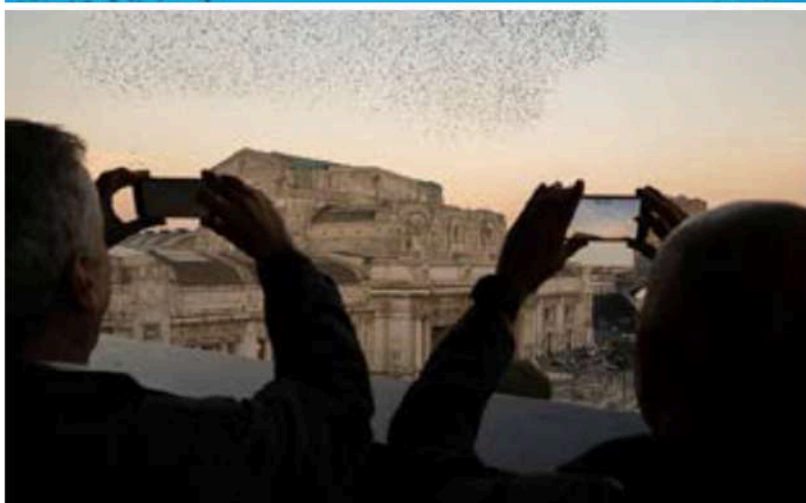
areas; a starling flock flies in defensive formation as a peregrine falcon approaches; hypnotic murmurations attract thousands of people.

starlings as they migrate here for the winter", says Alessandro Montemaggiori, a wildlife management expert at the Sapienza University of Rome. Roughly a million starlings roost in Rome between October and March. In a mirror image of human commuters, the starlings feed by day in rural areas, returning to the capital each evening to benefit from Rome's comparative warmth.

Feeling the heat

This 'urban heat island' effect results from the combination of human activities, the warmth-retaining properties of dark materials such as asphalt, and tall, wind-buffering buildings. "Particularly in winter, temperatures are up to 5°C milder in Rome than the surrounding countryside", says Alessandro.

The annual invasion of Rome by mighty congregations of starlings causes mixed feelings, and emotions run high. "Many



STARLINGS

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DENMARK

Every autumn, up to 800,000 migrating starlings gather in Wadden Sea National Park. Numbers peak between the end of September and mid-October. Known locally as the 'black sun' the pre-roost murmurations attract as many as 100,000 human admirers a year.

FRANCE

Starlings gather in several conurbations across southern France. One such example is the picture-postcard city of Avignon, where prime viewing can be had from the platforms of its railway station. The congregation here numbers at least 130,000.

NETHERLANDS

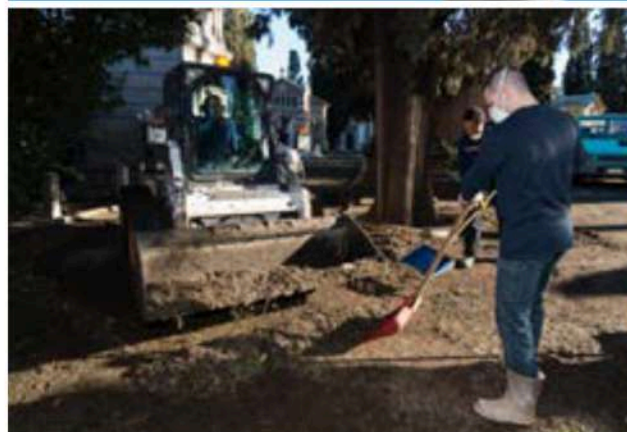
Several Dutch cities host winter sleepovers of starlings. One such city is Utrecht, where the birds favour the districts of Kanaleneiland and Rivierenbuurt. The gatherings attract the attention of peregrines.

SPAIN

The second largest wetland in Catalonia is Aiguamolls de l'Empordà Natural Park. In winter, around 150,000 starlings use the reserve as a roost site. A good location from which to view the spectacle is the campsite at Castell Mar.

BRITISH ISLES

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residents are impressed by the nightly *balletto*", Alessandro says. "People stop whatever they are doing and gaze upwards in fascination." Rather more Romans, however, are exasperated by the feathered throng.

The noise is frustrating enough, Alessandro admits, but starlings have even been a threat to human life. In 2008, a Ryanair jet carrying 166 passengers crash-landed at Rome's Ciampino airport after numerous starlings were sucked into its engines. Operations ceased for days.

Above all, it is the output of a million starling bottoms that causes maximum offence. "Vespas are Rome's near-mandatory form of transport", Sergio says, "but moped wheels cope poorly with roads made slippery by tonnes of guano". Many a rider has skidded and ended up in hospital A&E departments. Cars have been covered in stinking white and black slop. Historic monuments have suffered a similar ignoble fate. Acrid droppings have caked bus stops and pavements, and forced road closures. People are even obliged to raise umbrellas in the worst affected areas.

Alessandro advises on such conflicts between birds and people. Rather than remove birds entirely, his advice to the municipal authorities was to move them to a less sensitive location. Playing starling distress calls through loudspeakers has proved particularly successful in deterring them from settling in trees above

Lungotevere, a road flanking the River Tiber. The sound tells the birds that the area is dangerous, so they move on.

Rome's roost is now concentrated in Verano Monumental Cemetery. "At dusk you hear tens of thousands of olive stones dropping to the ground as they are excreted by starlings", Alessandro says. "It's a bizarre sound." Each morning, a mechanical digger assists workers clad in protective clothing to shovel away the 15cm-high pile of faeces. Unpleasant, for sure, but the occupants of mausoleums evidently protest less vociferously than do motorcyclists. For now, at least, the starlings can stay.

Population shift

From a conservation perspective, this is welcome news. Starling populations are in steep decline. In the UK, the species is on the RSPB Red List. "Across Europe as a whole, 50 million starlings may have disappeared since 1980 – more than any other species of farmland bird," says RSPB head of species monitoring and research Richard Gregory.

Hearteningly, Alessandro believes that Italy is one country that is bucking the overall downward trend. "When I started studying starlings in 1984, barely 100 pairs bred in Rome," he reveals. "Now almost every possible breeding hole or cavity is occupied. The population has exploded." In southern Italy, the increase is noted as being even more dramatic. "There used to be just three



In the UK, large flocks of starlings pass along the Brighton and Hove seafront in winter.



Clockwise from top left: starlings' plumage changes throughout the year; just before dusk is the best time to spot these birds; chicks are fed on

insects and their larvae until about 12 days old, then their diet becomes more varied; in Rome, it takes a team of people to clear the amassed guano.

“When I started studying starlings in 1984, barely 100 pairs bred in Rome. Now almost every possible cavity is occupied.”

breeding colonies,” Alessandro explains. “Now starlings are everywhere.”

Why should Italy be booming while other areas in Europe experience a bust? Alessandro points the finger at “changing agricultural practices”. Northern Europe’s sterile green fields are increasingly devoid of the insects upon which starling chicks depend. But insects still abound in Italy, so starlings are raising healthy offspring. Alessandro also believes that starlings may be “shuffling their range southwards” – the opposite direction to most bird species, which climate change is propelling northwards.

It is partly the vitality of Italy’s starling population – in winter as well as summer – that encouraged Sergio to document the species’ life cycle. A phone call from biologist Giacomo Marzano sent him rushing south to Puglia – the stiletto heel of Italy. “Giacomo told me that up to five million starlings roosted at Torre Guaceto reserve between early October and mid-February”, Sergio says. “I had to witness this.”

Giacomo’s claim was no exaggeration. Each evening, reedbeds blacken with an oil slick of, perhaps, the world’s mightiest starling congregation. “Passing drivers are so astonished by the spectacle that they honk their horns in appreciation”, Giacomo says. The starlings have only been coming here in such numbers for five years. Giacomo ascribes their arrival to the dual benefits of safe sleeping quarters and a rich food supply.

Puglian performance

The safe roosting area at Torre Guaceto is surrounded by farmland with abundant olive trees. “The starlings’ impact on olive growers has been so profound”, Giacomo observes, “Puglian authorities have allowed the species to be hunted as a pest.” Only inside the protected area of Torre Guaceto are the birds safe from guns.

But where are Puglia’s starlings coming from? Ringing recoveries imply that many of Italy’s wintering starlings nest and breed in central and eastern Europe. Sergio’s

colleague, the biologist and photographer Joe Petersburger, has studied starlings’ breeding habits in Hungary, seeking to capture intimate images of the birds during the very early stages of life.

In doing so, Joe says that he “documented the significance of insects for chick growth.” This evidence helped to win over local horticulturalists, who had been concerned that nesting starlings would destroy their cherry crop. “We found that only one adult starling in five was returning to the nest with fruit”, Joe explains. “Most were actually helping farmers by catching so-called pests, such as grasshoppers.”

Once fledged, the starlings that Joe studied – along with many others from Hungary – will head south-west to winter in warmer climes. Several among their number will, undoubtedly, end up in Italy. “It is touching to think that the very same birds that Joe was photographing in Hungary might later help form the murmuration that decorates the sky above Milan, Rome or Torre Guaceto,” Sergio says with a smile. 📷



JAMES LOWEN is the author of 52 European Wildlife Weekends (*Bradt Travel Guides*), which won the 2018 Adele Evans Award for Best Guidebook.

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