On a WING *and a* PRAYER

THE PEACE-KEEPING KESTRELS OF JERUSALEM

A male Lesser Kestrel in flight, showing its elegant design and longish wings and tail. It is a light and buoyant flyer, capable of speed and dexterity when hunting, but also well adapted to covering long distances on migration.

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PHOTOGRAPHS BY LIOR RUBIN

A Lesser Kestrel takes off from its perch on the steeple of the Church of the Holy Sepulchre, Jerusalem.

A small hawk circles high over the ramparts of Jerusalem, slips into a long, angled glide, and descends rapidly into the golden, shimmering centre of the ancient city. A Lesser Kestrel, recently returned from its winter sojourn in Africa, joins a colony of less than 100 individuals of this globally threatened species that each year gathers to breed in the sacred, war-torn heart of the Middle East. ▷

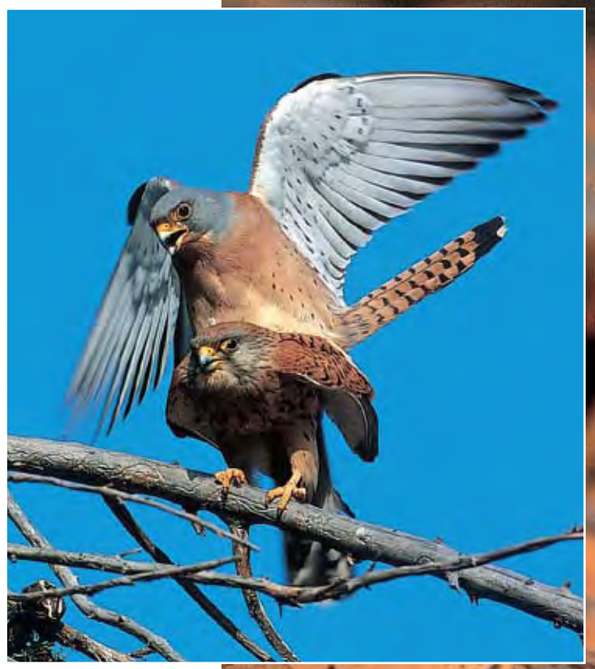
Steeped in a history of religious controversy, Jerusalem contains a host of fundamental and revered Jewish, Christian and Islamic holy sites, and is central to the Palestine/Israel conflict that continues to plague the region. Caught up in this drama, and in a process all but masked by the pressing human issues of the day, one of the city's precious inhabitants has been quietly slipping away.

The Lesser Kestrel is a colonial species which, under natural conditions, breeds in cavities in small cliffs and embankments and hunts insects in semi-arid grassland and open savanna. It also thrives in human-altered environments, forming colonies in towns and cities, nesting in cracks and apertures in the roofs of old buildings, and exploiting insect abundances that characterise tracts of commercial monoculture. But in recent decades, with the advent of burgeoning urbanisation and modern agriculture, this relationship has begun to sour, and the Lesser Kestrel is now in serious trouble.

In line with a prevailing trend across its Eurasian breeding distribution, the Lesser Kestrel population of Jerusalem has decreased significantly during the past five to 10 years. This precipitous decline has prompted the launch of research and conservation projects throughout the kestrel's range, including an inspiring initiative in the Holy Land.

Founded by biologists from both sides of the religious and political divide (Dan Alon of the Israeli Ornithological Society and Nader Al-Khateeb of the Palestine Water and Environment Development Organisation), a group was formed in the late 1990s to help save Jerusalem's kestrels. As one of many small but important spin-offs of the Middle East peace process, this group brought Israeli and Palestinian ornithologists, students and pupils together in a unique demonstration of nature's capacity to heal even the deepest of social wounds. Perhaps most

The ancient city of Jerusalem at dusk. This religious hotbed is also home to a small breeding population of Lesser Kestrels, one that is declining as development encroaches on nearby open areas, forcing the kestrels to forage further and further beyond the city walls.



Lesser Kestrels are monogamous but colonial: they establish mated pairs, but congregate to breed and roost, nesting in the same general area and sharing communal feeding grounds. Here a male calls to his mate (left), and then copulates with her.

A male Lesser Kestrel about to deliver an insect to his nest in the rooftops of Jerusalem. Throughout its breeding range, and on migration in Africa, the Lesser Kestrel is primarily an insectivore. It has become increasingly threatened by the widespread use of agricultural pesticides that deplete the insect populations on which it depends.

importantly, the project encouraged contact between the children of both sides, and gave them the opportunity to see and appreciate the common ground they held, and to work together towards a single, worthy goal. This contact was established often against huge odds and in the face of obstructive bureaucracy, mistrust and confusion. Recent breakdowns in the peace process have made it impossible to bring young people together as before, but collaboration between scientists still prevails and efforts to research the plight of kestrels in the area continue. (See box, page 43.)

The problems faced by Jerusalem's Lesser Kestrels are similar to those affecting the species in other parts of its range. Habitat loss is a major contributing factor, as the suburban fringes of the city have expanded and development has increasingly encroached on the peripheral open grassland and desert areas where kestrels go to hunt. As these habitats have been transformed, adults provisioning their young have had to forage further and further away from nesting areas in Musrara and in the centre of the Old City, and breeding success has dropped significantly as a result. Also, the use of pesticides on local cropland has probably had a negative effect, both directly (by poisoning and killing kestrels that ingest sprayed insects and accumulate toxins in their bodies), and indirectly (by reducing food availability as insect prey populations are eradicated).

In addition to a small breeding ▷

Above *Manna from heaven: a Lesser Kestrel returns from a hunting sortie outside the city to deliver food to its nest in the Church of the Holy Sepulchre steeple corner.*

Above *A newly fledged Lesser Kestrel (top) grabs an insect meal from its mother. Overly prolonged intervals between food deliveries and the pressures of sibling rivalry can elicit surprising levels of aggression in young kestrels.*

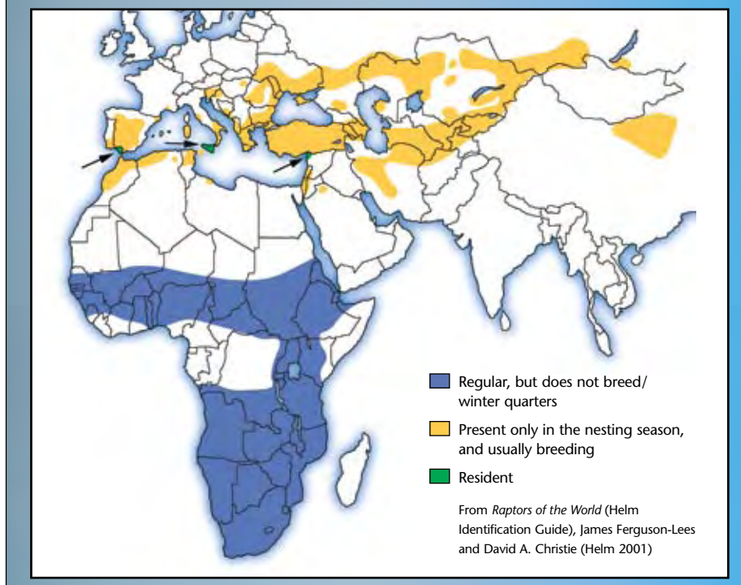
Left *A brood of Lesser Kestrel chicks perched close to the nest cavity where they were hatched and raised, in the roof of an old building in Jerusalem. These youngsters are about four weeks old and almost ready to fly.*

population of Lesser Kestrels, Israel briefly hosts many thousands of these birds each year as they fly over the Middle East on their way to and from wintering grounds in Africa. These passage migrants generally fly very high *en route* to destinations many thousands of kilometres away, but even at high altitude they are not safe from unnatural hazards. Large concentrations of migratory birds may be hit by aircraft and pose a serious collision risk to fast-flying military aircraft as they cross Israeli airspace.

For now, Lesser Kestrels retain a tenuous foothold in Jerusalem. Remarkably, pairs have bred successfully in a tower of the Church of the Holy Sepulchre (believed to be the site of the crucifixion of Christ), and in the wall around the Dome of the Rock Mosque (believed to mark the point from which the Prophet Muhammad ascended to Heaven) that is an extension of the holy Jewish site, the Western or Wailing Wall. The kestrels thus simultaneously demonstrate a penchant for religious landmarks and a complete disregard for the sectarianism that has so severely affected the people of the city.

As they live up on the rooftops of Jerusalem or soar over its famous skyline, the kestrels are deserved icons of human tolerance and unity, and timely reminders of the fragility of our world.

FACT FILE



From *Raptors of the World* (Helm Identification Guide), James Ferguson-Lees and David A. Christie (Helm 2001)

Scientific name *Falco naumanni*
Body length 26–32 centimetres
Weight 90–210 grams

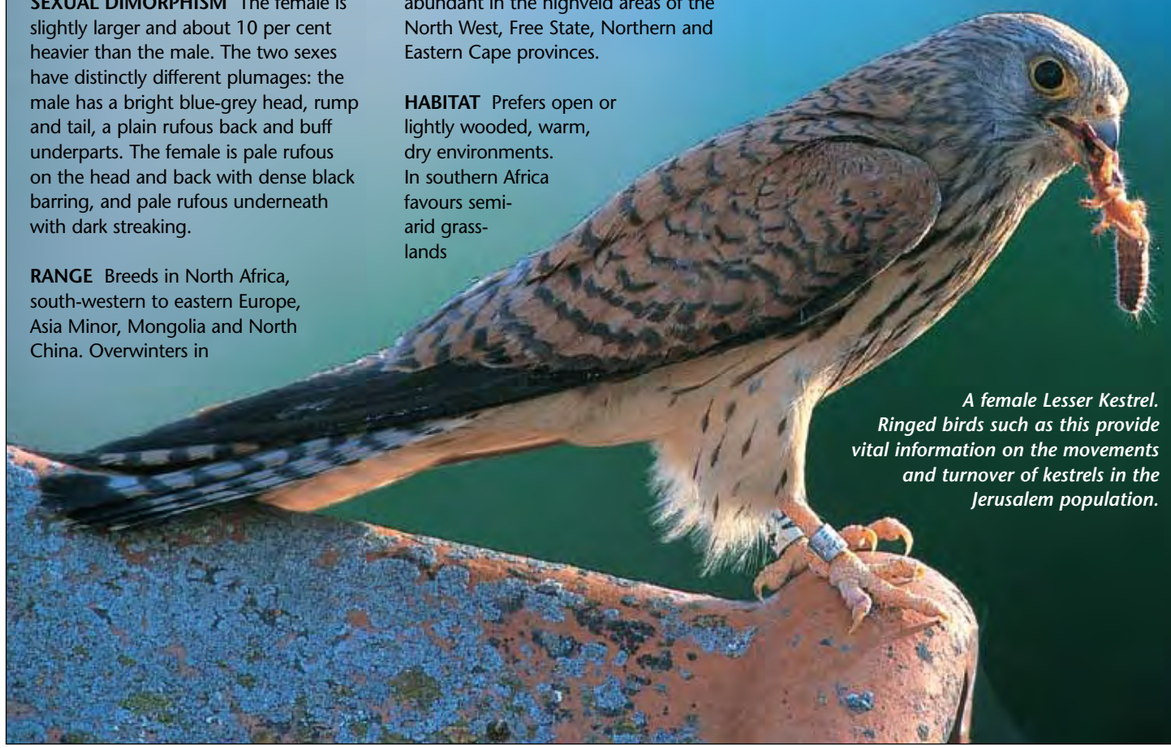
SEXUAL DIMORPHISM The female is slightly larger and about 10 per cent heavier than the male. The two sexes have distinctly different plumages: the male has a bright blue-grey head, rump and tail, a plain rufous back and buff underparts. The female is pale rufous on the head and back with dense black barring, and pale rufous underneath with dark streaking.

RANGE Breeds in North Africa, south-western to eastern Europe, Asia Minor, Mongolia and North China. Overwinters in sub-Saharan Africa, particularly in East and southern Africa. In southern Africa it occurs sparsely throughout northern Namibia, Botswana and Zimbabwe, and is locally abundant in the highveld areas of the North West, Free State, Northern and Eastern Cape provinces.

HABITAT Prefers open or lightly wooded, warm, dry environments. In southern Africa favours semi-arid grasslands (grassy Karoo, western fringes of the grassland biome) and adjacent agricultural areas.

MOVEMENTS Highly migratory: it leaves its breeding areas in August/September, flies over the Mediterranean, through tropical Africa in October/November, with numbers peaking in southern Africa in January/February. Return migration begins in about March. The available evidence suggests that the majority of kestrels that migrate to southern Africa originate in the far eastern areas of the breeding distribution. On wintering grounds, it aggregates at communal roosts numbering up to tens of thousands of birds, often at stands of exotic trees in town centres (see page 44).

BREEDING BIOLOGY Generally from May to July, but considerably earlier (March/April) in the southern part of its range. Lays 2–6 eggs, incubates for 25–28 days, fledging period 35–40 days.



A female Lesser Kestrel. Ringed birds such as this provide vital information on the movements and turnover of kestrels in the Jerusalem population.

DIET & FORAGING Feeds mostly on arthropods, supplemented by a limited vertebrate component when breeding. In southern Africa it feeds mainly on sun spiders, centipedes, termite grasshoppers and locusts, which it catches in short aerial strikes or from a perch. It may make up to 50 such strikes an hour under optimal foraging conditions, and succeed in about 50 per cent of these.

CONSERVATION STATUS Classed as locally and globally Vulnerable. Total numbers have decreased by at least 20 per cent in the past 10 years, and perhaps by as much as 50 per cent in the past 20–30 years. The main threats (in both breeding and wintering ranges) are thought to be habitat loss to urbanisation, afforestation and agriculture, and the direct and indirect effects of agrochemicals.

RESEARCH IN SOUTH AFRICA

Africa, and southern Africa in particular, plays a crucial role in the natural history of the Lesser Kestrel. Well over 90 per cent of the world's population of this falcon migrates into Africa each year, and spends about five months on the continent each boreal winter. The majority move down into the drier, Highveld grasslands of southern Africa. While very little is known about the biology of the species in East Africa, some work has been done on Lesser Kestrel diet, foraging, habitat use and the possible negative effects of pesticides (in particular locust spraying) in southern Africa, and on the geographic origins of southern African populations.

At least some communal roosts have been counted and monitored sporadically since the 1960s, and a management plan for the conservation of the Lesser Kestrel was drawn up in the mid- to late 1990s. Currently, while there are roost-monitoring projects ongoing in parts of the Northern Cape, Gauteng and Free State(?) provinces, there is an urgent need to combine these with annual, co-ordinated counts of roosts across the region, and with accurate information on the relative effects of rainfall, pesticide use and habitat transformation on the numbers and distribution of kestrels overwintering in this region.

MIGRATING BIRDS KNOW NO BOUNDARIES

With some 500 million migratory birds crossing its skies annually, it is no wonder that Israel has become a popular destination for birdwatching and bird research.

The Lesser Kestrel is one of the hundreds of different species that migrate between Africa, Europe and Asia. The country is the southern breeding area for these small falcons, which arrive in February and March and return to Africa as early as July. Unfortunately their numbers have declined dramatically in the past 50 years, particularly at several closely watched breeding colonies in Israel.

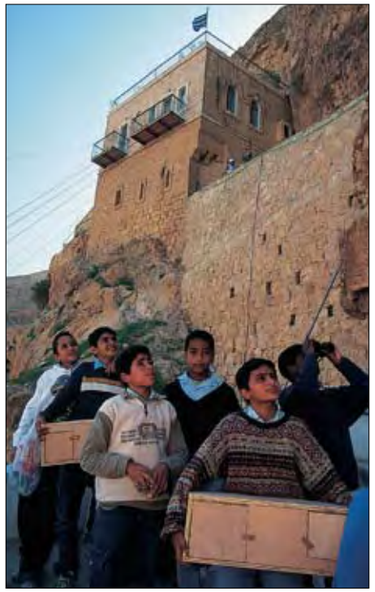
'Up until the 1950s the Lesser Kestrel population in Israel numbered between 3 500 and 5 000 pairs,' notes Dan Alon, Director of the Israel Ornithology Center. 'Today, there are only about 300–500 pairs.'

Two of the largest and last remaining colonies of this species in Israel are located in Jerusalem and in Carmel in the northern part of the country. There are also smaller colonies in the Judean desert, as well as one near Ben Gurion airport in Tel Aviv. The Jerusalem population is located in the neighbourhood of Musrara, just outside the 'Old City'. On a clear day the kestrels can sometimes be seen circling the ancient capital, getting a 'bird's-eye view' of the holy sites.

Five years ago the colony in Jerusalem numbered approximately 100 pairs. Today, there are only 40. Alarmed by the dramatic decline, Alon and other ornithologists are closely monitoring the remaining populations through surveys and radar tracking. The International Center for the Study of Bird Migration at Latrun (20 kilometres from Jerusalem) – a joint initiative of Tel Aviv University and the Society for the Protection of Nature in Israel (SPNI) – is doing just that. Using an MRL-5 weather radar, the centre records images of birds such as the Lesser Kestrel during the migratory seasons. From the images it is possible to estimate the direction, speed, number and height of the migrating birds. While the data is primarily for research purposes, it is also being used to help reduce the risk of serious bird strikes.

The convergence of such a mass of soaring birds, some of which arrive in waves of tens and sometimes hundreds of thousands a day over Israel's limited airspace, has created a severe flight safety problem for the Israeli Air Force (IAF).

While the kestrels can pose a threat to aircraft, it is the larger migratory birds – storks, cranes and pelicans – that can really cause serious damage. 'We're working with the air force to manage the land around runways by changing crops and limiting the attractiveness for foraging kestrels and other birds,' says wildlife ecologist Simon Nemtzov. 'This type of habitat management has reduced the number of strikes by kestrels on IAF aircraft during take-off and landing.'



At the height of the cooperation project, Palestinian children built Lesser Kestrel nest boxes for installation at the Monastery of Temptation, near Jericho.

Through such joint research with the IAF, the number of bird strike accidents has been reduced by as much as 75 per cent, saving the Israeli government millions of dollars, not to mention the lives of pilots and birds.

Another aspect of Lesser Kestrel protection has been through ongoing educational projects. In 1996 the SPNI, with support from the Israeli Ministry of Education, launched the 'Migrating Birds Know No Boundaries' project, which introduced children from elementary school to university level to bird migration and conservation. During the height of the Middle East peace process, there were numerous cooperation projects between Israeli and Palestinian schools, including one that involved joint Lesser Kestrel observation, but most of that has stopped in recent years.

'Because of the current political situation there are no longer joint meetings between Israeli and Palestinian students,' Alon says. But cooperation among scientists is still strong, including a continuing network of birdwatching centres between Israel, Jordan and the Palestinian Authority along the Rift Valley. 'Despite the situation, we are still finding ways to work together for the conservation of migrating species.'

MARK SCHULMAN