

a WOLF in JACKAL'S clothing

For centuries, golden jackals loped across the arid deserts and mountains of North Africa. Living in packs and sporting pale yellow fur, they were undoubtedly jackal-like in their habits and appearance. In recent years, however, reports of solitary jackals with long legs, darker coats and large paws have emerged, descriptions that, well, sound a lot more *wolf*-like. Following DNA analysis a report was published last year that confirmed what local people – and even the ancient Egyptians – knew: Africa has its own version of the grey wolf. Now the race is on to find out as much about this cryptic species as possible. **Cheryl Lyn Dybas** reports on the wolf that was hiding in plain sight. ▶

TEXT BY CHERYL LYN DYBAS





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IN THE TIME OF THE JACKAL GODS

It is 2494 BC, Egypt's Fifth Dynasty. A procession makes its way to a sun temple, where the pharaoh's Sed Festival, held in the 30th year of his reign, is set to begin. The gathering renews the sovereign's youthful vitality. He is greeted by two officers wearing caps and tails lined with fur, fur the Egyptians believe came from wolves. The human sentries represent the gods Anubis and Wepwawet.

Anubis and Wepwawet – Anubis's lesser-known 'twin' – were the guardians of the border between life and death, a boundary that in ancient Egypt only canine divinities traversed. They were the 'openers of the roads': Anubis to the south, Wepwawet to the north.

Called 'jackal gods' by European Egyptologists, Anubis and Wepwawet were named for the Egyptian jackals that hunted rodents by night near cemeteries. Some believe the Egyptians fashioned elaborate tombs to protect the dead from these predators. But were Anubis and Wepwawet in fact jackals? Could the gods have been wolves? Ancient Egyptians thought so.

'In view of the fact that two important participants in so major a festival as the Sed wear wolf-skins and caps, it may be unwise to assume that the Egyptians were wrong to employ the term "wolf",' writes Michael Rice in his book *Swifter than the Arrow: the golden hunting hounds of ancient*

Egypt. What the ancient Egyptians knew that we don't – or didn't until last year – is that Wepwawet and Anubis were wolves in jackals' clothing.

MILLENNIA LATER...

Aristotle was the first European to write about wolves in Egypt, mentioning that they were smaller than those found in Greece. In the mid-1800s, German Egyptologist Georg Ebers referred to the wolf as one of the sacred animals of Egypt. He also believed that it was a smaller variety of wolf than those found in Europe, and noted that the ancient Egyptian city Lykopolis translates as 'city of the wolf'.

Later that century, biologist Thomas Huxley stated that the Egyptian jackal of Ethiopia, a subspecies of golden jackal, looked suspiciously like a grey wolf. 'The same observation was made by 20th-century biologists when they compared the sizes of jackal skulls,' says ecologist Claudio Sillero-Zubiri, deputy director of the Wildlife Conservation Research Unit (WildCRU) at the University of Oxford.

Nonetheless, Sillero-Zubiri says, the Egyptian jackal's scientific classification wasn't changed, 'and it continued [being described] as a golden jackal subspecies, although with a question mark'.

Fast forward to a few years ago, when an Indian biologist named Yugal Tiwari sent Sillero-Zubiri a picture from a video he had filmed in Eritrea. The footage showed a lanky, large-pawed canine 'that might have been a desert-dwelling wolf,' says Sillero-Zubiri. 'We hoped more information would turn up, but unfortunately it didn't.'

But Wepwawet and Anubis did not remain quiet in their underworld. While doing fieldwork in Ethiopia, biologists from universities in Addis Ababa and Oslo noticed that certain golden jackals looked different to others. 'They were larger,

more slender and sometimes had a whitish colour,' says Nils Stenseth, an evolutionary ecologist at the University of Oslo, Norway. The researchers collected scat specimens for DNA analysis. The samples, including some from 'more usual-looking' golden jackals, were shipped to Stenseth's laboratory.

'With breathless excitement,' remembers Sillero-

Zubiri, the Oslo scientists contacted him and others on the project. The Egyptian jackal samples appeared to be wolf DNA. But they didn't correlate with samples in GenBank, the world's largest repository of genetic sequences.

THE EGYPTIAN JACKAL SAMPLES APPEARED TO BE WOLF DNA. BUT THEY DIDN'T CORRELATE WITH SAMPLES IN GENBANK, THE WORLD'S LARGEST REPOSITORY OF GENETIC SEQUENCES

'We could hardly believe our eyes when we found wolf DNA that didn't match anything in GenBank,' says Eli Rueness, a geneticist at the University of Oslo. 'We had unwittingly uncovered genetic evidence of a cryptic [species hidden within a species] canid that looked like a golden jackal,' says Sillero-Zubiri, 'but whose genetic code told another tale.'

In a scientific report published last year, Rueness, Stenseth, Sillero-Zubiri, Afework Bekele of Addis Ababa University and other biologists unveiled the news: the Egyptian jackal is in fact a grey wolf. 'It seems that the Egyptian jackal is urgently set for a name change,' says Sillero-Zubiri. 'Its unique status destines it to be called the African wolf.'

Canis aureus lupaster is in fact the only grey wolf on the African continent. Many biologists believe its scientific name should be updated to *Canis lupus lupaster*, after the grey wolf *Canis lupus*. Hereafter, it's referred to (as it currently is by scientists) as, simply, *lupaster*.

The discovery tells researchers that members of the grey wolf lineage lived in Africa three million years ago. From there, the canids spread through the northern hemisphere and eventually became the well-known grey wolf of the northern US and Canada. 'We now know that wolves were indeed in Africa in the days of the ancient Egyptians – and long, long before,' says Stenseth.

Lupaster looks like a large, blackish-yellow dog. Its tail is brush-like, with black hairs on the end. A mane of long, coarse, black-tipped fur runs from its crown to the base of its tail and onto its shoulders and hips. The golden jackal is smaller than *lupaster*, with soft, pale fur. Golden jackals are social animals: a breeding pair is often followed by its offspring, and adults sometimes form packs when hunting. Their cry, heard just after dark or shortly before dawn, is a long, wailing howl followed by three yelps: 'Dead Hindoo, where, where, where'.

In contrast, *lupaster* travels alone. A nocturnal creature, it's sometimes glimpsed as the sun begins to set, when it emerges from caves and crevices, and from tombs. Whether the animal howls is unknown.

Further analysis has linked the *lupaster* specimens from Ethiopia to the same genetic sequences of animals found 2500 kilometres to the north, in Egypt. 'The results clearly place *lupaster* in Egypt as well,' says Sillero-Zubiri.

THE RANGE OF THE GREY WOLF FAMILIAR TO PEOPLE IN THE NORTHERN HEMISPHERE EXTENDS AS FAR SOUTH AS THE SINAI PENINSULA, BUT DIDN'T, IT WAS THOUGHT, REACH MAINLAND AFRICA

Wepwawet continues to open new roads. The range of the grey wolf familiar to those of us in the northern hemisphere extends as far south as the Sinai Peninsula, but didn't, it was thought, reach mainland Africa. Now Stenseth, Sillero-Zubiri and others believe that *lupaster* may lope not only through the desert sands and mountain scrub habitats of Egypt and Ethiopia, but that many of the golden jackals occurring as far south as Kenya – and beyond – may in fact be wolves.

To date, *lupaster* has been documented from the lowlands of northern Egypt to ▶

PAGE 43 The African wolf. Formerly known as the Egyptian jackal (a subspecies of the golden jackal), it's a little-known shadow on a ridge.

OPPOSITE Did the Ancient Egyptian gods Anubis and Wepwawet represent jackals – or wolves?

Until recently the African wolf, or *lupaster* (BOTTOM) was classified as a golden jackal (BELOW). DNA analysis last year confirmed what anecdotal evidence and basic observation suspected – this is no jackal.



BERNARD CASTELETIN/NATUREPL.COM/DIGITAL SOURCE



THOMAS KRUMENACKER/WWW.KRUMENACKER.DE

the highlands of Ethiopia. 'Since it lives in such a range of ecological zones,' says Stenseth, 'it may also take a wide variety of prey.' One study found that rodents are its main food choice, but that the wolf will also eat insects and birds, allowing it to flourish in habitats other than desert and mountain.

'As we look more closely with genetic tools at even well-studied species such as the grey wolf in North America,' says biologist and wolf expert Rolf Peterson of Michigan Technological University in the US, 'we're refining our understanding of these animals. For Africa, and for North America, what we thought 10 years ago about the biogeography of the wolf has been turned on its head.' This newest finding, he believes, isn't the end of the story.

'Genetic techniques are revealing the hidden biodiversity of unexplored places like Ethiopia,' says Bekele. The discovery of *lupaster's* true identity shines a light on a formerly dark corner of the world: the Afroalpine fauna and flora, an assemblage of species that evolved in relative isolation in the highlands of the Horn of Africa.

LONE WOLF IN A STARKLY BEAUTIFUL LAND

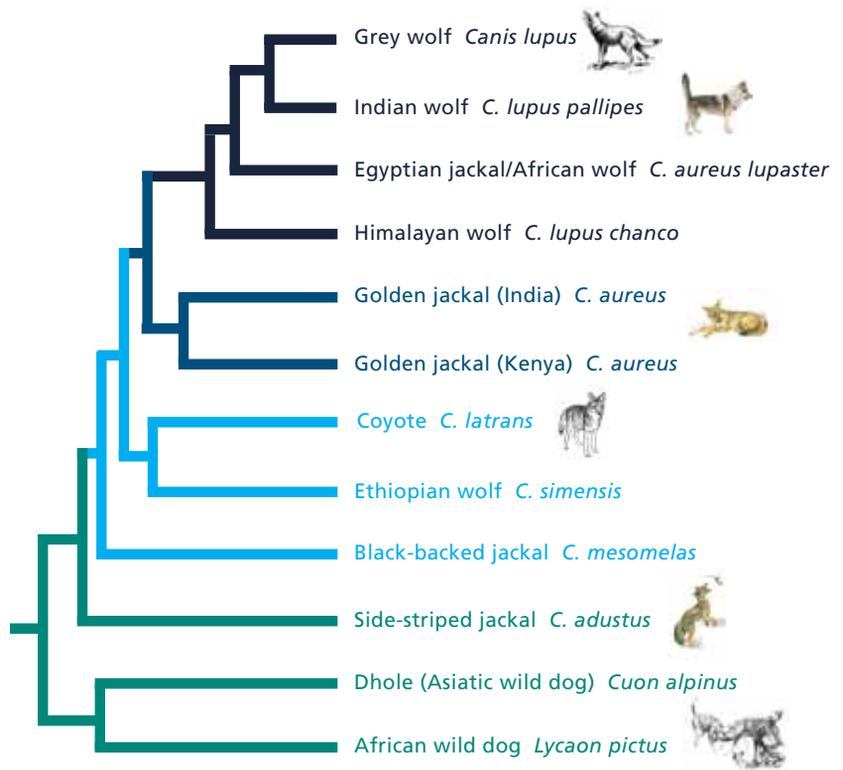
Understanding the intricacies of that biodiversity may come not a moment too soon for *lupaster*. Although golden jackals are classified by the International Union for Conservation of Nature (IUCN) as a 'species of least concern', *lupaster* may be much rarer. 'It's a priority, for both scientific and conservation efforts, to determine this wolf's whereabouts and numbers,' says Stenseth.

The Menz Guassa Community Conservation Area in Ethiopia's highlands may hold the key. *Lupaster* has been seen most often in this land of short scrub plants sprouting from rock-strewn hillsides. Its haunts include the Guassa Community Conservation Area (GCCA), 260 kilometres north-east of Addis Ababa in the Menz-Gera Midir district. 'The GCCA is among the Ethiopian highlands' most pristine and secluded natural wonders,' says Zelealem Tefera, a scientist at the Frankfurt Zoological Society (FZS) Ethiopia office.

The Guassa area is managed as a common property resource system by the people who live along its perimeter. The system can be traced back to the 17th century, and is one of the oldest

RUNNING WITH THE WOLVES

This evolutionary tree shows the relationship among all wild canids that are wolf-like. The Egyptian jackal, now called the African wolf, is a member of what scientists call a complex of related species, in this case the grey wolf complex. As shown here, the African wolf's nearest kin are the Indian, Himalayan and well-known grey wolves.



methods of conservation management in sub-Saharan Africa.

Guassa communities live in *kebeles* (farmers' associations). To generate an alternative income for these communities and to support the management of the GCCA, ecotourism is being promoted by the FZS and Ethiopian government agencies. Their efforts have led to the establishment of the Guassa Community Lodge and several wilderness camping grounds. Visitors can experience a traditional Menz village or trek up steep hills to look for the Guassa plateau's rare species. Several of the mammals that occur are endemic to Ethiopia. The gelada baboon, found only in the country's highlands, and the Abyssinian hare are just two examples. The leopard, serval, civet, Egyptian mongoose and spotted hyaena, among others, share this mountain desert.

By the waning light of evening, Wepwawet may walk among them. 'Out of the

corner of your eye at sunset you might just spot *lupaster*,' says Karen Laurenson, an ecologist and veterinarian at the FZS-Ethiopia office. She's glimpsed an animal that emerges at dusk, seemingly out of thin air, to return there just as quickly. 'I think I've seen it, but didn't know at the time what it was.'

UNCOVERING THIS CRYPTIC SPECIES' SECRETS MAY BE A MIXED BLESSING. ESPECIALLY IF, LIKE THE GOLDEN JACKAL, IT LIVES NEAR HUMANS AND TAKES LAMBS AND OTHER PREY FROM LIVESTOCK FARMS

She's concerned that the wolf could be gone before we know it. 'Golden jackals and other canids are susceptible to rabies, canine distemper and other diseases. With a population that may – or may not – be very small, *lupaster* could disappear in the blink of an eye.'

Small populations are prone to inbreeding and may be quickly wiped out by illness. 'What we don't know,' says Laurenson, 'is how

many of these wolves there are. They may be widespread across Africa, but is that widespread in appreciable numbers, or are they dotted across certain habitats with only a few animals in each place? It's critical for their future that we find out.'



INGO ARNDT/NATUREPL.COM/DIGITAL SOURCE

LUPASTER VS HOMO SAPIENS?

Disease and inbreeding aren't the only challenges *lupaster* faces. Uncovering this cryptic species' secrets may be a mixed blessing. Especially if, like the golden jackal, it lives near humans and takes lambs and other prey from livestock farms.

What do sheep graze on in a brushy, high-altitude region like Guassa? A prized natural resource – *Festuca* grass. The population of Menz considers the grass its 'cloth, bread and butter'. One of the main reasons for protecting the area, Tefera says, is to harvest good-quality festuca grass. It's used in thatching and for robes and household implements. The grass is sold in more distant markets as well, in Addis Ababa and other cities.

Guassa also provides a refuge for livestock when cultivated fields elsewhere lose their grasses. Most of the livestock that regularly grazes in the highlands comes from adjacent villages. During prolonged droughts, however, sheep from villages further away stay in Guassa in temporary pens to avoid long daily journeys. Therein lies the potential dust-up.

'My grandmother told me about the wolves that stole her livestock,' offers an East African citizen in response to the

discovery of *lupaster*. 'I'd always ask if she was sure she hadn't seen a hyaena, dog, jackal or fox, but her answer was firm: it's a wolf... She said that wolves were once very common, but that she hadn't seen any for decades. I've heard many claims like that.'

The golden jackal can be a pest, laments one resident of Ethiopia, and will attack domestic animals, including sheep and goats. 'Why not this wolf?' he asks wryly.

Although the golden jackal is a very different animal to *lupaster*, scientists think the point bears consideration. 'If the wolf has a fondness for sheep and goats,' says Stenseth, 'that is bound to lead it into conflict with local agropastoral people.'

More than 80 per cent of Menz Guassa is highland with eroded slopes that, nonetheless, supports an expanding human population. Livestock is an important element of the farming system here and throughout northern Ethiopia, with its role increasing because of the unreliability of crops. Where there's livestock, *lupaster* ►



NHPA/JOHN SHAW

TOP The Menz Guassa Community Conservation Area is home to such rare species as the gelada baboon – and the African wolf.

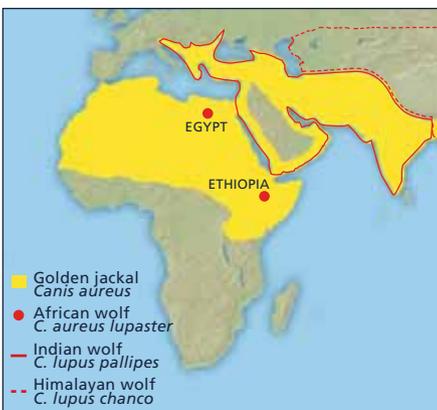
ABOVE The grey wolf of Minnesota in the northern US. Like the African wolf, it is also a member of what is called the grey wolf complex of species.



Unlike *lupaster*, which has only been observed alone, golden jackals are intensely social animals. Until further research is done, other differences (or similarities) between the wolf and its erstwhile family remain unknown.

BELOW Were Wepwawet and the African wolf one and the same? Ancient Egyptians thought so. Our knowledge is catching up.

ANUP SHAH/NATUREPL.COM/DIGITAL SOURCE



WEPWAWET AMONG US

‘Woollfff!’ shouted Lajos Nemeth-Boka, lead naturalist and tour leader for GreenEye Ecotours in the UK. It was November 2007 and Nemeth-Boka was driving slowly along the west bank of the Nile River between Luxor and Aswan. ‘An animal crossed the road in front of us, coming from the Nile’s shore and running towards the Sahara sands,’ he says. ‘I’ve seen golden jackals and I’ve seen wolves, and there is a big difference between the two. This was clearly a wolf.’ It was, he believes, *lupaster*.

In later Egyptian art, Wepwawet was depicted as part-human, part-wolf, with the body of a human and the head of a wolf. European Egyptologists mistook Wepwawet for a jackal, even though the ancient Egyptians clearly identified the god – and the animal for which it was named – as a wolf.

According to texts inscribed in the pyramids, Wepwawet often led the way to success for Egyptians, from messengers to kings. Five thousand years later, will we give Wepwawet’s incarnation the recognition – and protection – its position as Africa’s only grey wolf deserves? **AG**



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may be too. ‘We know so little about this subspecies,’ says Sillero-Zubiri. ‘Who can say whether and when it takes sheep? It’s still a shadow on a ridge.’

Luckily, says Tefera, ‘the people here refer to it as the “nomad jackal” rather than the more common jackals they’ve accused of killing their lambs.’ Its elusiveness may be *lupaster*’s salvation. There is also a growing understanding by the people of places like Guassa that the wolf is a national heritage, Tefera says, and that through ecotourism it may bring an income source as important as festuca.