

On the status and distribution of the Striped Hyaena, *Hyaena hyaena*, in Turkey

by Max Kasperek, Aygün Kasperek, Bülent Gözcelioğlu, Ercüment Çolak,
and Nuri Yiğit

Abstract. A review of literature records, many of them from the 19th and early 20th centuries, shows that the Striped Hyaena, *Hyaena hyaena*, has apparently always been rare in Turkey. The natural distribution area extends from the southern Marmara region (Lake İznik, Uludağ) over the Dardanelles and along the Aegean and Mediterranean coast to south-east Anatolia. Historical records from inner and eastern Anatolia are not considered as reliable, and the Turkish population has apparently never had a direct link with the populations living in the Caucasus. Recent field surveys show that the species still survives in Turkey, even in some western parts. Over the last 25 years, records are only available from a few areas; they come from the regions of Çan (Çanakkale province), Bergama (Kozak Yaylası and Yuntdağ area), Bafa Gölü/Milas, Antalya (Termessos National Park), Bolkar Mountains, Amanos mountains (Hatay province), and south-east Anatolia. The most spectacular record is from Altınözü in the Amanos mountains, where a local hunter trapped four individuals between 2002 and 2004, which were kept for some time in captivity before they were released again into the wild. The species is now highly threatened in Turkey and is on the verge of extinction, although our recent field work shows that still undiscovered populations may exist and that the total population, albeit fragmented, may be higher than hitherto thought. The paper includes the description of habitats and of museum specimens.

Kurzfassung. Eine Literatúrauswertung mit zahlreichen Zitaten aus dem 19. und frühen 20. Jahrhundert zeigt, dass die Streifenhyäne, *Hyaena hyaena*, in der Türkei schon immer selten war. Das natürliche Verbreitungsgebiet erstreckt sich von der südlichen Marmararegion (İznik Gölü, Uludağ) über die Dardanellen entlang der Ägäis- und Mittelmeerküste bis nach Südost-Anatolien. Historische Berichte aus Inner- und Ostanatolien werden als nicht zweifelsfrei eingestuft, und es scheint nie eine direkte Verbindung der türkischen Population zum Vorkommen im Kaukasus gegeben zu haben. Anhand von Felderhebungen wird gezeigt, dass die Hyäne bis in jüngste Zeit in der Türkei überlebt hat. Aus den letzten 25 Jahren gibt es in der Türkei allerdings nur aus wenigen Gebieten Nachweise; sie kommen aus der Gegend von Çan (Prov. Çanakkale), Bergama (Kozak Yaylası und Gebiet des Yuntdağ), Bafa Gölü/Milas, Antalya (Termessos-Nationalpark), Bolkarergebirge, Amanosgebirge (Prov. Hatay) und Südostanatolien. Der spektakulärste Nachweis kommt aus Altınözü im Amanosgebirge, wo ein lokaler Jäger zwischen 2002 und 2004 insgesamt vier Hyänen in Fallen erbeutete; sie wurden für einige Zeit in Gefangenschaft gehalten, bevor sie wieder in die Freiheit entlassen wurden. Die Streifenhyäne ist in der Türkei hochgradig bedroht und steht am Rande des Aussterbens, obwohl neuere Feststellungen zeigen, dass sicher noch bislang unbekannte Populationen existieren, und die Population zwar stark fragmentiert, aber doch größer sein dürfte, als bisher angenommen. Es werden auch Habitatbeschreibungen und Beschreibungen von Museumsmaterial gegeben.

Key words. Habitat, Red List, carnivores, historical records, distribution area, Middle East.

Introduction

The distribution of the Striped Hyaena, *Hyaena hyaena* (Linnaeus, 1758) comprises most of Africa (except for the southern parts), the Middle East including the Arabian Peninsula, the Levant, Turkey, Iraq, Iran, and the Caucasus (Azerbaijan, Armenia, Georgia), and extends further into Central Asia and the Indian subcontinent. In the Middle East and the Caucasus in particular, the distribution is now patchy in most places as the result of a decline which has occurred over the past decades. In Turkey, the Striped Hyaena reaches its northernmost distribution. However, little is known about its past and present occurrence there. An attempt was made by KUMERLOEVE (1967) to give an overview of the distribution in Turkey, and he described the range as extending over western, southern, and south-eastern Anatolia, with local occurrences in central and eastern Anatolia. KUMERLOEVE could list only a few recent records, and stated that the occurrence in Turkey was approaching “unstoppable” extinction. Since the publication of that paper, very little new information on the status of the species in Turkey has been published, thus indicating that KUMERLOEVE’s prognosis on its fate in Turkey may have come true. However, our studies show that the species has survived in Turkey.

We can contribute here several new records and evidence of the occurrence of the Striped Hyaena in Turkey which have resulted from field surveys in recent years. We take this opportunity to review the past and present status and distribution in Turkey. This is particularly worthwhile as KUMERLOEVE’s (1967) review was not exhaustive, some historical records need clarification, and a few records were published after KUMERLOEVE (1967) which are apparently not generally known; CAN (2002), for example, had noted that there are no published records for Turkey since the 1960s, despite some scattered records in literature. This paper also presents information on Turkish material held in various museum collections, and also on the habitats used by the Striped Hyaena in Turkey.

Field and Museum Survey

Field surveys were carried out in particular during summer 2004 by A.K. and M.K., with focus on the northern Aegean region. They attempted to interview as many people as possible, whom they usually approached in tea houses in the villages. Additionally, members of local hunters’ clubs were interviewed, including those at Bergama (Demirciler Mahallesi), Bayramiç, Zeytindağ, and Kaplan Köyü.

For the interviews, it was essential to ask people about large mammals in general, and not to confine the interview to hyaenas. In this way, it was possible to get an impression of their general wildlife knowledge, and to assess their reliability. There is often confusion with wolves, in particular when the name “canavar” is used, which may refer to both wolves and hyaenas. In the Turkish language, the following names were found to be used for the Striped Hyaena:

- Sırtlan („Hyaena“): This name is unambiguous, but people often associate hyaenas living in Africa with this name. The full name “Çizgili Sırtlan” (Striped Hyaena) is usually only known among scientists.
- Andık: This is the common name used in the Aegean and Marmara regions (see HUŞ 1974). Many people know that “andık” and “sırtlan” are the same species. “Andık” was never heard in other areas of Turkey.
- Canavar (beast, monster, etc.): A comprehensive name which is used for both wolves and hyaenas, but as far as we understood usually not for jackals. In some areas, “canavar” clearly refers to the Wolf, and “sırtlan” to the Hyaena. However, the use of these name may change from village to village, and even from individual to individual.

Tab. 1. Specimens of Turkish Striped Hyaena, *Hyaena hyaena*, held in museum collections.

Museum	No.	skull	skin	locality / date	collector/remarks
Museum für Naturkunde	ZMB 7528 (90388)	●	●	Antakya ("Antiochia, Syrien")	♂; type specimen of <i>H. syriaca</i> (Matschie, 1900); coll. ROLLE
Nat. History Museum	BM(NH) 1905.5.28.2	●	●	Izmir ("Smyrna"), 1905	coll. BLACKLER
Museum für Naturkunde	ZMB 82324	–	●	Mersin ("Mersina"), 3.4.1906	coll. Walter SIEHE
Museum für Naturkunde	ZMB 82323	–	●	Mersin ("Mersina"), 9.9.1907	coll. Walter SIEHE
Museum für Naturkunde	–	–	●	Türkei, 26.3.1904	coll. Walter SIEHE
Museum für Naturkunde	ZMB 82325	–	●	Southern Taurus, 18.12.1902	coll. Felix von LUSCHAN
Museum für Naturkunde	ZMB 82327	–	●	Zincirli ("Sendschirli"), without date	coll. Felix von LUSCHAN
Museum für Naturkunde	ZMB 82328 (A 30 ^o .02)	●	●	Zincirli ("Sendschirli"), 18.12.1902	coll. Felix von LUSCHAN
Mus. Ankara University	–	–	●	Ulukişla, 1985	see ÖZKURT et al. (1998).
Mus. Ankara University	–	–	●	Altinözü, Hatay, 2004	skin taken from a tea house; actual data of killing not known.
Museum Termessos Nat. Park	245	●	–	Cave at Tepe Nin Dag Usu, Mecene Redisire Dag (Güllük Dağı), early 1980s (?)	information fide M. MASSETI; skull from a cave within the park; exact locality probably mis-spelled.

– Öcü (evil creature, creature from tall stories, etc.): This name was heard only in the village of Inköy near Pozanti. The name "öcü" was used there synonymously with "canavar", and was used for carnivores in general.

The name alone was never used as evidence for the occurrence of the Striped Hyaena. We always attempted to obtain a description of the animal, and the following characters were used to distinguish hyaenas from wolves and other carnivores in the interviews with local people:

- General appearance and colour dog-like (Turkish Kangal-dogs!);
- Body appears higher at shoulders than at the rear;
- Uses dens and caves for hiding;
- Does not attack herds of sheep and goats, but feeds on carrion and bones;
- Lives usually singly, never in groups.

Enquiries among some museums revealed 11 voucher specimens of Turkish material: one in the British Museum (Natural History), London, seven in the Museum für Naturkunde, Berlin, two in the Museum of Ankara University, and one in the museum of Termessos National Park (Tab. 1). The material deposited in Berlin and Ankara has been examined.

Status and distribution in Turkey

The Striped Hyaena is a relatively secretive animal, and is easily overlooked. Despite its body size and notoriety, hardly any traveller from the old days – mainly in the 19th and early 20th centuries – mentioned this species, and if they did it was mostly in a general way without giving details on its occurrence. There is also hardly any mention of hyaenas in the hunting literature of Turkey.

Marmara Region

Up until the 19th century, the distribution of the Striped Hyaena apparently extended up to the western Marmara region, as RIGLER (1852) listed "*Hiaena striata*" among the mammals of the surroundings of Istanbul, and said that he had one specimen in his collection which was shot near Iznik ["Nicaea"]. DE TCHIHATCHEF (1864) also mentioned that hyaenas live in the massif of Uludağ ("massifs de l'Olympe").

For the western part of the Marmara region, HUŞ (1974) listed the following localities: surroundings of Kazdağı, Çanakkale, Edremit, Ezine, Ayvacık, and Balıkesir. He did not give further details, but his notes must surely refer to the period before 1963. The skin of a Striped Hyaena which had been killed by hunters was exhibited in a tea house in Terzialan village near Çan until the early 1980s (Beytullah ÖZKAN, pers. comm. 2004). The villagers there were quite aware of the (former?) presence of hyaenas in that area, and they were accustomed to covering graves with stones and thorny bushes to prevent hyaenas from grave robbery. There is now some new evidence that hyaenas still survive in this region: not far from Çan, at Katrandağı to the south-east of the town towards Yenice, the villager Aslı Ishan YAMAN came across a Striped Hyaena in early October 2002: he saw an adult animal which crossed the road about 1 km west of Oğlanalanı Village in the early morning (Beytullah ÖZKAN, pers. comm.).

Surveys in the area of Bayramiç in 2004 (M.K.) showed that hyaenas are well-known among local people, although concrete reports on recent occurrences are rare. Many people (including members of the local hunting club of Bayramiç) are aware of the former occurrence of the species, and some also report that graves are often still covered with stones and thorny bushes to avoid their disturbance by hyaenas. The only concrete indications of recent hyaena occurrences are from Yassıbağ Village at the foot of Mount Kazdağı (reported until 2003), and from Bekirler (= Gökçeşme) Village towards Çan (2004). Both reports appeared credible, but as we failed to obtain independent confirmation from other villagers, we take these reports only as indications, not as records.

Aegean Region

An extensive survey was carried out in the northern Aegean region, roughly in an area between Burhaniye, Bergama and Zeytindağ, by A.K. & M.K. in 2004. Around Burhaniye, the only concrete report is from the village of Yunuslar, where an old man related the observation of a Striped Hyaena in the late 1960s or early 1970s. The details of his description put this record beyond doubt.

Interviews with villagers at Kozak Yaylası to the north of Bergama revealed many reports on the former occurrence of the species; most of these reports were, however, not very specific and did not refer to concrete observations. But they show that hyaenas are widely known as members of the local fauna, even though most people do not think that the species has survived to the present. Two concrete records could be found: Villagers of Kaplan Köyü reported on a hyaena hunt in the 1970s or early 1980s. The hunters found the den used by a hyaena some 1-2 km outside the village, and, in a common hunting event, the animal was chased out of its hiding place and shot when it appeared. A much more recent record comes from Hacıveliler village: some local hunters came across a hyaena when hunting for Wild Boars (*Sus scrofa*) in about 1999. The hyaena was killed and the body brought to the village, where it was exhibited to the people including those from neighbouring villages. People donated money to the hunters for having rescued them from such a beast. This report was confirmed independently by people from neighbouring villages.



Fig. 1. Habitat of the Striped Hyaena in western Anatolia (village of Koyuneli near Bergama).
A Hyaena was shot here in the 1980s.

In Bergama, we interviewed an old man who remembered that a freshly-killed hyaena was exhibited in the market as far back as the 1960s. However, no evidence for an occurrence was found in the immediate surroundings of the town, including the town's rubbish dump.

The hyaena survey in 2004 by A.K. & M.K. revealed many reports on its occurrence in the area to the south of Bergama. Reports refer to Zeytindağ (last observation in the 1950s), Eğrigöl Village (occurrence reported until the early 1990s, but no concrete records), Bozyerler (three observations between 1965 and 1980), Kızıltepe (old observations without precise time), and Avunduk Village (a hyaena seen feeding on the remains of a dead goat in the late 1960s or early 1970s). In Koyuneli, two hyaenas were shot in the 1980s (and another one apparently in the 1960s). The body was shown to the village population and to the population of neighbouring villages; people were also found in the nearby Örlemiş Village who could remember this event; the hunters collected donations from the population. One of the skins was later exhibited in a local hunters' club, but the club does not exist any longer and the skin is also no longer available.

There are two very recent pieces of evidence for the occurrence of the hyaena in this area: an observation in 2003 between Koyuneli and Bozyerler, and another one in roughly the same area in 2004. However, as both observations were forwarded as second-hand information, they need confirmation and should be taken as evidence of an occurrence, not as confirmed records.

The presence of the Striped Hyaena in the surroundings of Izmir has been documented since the first half of the 19th century: for the period 1840–1860, VON GONZENBACH (1860) mentioned Striped Hyaenas from the “valley of St. Anna”, nowadays situated in the Buca district within the city of Izmir, and Seydiköy [“Seudikieu”] between Izmir and Torbalı

[38°15'N, 27°09'E]. DANFORD & ALSTON (1877) described the species as “not uncommon” in Izmir and in nearby areas to the south of the town, and BLACKLER collected a Striped Hyaena in Izmir around 1905 and sent it to the British Museum (Natural History) (see also KUMERLOEVE 1967 and Tab. 1). KUMERLOEVE (1967) also mentioned two young hyaenas found at Manisa in 1937.

In the valley of the Büyük Menderes River, DANFORD & ALSTON (1877) mentioned Striped Hyaenas from the area of Ortaköy [“Ortakkeui”], between Nazilli and Sarayköy, and WIEGAND observed a hyaena feeding on melons near Herakleia on the shores of Lake Bafa (the modern Kapıkırı) in September 1905 (WIEGAND 1985). A local hunter reported to M.K. that he killed a Striped Hyaena on the shores of Lake Bafa in the mid-1970s, and several local people reported independently and authentically in the mid-1980s that the species still occurred, albeit rare, in the mountainous area to the south of Lake Bafa (KASPAREK 1988). A small valley there is called “Valley of the Hyaenas” (“Sırtlan Vadisi”). Local people described the species as “no longer occurring” in Samsun Dağı National Park, situated to the north of Menderes Valley, in the mid-1980s (KASPAREK, unpubl.). At Selimiye, between Bafa Gölü and Milas, a Striped Hyaena was shot in 1986 (KASPAREK 1988), and another specimen near Bodrum in 1970 (ULLRICH & RIFFEL 1993).

Mediterranean Region (without Amanos Mountains)

Further to the south, at the ancient Sidyma (the modern village of Dodurga near Kalkan, Antalya province), FELLOWS (1841) heard in 1840 about the occurrence of the hyaena and described it as follows “...wolves – and, if I understood rightly, the hyaena also – are found here; and the latter are described as gnashing their teeth together.” TURAN (1969) reported that at Beydağları, nowadays protected as Termessos National Park, the last hyaena was seen in 1953. MASSETI (pers. comm.) saw the skull of a Striped Hyaena in the small museum at the entrance to the park (cat. no. 245), which was collected from a cave within the park (Güllük Dağı), probably in the early 1980s (Tab. 1). Local people mentioned to him that they remembered hyaenas living there up until that time.

RUSSEGGER (1843) and KOTSCHY (1858) mentioned Hyaenas for the Central Taurus Mountains, although RUSSEGGER noted that he himself did not see any. KOEHLER (1924) found the species to be not rare during his stay at Pozantı and Çamalan [“Tschamalan”] in 1917–1919: “The Striped Hyaena was captured in traps or was hunted; among them there were animals of extraordinary size”. KUMERLOEVE (1967) saw a specimen which had been killed in 1958 at Gülnar further to the south-west (west of Silifke) and which was exhibited in Ankara. Two specimens collected at Mersin in 1906 and 1907 by the botanist Walter SIEHE are deposited in the Museum für Naturkunde Berlin (Tab. 1). Another specimen by the same collector certainly comes from the same locality, although an exact label is missing (Tab. 1). ÖZKURT et al. (1998) examined a more recent specimen, an adult male, which was shot in the Bolkar Mountains in the area of Ulukışla in 1985. In August 2004, one of us (M.K.) conducted a survey in the lower Taurus mountains, along a transect extending from Tarsus (15 m a.s.l.) to Pozantı (900 m a.s.l.). Local people were not familiar with Striped Hyaenas, or they knew it only from books or from TV. However, in the village of Inköy, several people reported independently that a wild animal was living close to the village, which they called “başiboş köpek” (stray dog) and “öcü” (a kind of beast). We take this as a strong evidence for the occurrence of the Striped Hyaena.



Fig. 2. Skin of a Striped Hyaena from Zincirli, Turkey, collected in the early 20th century. Museum für Naturkunde, Berlin (ZMB 82327).

KOTSCHY (1856) mentioned the occurrence of the Striped Hyaena in the Çukurova, i.e. the river deltas to the south of the Taurus Mountains, in the year 1855. The skin of a specimen from the “southern Taurus”, collected on 18.12.1902 by VON LUSCHAN, is deposited in the Museum für Naturkunde Berlin (Tab. 1). Surveys by M.K., especially in the mountainous area between Yumurtalık and Ceyhan (also including the waste disposal facility near Ceyhan), in last few years have not produced evidence for a recent occurrence.

Amanos Mountains

MATSCHIE (1900) examined the skin and skull of an adult male which was collected by ROLLE from Antakya [Antiochia], and described it as his “*Hyaena syriaca*”, which has subsequently been given subspecies status as *H. h. syriaca*. F. VON LUSCHAN collected two skins at “Sendschirli” (MATSCHIE 1900, POCKOCK 1934), which we could identify as the Late Hittite settlement of Zincirli further north in the Amanos mountains (previously called Samal or Shamal; some modern maps also give it as “Cincirli”; 37°06’N, 36°41’E). VON LUSCHAN was the head of several excavations there between 1888 and 1902. One specimen was hunted at Sof Dağı (Sof Yaylası) [“Softa Dagi”] situated some 30 km to the south-west of Gaziantep in 1918, and an animal in captivity plus the fur of an adult was seen at Kahraman Maraş in the 1940/1950s (KUMERLOEVE 1967).

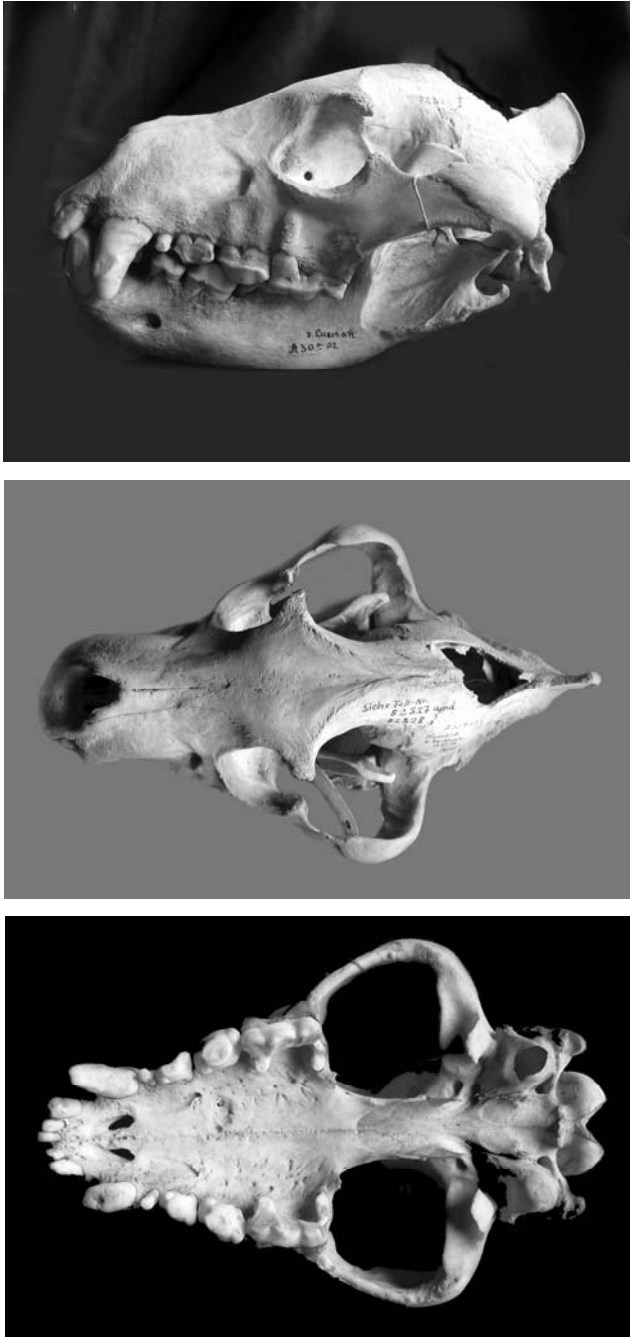


Fig. 3. Skull of a Striped Hyaena, *Hyaena hyaena*, collected at Zincirli, Turkey, on 18.12.1902 by F. VON LUSCHAN. Museum für Naturkunde, Berlin, Catalog No. A 30⁰.02

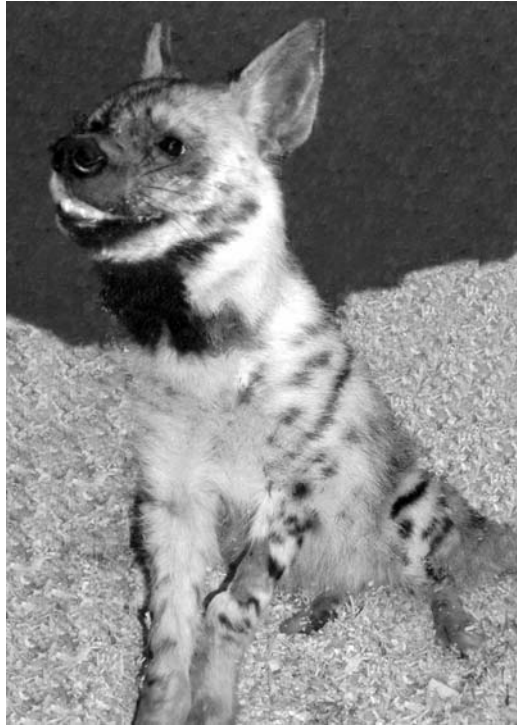


Fig. 4. The male Striped Hyaena, *Hyaena hyaena*, trapped in January 2004 at Altınözü in Hatay province of Turkey. Note the injured left foreleg.

In late 2002, three young Striped Hyaenas were trapped near Altınözü (36°12'N, 36°25'E), about 30 km from the border with Syria, by the local hunter Mustafa ÇEÇEN. The animals were transferred to the zoo at Gaziantep where they were exhibited to the public. About 19 months later, on 17.1.2004, two of them were brought back to Altınözü, the place where they had been trapped, and released back into the wild under the auspices of the Ministry of Environment and Forestry (cf. CAN & LIŞE 2004a, b). The third animal was released shortly afterwards in the same area. The first two animals were initially equipped with radio transmitters, borrowed from a project on *Ovis gmelinii* at Bozdağ in Konya province, and the staff of the Ministry of Environment and Forestry received radio signals from these animals. However, the receiver was returned to the *Ovis* project after some time, and it seems that the radio collars were not removed from the animals. After the release, some villagers of Altınözü reported that they had seen up to three hyaenas around the village, feeding during the day, and some of them also noted the radio collars. The hyaenas had apparently undergone a phase of domestication during their stay at the Zoo of Gaziantep.

On 9.1.2004, the same hunter who had trapped the three young hyaenas in 2002 trapped an adult animal again near Altınözü with the help of an iron trap. It was subsequently confiscated by the local police (gendarmérie), and one of us (B.G.) was able to examine it on 22.1.2004. It was an adult male, and the right foreleg was injured. It was brought to the Veterinary Faculty of Mustafa Kemal University where it was kept in captivity for some

time. Once the animal had recovered, it was released into the wild again (see also CAN & LISE 2004a, ATLAS DERGISI 2004).

Local people are familiar with the occurrence of Striped Hyaenas in the area around Altınözü, although most of them are not aware of the species identity. They call them “interesting stray dogs” or “interesting wild dogs”, but their description of the animals fits hyaenas perfectly. Local people say that they see these animals mostly around waste deposits.

The area where the hyaenas have been found lies in a large karstic limestone area with many caves. The habitat where specimens have been trapped is a rocky, relatively open maquis at an altitude of 400 m a.s.l. (Fig. 5). The dominant plants are low bushes of *Sarcopoterium spinosum* (most of them less than 1 m high), with interspersed oaks (*Quercus coccifera*) and Common Smilax (*Smilax aspera*). The soil is of the terra rossa type. The nearest village is some 200–300 m away. There is also agricultural land with olive groves next to the habitat where the hyaenas live. We have observed many dens and caves between and under rocks. The entrances of these dens and caves are small and are often branched inside. Recent utilization of the dens and caves was confirmed by hyaena faeces and footprints in the vicinity. There are apparently no other large mammal species living in the same habitat. According to our own observations and interviews with local hunters, there are also no Golden Jackals (*Canis aureus*) in the same area.

At Altınözü, the skin of a Striped Hyaena was seen in a tea house, and was subsequently deposited in the Museum of Ankara University (Tab. 1). The age of the skin is not clear. In the area of Altınözü (3 km east of Yunushan Village), there is also a cave which is called “Sırtlan Mağarası” (“Hyaena Cave”) and which is said to be used by hyaenas as a shelter.

A young man who was interviewed in Western Turkey in 2004 (M.K.) reported the occurrence of hyaenas near Dörtyol during 2003–2004. His statements were very convincing and should be taken as evidence for the occurrence of the species in that part of Hatay province.

South-east Anatolia

In south-east Anatolia, DANFORD & ALSTON (1880) reported the species as “not rare” in the area of Birecik [Biledjik], and HIRSCH saw there one animal in captivity and received the skull of another in 1972 (KUMERLOEVE 1975). NAUMANN (1893) mentioned the Striped Hyaena for the area around Diyarbakır. One specimen was found as a traffic victim near Cizre in 1952 (KUMERLOEVE 1967). CAN (2002) and CAN & LISE (2004a) again mentioned a hyaena as a traffic victim in south-east Anatolia in 2001 and published a photograph, unfortunately without giving an exact locality.

Other regions

CUINET (1892) mentioned the species for Erzurum, and SANDWITH (1856) reported the occurrence of “bears, wolves, and hyaenas” between Trabzon and Gümüşhane. KUMERLOEVE (1967) accepted these notes as definite records and showed them on his distribution map. This was followed by other authors (e.g. RIEGER 1979, TURAN 1984, KURTONUR 1996, DEMIRSOY 1997, MILLS & HOFER 1998). However, as neither CUINET nor SANDWITH gave any details, and the sites are well outside the known range, we regard them as doubtful. KANNENBERG (1897) should also be mentioned in this context: he reported that the graves in the village of Yelli (“Yravly”) near Güdül to the north of Ankara (“Angora”) are covered by the remains of ancient buildings, in order to protect them against pillage by hyaenas. We do not accept this observation as a definite record for the occurrence of hyaenas there.



Fig. 5. Habitat of the Striped Hyaena, *Hyaena hyaena*, near Altınözü in Hatay province, 2004.

Discussion

The review by KUMERLOEVE (1967) suggested that the distribution area extends over most of the country. However, there is very little evidence for this: the few (historical) sources referring to central and eastern Turkey (CUINET, SANDWITH, KANNENBERG - see above) are very general and do not give any precise information on the occurrence of the species. They are therefore not accepted here as reliably describing the species' distribution pattern. The distribution area of the Striped Hyaena in Turkey extends over to a relatively narrow belt which starts in the south of the Sea of Marmara (Uludağ, Lake İznik), extends further over the Dardanelles and along the Aegean and Mediterranean coast, as far as the border with Syria in the Mediterranean Hatay province. All occurrences are relatively close to the sea, at a maximum distance of some 120 km. The distribution area extends further into south-east Anatolia, roughly along the border with Syria, over the Euphrates to the Tigris river in the east. Diyarbakır marks the northernmost point in south-east Anatolia.

This distribution pattern is based on many old records, and it is not clear how far this pattern is still valid because of the decline of the population. The occurrence around Uludağ in the southern Marmara region is without doubt a historical one, and has been documented only for the middle of the 19th century. Today's distribution pattern is patchy; in the last 25 years, there have only been records from a few areas: the region of Çan in Çanakkale province, a few places around Bergama, the area of Bafa Gölü in the Aegean region, the Antalya region (Termessos), the Bolkar Mountains, the Amanos Mountains, and south-east Anatolia. Some of these records were only revealed during a survey in 2004, and it is encouraging that the species has succeeded in surviving even in some western parts of the country. We believe

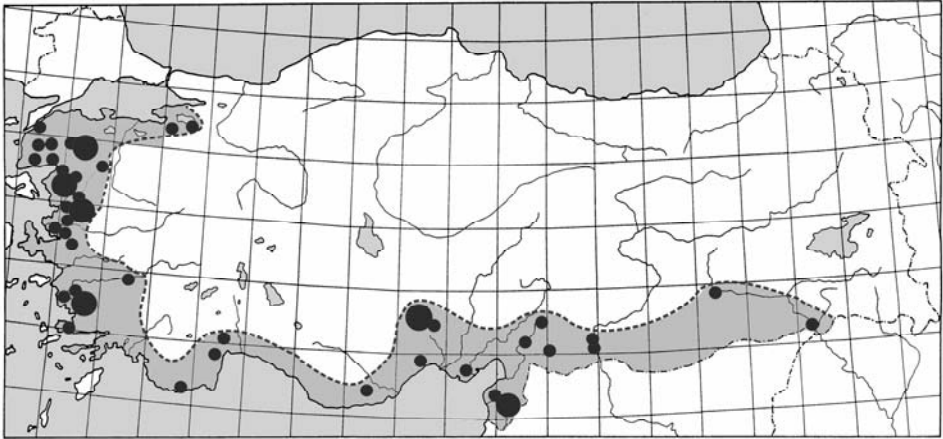


Fig. 6. Distribution of the Striped Hyaena, *Hyaena hyaena*, in Turkey. All records are given. Records after 1980 are shown by large dots, pre-1980 records by small dots.

that there are still more hitherto undiscovered populations, and south-east Anatolia in particular is promising. Recent studies within the framework of the “South-eastern Anatolia Biodiversity Research Project” and the “Amanos Mountains Gift to the Earth Project” suggest more recent records in south-east Anatolia (CAN 2002, 2003, CAN & LISE 2004a, b), although concrete information has not become available.

The absence of the Striped Hyaena from inner and eastern Anatolia shows that there is no link between the Turkish populations and the Caucasus populations. The species was widespread in Azerbaijan, Armenia and Georgia historically, but is now only very patchily distributed and is present in only a few places in Armenia and Azerbaijan, and in a few places in the southeast and southwest of Georgia (MILLS & HOFER 1998). There are no recent data available from northern Iraq, but there are indications that the species is still widespread and moderately abundant in Syria, albeit much persecuted by hunters and herdsman. Recent records come from Inner Syria, but the species’ presence could also be confirmed from Slenfe near Lattakia in the Alowite Mountains (SERRA, pers. comm.).

There is no evidence for the occurrence of the Striped Hyaena in Greece (ONDRIAS 1965), and not even from pre-historic sources (BECKER, pers. comm.) – although some of the occurrences on the Turkish mainland are within sight of some of the Greek Aegean Islands (e.g. Lesbos). The skull of a specimen deposited in the Museum für Naturkunde Berlin is labelled “Theben/Griechenland” (no. 14825), collected by MOOK in 1878. However, we found that the collector was Dr. MOOK (not MOEK, as mis-spelled in the museum catalogue), who was a German resident in Cairo in the 1870s and 1880s and who collected mainly archaeological and folkloristic artefacts and sent them as gifts to German museums (see e.g. MARQUART 2002). So, the skull can be definitively attributed to Thebes in Egypt (where Dr. MOOK collected many other valuable objects), and not to Theben in Greece.

Recently, CAN & LISE (2004a) suggested that the Striped Hyaena is far more widespread in Turkey, although rare, than hitherto assumed. They suggest that the species occurs in several small isolated populations at several locations in western and Mediterranean Turkey,

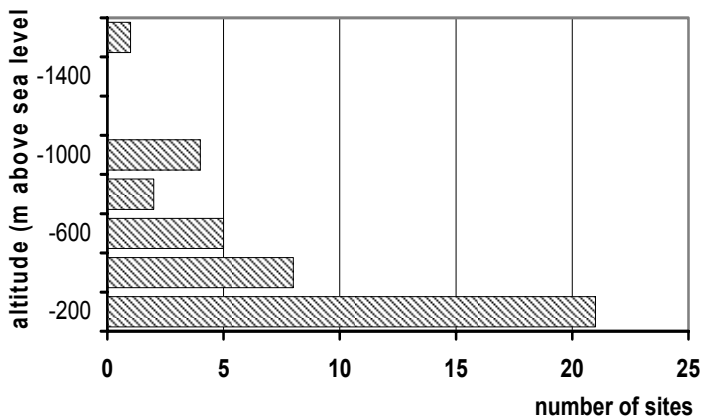


Fig. 7. Altitudinal distribution of the Striped Hyaena, *Hyaena hyaena*, in Turkey. The graph shows the number of hyaena sites per 200 m altitude.

with a main population extending over south-eastern Anatolia, including the provinces of Hatay, Kilis, Gaziantep, Şanlıurfa, Adıyaman, Mardin, Şırnak, and Siirt. Although this can hardly be substantiated from the available information, the records given here indicate that the species has indeed survived even in western Turkey (Aegean region, western Marmara region) and may be more widespread than hitherto thought.

The Striped Hyaena in Turkey occurs usually at low altitudes: 83% of all records are from altitudes lower than 600 m a.s.l. (Fig. 7). The recently discovered site in Hatay province, for example, lies at 400 m. However, hyaenas were also found higher in the Taurus mountains, such as in the Bolkar Mountains at over 1000 m (highest peaks over 3500 m). The maximum altitudes recorded outside Turkey are 2,100 m in Caucasia, 2,250 m in Iran, 2,500 m in India, and 3,300 m in Pakistan (MILLS & HOFER 1998).

At the beginning of the last century, MATSCHIE (1900) described a new species of hyaena from a specimen which was collected near Antakya [Antiochia] in southern Turkey, and named it *Hyaena syriaca*. This taxon was later synonymised with *H. hyaena* and is now regarded as the subspecies *H. hyaena syriaca*. Over the years, many taxa of hyaenas have been described which are nowadays regarded as belonging to *H. hyaena*. Some of them, like *H. syriaca*, have been downgraded to subspecies. POCOCK (1934) revised these, leaving five that are still recognized (RIEGER 1979, 1981): RIEGER suggests that these five subspecies can be placed into two groups, consisting of the three larger, northern subspecies (*barbara*, *syriaca*, *hyaena*), and the two smaller, southern subspecies (*dubbah* and *sultana*). The two groups are differentiated on the basis of the size of the skull. Turkish hyaenas are assigned to *syriaca*, which includes the no longer recognized subspecies *vulgaris* (to which MATSCHIE 1900 assigned the specimen from Zincirli) and *satunini* (which was described by MATSCHIE in 1910). The range of *satunini* extends over the Caucasus region and many researchers from that region still treat *satunini* as a valid subspecies (see e.g. Nacres data base under www.nacres.org). A comparison of Turkish *syriaca* with *satunini* hyaenas from the Caucasus would be highly interesting as our results show that the distribution ranges of both forms have no direct connection; both distribution ranges are interlinked through Iranian territory where hyaenas live whose taxonomic position has not been clarified. A form named *zarudnyi*

has been described from Persian Mesopotamia, but its position as a separate taxon has already been questioned by POCOCK (1934). It may belong to nominate *hyaena* whose range further extends to Pakistan and India (see also RIEGER 1979).

The world status of Striped Hyaenas has been described as "Lower Risk: near threatened" according to the IUCN criteria in the "conservation action plan" prepared by the IUCN/SSC Hyaena Specialist Group (MILLS & HOFER 1998). There is insufficient data from most countries, and this is particularly true for the *syriaca* subspecies at the northern limit of its distribution range. The lack of data from Turkey until recently suggested that the species is already extinct in the country, or at least almost extinct. The recent records summarised here, however, suggest that the species still survives, although the population level seems to be very low and the distribution pattern disjunct. We therefore agree with CAN & LISE (2004a) who regard the Striped Hyaena as "critically endangered" in Turkey.

Being large carnivores, they clash with the interests of humans to a greater extent than do many other groups of animals. Perhaps the most important challenge facing those committed to the conservation of this group of animals is to overcome the very strong negative feelings that many people have towards hyaenas. Until they are viewed in a more positive light it will be difficult to implement management plans effectively, such as the one which has been prepared by the IUCN/SSC Hyaena Specialist Group (MILLS & HOFER 1998). The Striped Hyaena in Turkey, as in many other countries, has long been an object of loathing and superstition (see HARRISON & BATES 1991). In Turkey, measures are described which have been taken to protect graves against robbing by hyaenas (KANNENBERG 1897, ÖZKAN, pers. comm., own observations). However, we do not have reports of hyaenas inflicting damage to livestock (sheep, goats). In the Bergama area, a villager told us that hyaenas attacked a donkey, a behaviour which had also been observed in Iraq (HARRISON & BATES 1991).

Two hyaenas were recorded as traffic victims. It should be borne in mind that hyaenas may search on roads for the carcasses of animals which have become traffic victims, and they may themselves become traffic victims in this way. The recent records at Altınözü in Hatay province show that hyaenas are largely dependent on rubbish dumps which they use as a source for food. The same is true for the Lebanon where most of the records come from rubbish sites (Mounir ABI SAID, pers. comm.). Hyaenas may feed there largely on a vegetarian diet, which has also been found in many other places (RIEGER 1979). In Turkey, a hyaena was once seen feeding on melons (WIEGAND 1985).

As illustrated by the recent case in Hatay province, hyaenas are hunted and trapped in Turkey. The purpose of the hunter trapping live hyaenas in Hatay province was to sell them to zoos (ATLAS DERGISI 2004). Similarly, Gianluca SERRA (pers. comm. 2004) reports from Palmyra (Syria) that there is a man who is known as "Abu Dabba" = "father of the hyaena". He specializes in grabbing and pulling out hyaenas alive from their dens, using his bare hands and a metal wire to seal their mouths. He sells the hyaenas to shops in Damascus. This trade is justified by the supposed aphrodisiac and sexually stimulating effects of the brain of the hyaena (see also QARQAZ et al. 2004 for a similar situation in Jordan). Early on, DANFORD & ALSTON (1880) reported on hyaena trapping at Birecik on the Euphrates. They wrote:

"...The natives assert that it [the hyaena] understands Arabic and may be taken in the following way: – A man crawls into its den with a noosed rope, and stroking the Hyaena, caressingly says, "You are very nice and pretty and quite as a Lion, indeed you are a Lion." This so flatters the Hyaena that he allows the rope to be put round his neck, and is forthwith dragged out."

Local people in Turkey usually know little about Striped Hyaenas. Even if they know the animals as such, they are often not aware of the species identity. At Altınözü in Hatay province, people who saw the animals in the wild thought they were “interesting” stray dogs or wild dogs (“sahipsiz köpek”, “başiboş köpek”). Hyaenas are often called “canavar” in Turkish, what means beast or monster. There are two recently witnessed cases where local hunters exhibited hyaenas which they had previously killed to the village population and then collected donations – donations for saving them from a dangerous beast.

Acknowledgements. We wish to thank Bilal DOĞAN, head of the Hatay provincial directorate of the Ministry of Environment and Forestry, for providing information on the Hatay specimens, Mounir ABI SAID, Beirut, Dr Marco MASSETI, Florence, Dr Beytullah ÖZKAN, Edirne, and Gianluca SERRA, Damascus, for providing information on the species, Dr Latif KURT for assistance in preparing the description of hyaena habitats in Hatay, Dr Robert ASHER (Museum für Naturkunde Berlin) for allowing us to work in the collection, Daphne M. HILLS (Natural History Museum, London) for information on specimens held in that collection, and Dr Cornelia BECKER (Freie Universität Berlin) for information on historical sources.

References

- ATLAS DERGISI (2004): Striped Hyaena. An unknown predator [Çizgili Sırtlan. Bilinmeyen Yırtıcı]. – Atlas Dergisi 131 (February 2004), İstanbul.
- CAN, E. (2002): Large Carnivores in Turkey. – Species (Newsletter of the IUCN–Species Survival Commission) 38: 14, Gland.
- CAN, E. (2003): Large Carnivores in Turkey: Current status of wolf, brown bear, striped hyena and Anatolian leopard and their conservation priorities. – 4th European Congress of Mammalogy, Brno (Czech Republic) in 2003.
- CAN, Ö. E. & Y. LİSE (2004a): Striped hyena (*Hyaena hyaena*) trapped in Hatay, Turkey. – <http://carnivorelibrary1.free.fr/Striped%20Hyena%20in%20Turkey.pdf>. [uploaded 18.1.2004, downloaded on 4.5.2004].
- CAN, Ö. E. & Y. LİSE (2004b): Attachment to Short Communication Note - Striped Hyenas in Turkey. – <http://carnivorelibrary1.free.fr/Hyena%20Update%20-%20Turkey.pdf> [uploaded 2.2.2004, downloaded 5.6.2004].
- CUINET, V. (1892): La Turquie d’Asie. Géographie administrative. – Paris.
- DANFORD, Ch. & E. ALSTON (1877, 1880): On the mammals of Asia Minor. – Proceedings of the Zoological Society of London 1877: 270–281, 1880: 50–64, London.
- DEMİRSOY, A. (1997): Türkiye Omurgahlıları: Memeliler [Turkish vertebrates: mammals]. – Ankara, 292 pp.
- FELLOWS, Ch. (1841): An account of Discoveries in Lycia, being a journal kept during a second excursion in Asia Minor. – London.
- GONZENBACH, G. VON (1860): Bemerkungen über Säugethiere und Vögel in Kleinasien. – Bericht der St. Gallerer Naturforschenden Gesellschaft 1860: 48–65, St. Gallen.
- HARRISON, D. L. & P. J. J. BATES (1991): The mammals of Arabia. Second Edition. – Sevenoaks (Kent), 354 pp.
- HUŞ, S. (1974): Av Hayvanları ve Avcılık [Hunting Game and Hunting]. – İstanbul Üniversitesi Orman Fakültesi Yayınları 202: 1–406, İstanbul.
- KANNENBERG, K. (1897): Kleinasien Naturschätze. Seine wichtigsten Tiere, Kulturpflanzen und Mineralschätze. – Berlin.
- KASPAK, M. (1988): Der Bafasee. Natur und Geschichte in der türkischen Ägäis. – Heidelberg, 174 pp.
- KOEHLER, O. (1924): Übersicht über die Ergebnisse der zoologischen Untersuchungen und Sammlungen des Laboratoriums. – Archiv für Schiffs- und Tropenhygiene, Pathologie und Therapie, Beihefte, 27: 112–131.

- KOTSCHY, Th. (1856): Aus dem Bulghar Daghs des cilicischen Taurus. – Zeitschrift für allgemeine Erdkunde, N.F., 1: 121–139, Berlin.
- KOTSCHY, Th. (1858): Die Reise in den Cilicischen Taurus. – Gotha.
- KURTONUR, C. (1996): Memeliler – Mammalia. In: A. KENCE & C. C. BILGIN (Eds.), Türkiye Omurgalıları tür listesi [Species List of the Turkish Vertebrates]. – Ankara, 183 pp.
- KUMERLOEVE, H. (1967): Zur Verbreitung kleinasiatischer Raub- und Huftiere sowie einiger Großnager. – Säugetierkundliche Mitteilungen 15: 337–409, Munich.
- KUMERLOEVE, H. (1975): Die Säugetiere (Mammalia) der Türkei. – Veröffentlichungen der zoologischen Staatssammlung München 18: 69–158, Munich.
- MARQUART, M. (2002): Beiträge zur Vorgeschichte des Aschaffener Landes im Spiegel der Sammlungen des Aschaffener Stiftsmuseums. – Diss., Christian-Albrechts-Universität Kiel, 2 Bde.
- MATSCHIE, P. (1900): Geographische Formen der Hyänen. – Sitzungsberichte der Gesellschaft Naturforschender Freunde zu Berlin 1900: 18–58, Berlin.
- MILLS, G. & H. HOFER (1998): Status Survey and Conservation Action Plan: Hyaena. – IUCN/SSC Hyaena Specialist Group, 154 + vi pp.
- NAUMANN, E. (1893): Vom Goldenen Horn zu den Quellen des Euphrat. – Munich & Leipzig.
- ONDRIAS, J. (1965): Die Säugetiere Griechenlands. – Säugetierkundliche Mitteilungen 13: 109–127, Munich.
- ÖZKURT, Ş., M. SÖZEN, N. YİĞİT & E. ÇOLAK (1998): Notes on distributional records and some characteristics of five carnivore species (Mammalia: Rodentia) in Turkey. – Turkish Journal of Zoology 22: 285–288, Ankara.
- POCOCK, R. I. (1934): The races of the Striped and Brown Hyaenas. – Proceedings of the Zoological Society of London 104: 799–825, London.
- QARQAZ, M. A., M. A. A. BAKER & Z. S. AMR (2004): Status and ecology of the Striped Hyaena, *Hyaena hyaena*, in Jordan. – Zoology in the Middle East 34: 87–92, Heidelberg.
- RIEGER, I. (1979): A Review of the Biology of Striped Hyaenas, *Hyaena hyaena* (Linné, 1758). – Säugetierkundliche Mitteilungen 27: 81–95, Munich.
- RIEGER, I. (1981): *Hyaena hyaena*. – Mammalian Species 150: 1–5, Northampton.
- RIGLER, O. (1852): Die Türkei und ihre Bewohner in deren naturhistorischen, physiologischen und pathologischen Verhältnissen. Bd. 1. – Vienna.
- RUSSEGGER, J. (1843): Reisen in Europa, Asien und Afrika. Bd. 1, 2. Teil: Reisen in Griechenland, Unteregypten, im nördlichen Syrien und südöstlichen Kleinasien. – Stuttgart.
- SANDWICH, H. (1856): Geschichte der Belagerung von Kars und des sechsmonatigen Widerstandes der türkischen Garnison unter General Williams gegen die russische Armee. – Braunschweig, 336 pp.
- TCHIHATCHEF, P. DE (1864): Le Bosphore et Constantinople avec Perspectives des pays Limitrophes. – Paris, 589 pp.
- TURAN, N. (1969): Düzenli Avcılığa Doğru [Towards Regulated Hunting]. – Av Dergisi 2(7): 4–6, Ankara.
- TURAN, N. (1984): Türkiye'nin Av Haylanları. Memeliler [Turkish Game. Mammals]. – Ankara, 178 pp.
- ULLRICH, B. & M. RIFFEL (1993): New evidence for the occurrence of the Anatolian Leopard, *Panthera pardus tulliana* (Valenciennes, 1856) in Western Turkey. – Zoology in the Middle East 8: 5–14, Heidelberg.
- WIEGAND, T. (1985): Halbmond im letzten Viertel. Archäologische Reiseberichte. Herausgegeben von G. Wiegand. – Mainz, 290 pp.

Authors' addresses: Dr. Max Kasperek & Aygün Kasperek, Mönchhofstr. 16, 69120 Heidelberg, Germany. E-mail: Kasperek@t-online.de. – Dr. Bülent Gözcüoğlu, Prof. Dr. Ercüment Çolak, Prof. Dr. Nuri Yiğit, Department of Biology, Faculty of Science, Ankara University, 06100 Beşevler, Ankara, Turkey. – E-mail: Ercument.Colak@science.ankara.edu.tr.