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The African wild ass

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Summary:

This document is a book chapter from the 1999 book 'Wildesel' by Gertrud and Helmut Denzau, translated from German into English.

The African wild ass

(English translation by Robin Stocks (2016) of p. 164-180 from the German book 'Wildesel' [Wild asses], Thorbecke, Stuttgart, 221 pp., 1999, by Gertrud and Helmut Denzau, proofread by the authors)

Between the middle ages and early modern times, wild asses and zebras were sometimes confused with each other (Oken 1838). Before they were first scientifically described, there were numerous references to the existence of African wild asses, such as in the report by Cailliaud (1826), which lists onager together with other wild animals as desert dwellers in northeastern Sudan. In 1851, an Abyssinian wild ass was brought alive from Massawa to Paris that Geoffroy (1855) designated *Asinus ferus* or *Equus asinus ferus*. This animal was variously classified in later years and ultimately, including by Groves (1966), deemed on the basis of its skull dimensions to be a domestic donkey hybrid. Even before a trapper or hunter could get hold of a truly wild specimen, taxonomists had already begun assigning names (see p. 13).

The somewhat convoluted history of the discovery of the African wild ass is closely bound up with the name of Theodor von Heuglin. On 1 November 1857, on his journey along the Somali coast, Heuglin found tracks of wild asses close to the town of Berbera (Heuglin 1860). He noted with a question mark that the animals concerned may be two species of wild ass. In his systematic listing of the fauna of the Red Sea and the Somali coast, Heuglin (1861) subsequently gave a more precise description of two wild ass species: "The one, that of the provinces of Taka and Berber, definitely appears to belong to the species *Equus asinus* and in Arabic is called Hamar el Wadi. I frequently encountered this species around the ruins of Wadi Safra [33.4° E, 16.4° N], then on the Atbara river and near Sauakin on the road from Taka, and during the rainy season it is also found further north as far as into the Korosko Desert [32.2° E, 22.7° N]. It has the size of the Egyptian domestic donkey, the skin colour varies between ash grey and isabelline grey, the underside is paler, tail with strong switch and black, fairly bold line along the back and likewise shoulder cross, and sometimes dark transversal bars can be made out on the outer side of the lower half of the legs. The other species, which is allegedly still found in Arabia and to which the wild asses of Shoa and the Somali coast apparently belong, I shall describe from a living specimen, a two-year-old stallion. (...) With regard to the size, which I am not able to measure exactly because of the wildness of the animal, I notice that this isabelline-coloured ass is of somewhat stronger, yet far more thickset form than the slender, long-legged *Equus asinus* of Berber and Taka. The specimen described comes from the Red Sea, but it was not possible to determine its exact origin. Its voice is similar to the familiar bray of the domestic donkey." He included the second species in his list as *Equus taeniopus mihi* and added a coloured illustration of the animal with a yellowish basic colouring in his "Diagnosen neuer Säugethiere aus Afrika vom Rothen Meere" (Heuglin 1861a).

Thenceforth, there were distinguished *Asinus africanus*, Fitzinger 1858 ('Steppenesel' in German) and *Asinus taeniopus*, Heuglin 1861 ('streiffüßiger Steppenesel'). Contemporaries such as Brehm (1863) and Hartmann (1863), however, rejected this classification into distinct species. Heuglin's *Asinus taeniopus* was later frequently designated a hybrid and became

the cause of many disputes among taxonomists, who ultimately rejected its recognition as a wild form. Heuglin himself was already more cautious in 1877: “The wild asses of the area under observation have two characteristic forms that it may not be possible to separate as species but clearly differ as climatic varieties and apparently correspond to *Equus asinus*.”

Today, the ‘Steppenesel’ is referred to as the Nubian wild ass (*Equus africanus africanus*, Fitzinger 1858). A second subspecies is designated the Somali wild ass (*Equus africanus somaliensis*, Noack 1884).

The Nubian wild ass

Heuglin summarised the knowledge he had gained and his observations on the Nubian wild ass from several journeys in 1877: “The African dun-grey wild ass is found in the southern Nubian steppe between Abu Hamed [33.3° E, 19.5° N], Berber and the Blue Nile, likewise in Taka eastwards to the Barka and in the mountains of the Bisharin. I have not met with same in the stretches of country west of the Nile. It mostly lives socially, even in groups of 20 to 30 animals, and is extremely shy and easily startled, and partly for that reason not precisely easy to kill, as these animals mainly stay in very open terrain, namely preferring places that allow a long-distance all-round view. The Arabs and the Beni-Amer chase the wild ass at times with horses and dogs and seek to drive it to bodies of water where, although it apparently swims well, it can be caught up with in boats. In particular, they are after the foals, which soon admit of a certain degree of taming and are favoured for crossing with domestic donkeys. After the rainy season, the Hamar el Wadi is especially well fed and its meat most juicy and palatable. The African dun-grey wild ass generally resembles the domestic variety but is more slender, slightly taller and is characterised by delicately formed ears, dainty, elastic extremities and hooves and by a lively temperament. In captivity, incidentally, it is somewhat intractable and at all times obstinate, wily and cunning. The winter coat differs from the summer coat in its delicately pale mouse-grey colouring, whereas the latter has more of a fleshy dun hue. The entire muzzle region, the hair inside the ear, the throat to the rear of the jaw, the middle of the chest and the belly are white; this colouring contrasting sharply with that of the upper side; inner sides of the legs likewise white towards the top, although less distinct; over and under the eyes a narrow, obsolete whitish streak.”

R. Lepsius (1852) had already reported in an 1844 letter from Sudan (Sennar-Blue Nile province): “When we came out from among the mountains, we encountered large herds of wild asses that always halted a short distance away from us as if inviting us to pursue them. They are grey or grey-to-reddish, white on the belly, and all have a bold black stripe along their back; the tip of the tail, too, is normally black. Many are caught while still young but even then no use can be made of them for riding or carrying. Only the next generation allow themselves to be used in this way.”

M. von Beurmann (1862) noted on the way to Kassala: “The next day, we climbed to the top of a granite plateau that extends here along the Atbara. Not until we reached a group of three mountains in the afternoon did we encounter vegetation again. Up to then there had been a complete absence of game, but here I first saw wild asses in herds.” The following morning, the traveller reached Gos Regeb [35.6° E, 16.0° N]. There the expedition crossed the river,

which was so low that it rarely exceeded a width of 250 feet (76 m) or a depth of 2½ feet (0.76 m). Hartmann (1863) also mentioned the occurrence of wild asses in the steppe near Shendi [33.4° E, 16.7° N] and in the northern territories of the Šukurieh east of Khartoum. On stony ground west of the Uriba mountains [37.3° E, 17.7° N], Krockow's (1867) caravan came within 200 steps of two wild asses. They were paler in colour than their domesticated relatives.

Starting from Berber during his exploration of the Nile tributaries, S. Baker (1867) likewise travelled in 1861 up the Atbara River, whose course through the vast desert he describes as being marked by a narrow band of trees. In the same area as von Beurmann – a day's journey north of Gos Regeb – Baker recorded in his notes on 29 June: "The tracks of wild asses had been frequent, but hitherto I had not seen the animals, as their drinking-hour was at night, after which they travelled far into the desert: however, on the morning of the 29th June, shortly after the start at about 6 a.m. we perceived three of these beautiful creatures on our left – an ass, a female, and a foal. They were about half a mile [about 500 m] distant when first observed, and upon our approach to within half that distance they halted and faced about; they were evidently on their return to the desert from the river. Those who have seen donkeys in their civilized state have no conception of the beauty of the wild and original animal. Far from the passive and subdued appearance of the English ass, the animal in its native desert is the perfection of activity and courage; there is a high-bred tone in the deportment, a high-acted step when it trots freely over the rocks and sand, with the speed of a horse when it gallops over the boundless desert. No animal is more difficult of approach; and, although they are frequently captured by the Arabs, those taken are invariably the foals, which are ridden down by fast dromedaries, while the mothers escape. The colour of the wild ass is a reddish cream, tinged with the shade most prevalent of the ground that it inhabits, thus it much resembles the sand of the desert. I wished to obtain a specimen, and accordingly I exerted my utmost knowledge of stalking to obtain a shot at the male. After at least an hour and a half I succeeded in obtaining a long shot with a single rifle, which passed through the shoulder, and I secured my first and last donkey. It was with extreme regret that I saw my beautiful prize in the last gasp, and I resolved never to fire another shot at one of its race."

The expedition of Wilhelm Junker (1889) encountered a single young wild ass in 1876 at the mouth of the Anseba (Ambakta) River between rocks in the Baraka [37.5 ° E, 17.1 ° N]. One of his servants tried in vain to capture it. Maydon (1932), who met with wild asses between the mouth of the Ambakta and the foot of Gebel Aar [37.8° E, 17.2° N], knew that they were protected and spared them. Powell-Cotton nonetheless shot two wild asses at Wadi Hafta (37.6° E, 17.7° N) in February/March 1934. Dollman (1935) took the measurements of the two mares, described them and declared them a new subspecies (*Asinus asinus diana*).

Anderson (1902) compiled important information on the past distribution of the Nubian wild ass in northeast Sudan and in Egypt. In his description of the appearance he emphasised that the back and shoulder stripe of the animals are about the same width at 8–12 mm and there are no bars on the legs. He cited that Burckhardt and Rüppel mention a valley between Aswan and Berber known as 'Wadi el Hamar' ('valley of the asses') and a desert 'Homar Elwaheish', in which wild asses were to be found in the first quarter of the 19th century.

Further occurrences listed by Anderson relate to the places Yalalub and Kassala, the mountain Gebel Hennah [37.7° E, 18.0° N], the valley of Khor Sabbat south of Tokar, Grananta above the 5th Cataract and Gebel Kattar in Egypt [33.3° E, 27.1° N].

Sidney (1965) collected the following information on the distribution of the Nubian wild ass in the first half of the 20th century: Loder shot two males around 1925 near the Gebel Raboba [38.1° E, 18.1° N] on the Eritrean border. Brocklehurst (1931) described wild asses from the region of the Atbara River, in the provinces of Berber and Kassala and in Red Sea Province south of Suakin. He wrote that they had been strictly protected for a number of years, and although by no means common there was not, at present, any danger of their being exterminated. Steinbacher estimated in 1941 that there were still about 600 wild ass still living in the Nubian Desert. Mackenzie stated in 1954 that he believed the wild ass already to be very rare between Suakin and the Eritrean border and on to the Atbara. Forbes nevertheless still gave the population of wild ass in the plains west of the Red Sea Hills between 17° and 21° N around 1960 at 200-300.

Schomber (1963), in his description of wildlife in the Sudan, included a map with six locations where Nubian wild ass had been sighted. The most recent sighting from 1959 was in the plains south of Erkowit [37.0° E, 18.8° N]. The author stated that there were doubts that the remaining wild asses in Sudan were indeed wild ass or more likely feral domestic donkeys. Hufnagl (1972) believed that the Nubian wild ass at that time was still to be found in small herds between the Red Sea and the Nile, to the north as far as into the Bisharin region on the Sudanese-Egyptian border and also in the Tibesti.

Osborn and Helmy (1980) summarised observations on the Nubian wild ass in Egypt in the 19th and 20th centuries. These authors, too, pointed to the difficulty of distinguishing pure Nubian wild asses from hybrids or feral donkeys. They cited Hoogstral, who in 1954 observed several herds of wild ass on the Egyptian coastal plain north of Gebel Elba [36.2° E, 22.0° N], and mentioned further dubious sightings up to 1974. Osborn and Osbornova (1998) added Wadi Allaqi [34.0° E, 22.3° N] and Wadi Diib [33.4° E, 27.8° N] to the most recent sightings through to 1981. Klingel (1978) wrote that in reconnaissance flights in northern Eritrea in 1971 he spotted only three wild asses that were almost certainly Nubian wild ass.

The locations given in historical reports clearly show that the main distribution area of the Nubian wild ass was along the Baraka River in Sudan and its last refuge was or is to be sought there or in neighbouring northern Eritrea.

The Somali wild ass

On 8 May 1839, the missionaries Isenberg and Krapf (1840) left Arabdera at 3 a.m. The place was situated on a vast elevated plain, almost entirely covered with volcanic stones. Just before sunrise, they came to a low but extensive plain, where they saw some wild asses grazing, which took to their heels on their approach. At 10 a.m. they reached their resting-place, Daunileka, where their camel-drivers dressed a wild ass that they had killed. Based on the authors' rough sketch map, Arabdera is in the border region between Ethiopia and Djibouti [41.8° E, 11.2° N].

Kirk (1842) recorded in his diary on 9 July 1841 the observation of a herd of wild ass encountered on a broad plain near How, southwest of Mullu [40.9° E, 9.3° N] in the Ethiopian province of Harar. Harris (1844) called the wild assess in the Adal region of Djibouti 'Ya meida aheia'.

Munzinger (1869), whose expedition traversed the northeast of the Danakil region in 1867, spoke of wild asses at Sugo [40.7° E, 14.5° N] and on the Addado plain [40.2° E, 14.7° N]. Count von Zichy (1880) mentioned some at Raa Abuji [40.5° E, 14.7° N], in what is now Eritrea.

Joseph Menges travelled to Somalia in 1881, 1882, 1884 and 1892 to capture wild animals for Carl Hagenbeck. After the first cargo was lost at sea, on a second attempt in 1882 he succeeded in bringing a wild ass to Hamburg. Hagenbeck wrote in his book "Von Tieren und Menschen" (1908): "This collection included a new species of wild ass from Somaliland, with a beautiful, blue-grey marked coat and black stripes on the legs reaching up to the upper body. However, strangely enough, the zoologists didn't want to know much of a novelty of this species." He was all the more pleased when Prince Bismarck visited the zoo in autumn 1882 and showed keen interest in the new wild ass from Somalia. On the subsequent fate of the rare animal, Hagenbeck reports: "I ultimately sold my Somali ass to the Zoological Gardens in London; I also had to undertake to obtain a few skins of old animals of this genus free of charge for the British Museum, a promise which has also been met."

Menges reported on his experiences in Somalia in *Petermanns Mitteilungen* 1884, 1885 and 1894. On 23 December 1881, on his second expedition, he found himself in the vicinity of Chor Bowboli, just north of the Hekebo plateau [44.7° E, 10.0° N]. He wrote (1885): "While we were still busy with our preparations for the camp, a large troupe of hamadryas baboons noisily passed us by on the way to the watering hole, and a herd of five wild asses, one after the other, appeared at the high edge of the plateau to look down at us with curiosity. Early on the 24th I took my people to climb the plateau and search for wild asses, for which I had waited in vain at the water the night before. Our efforts were rewarded with success, as we had scarcely arrived at the top when we discovered a herd of these beautiful animals, which my people drove so skilfully that I was able to shoot the leader. (...) The wild ass of these parts is a strong, large animal, about the size and figure of a zebra, and its marking is reminiscent of the latter in that the legs have bold black bars up to above the knees. The body colour is a uniform pale grey, the head is more rust brown, the muzzle is white and the insides of the ears are black. What strikes me is that this wild ass does not possess a bold, wide black back stripe and shoulder cross as *Equus taeniopus* is supposed to have. The specimen I dispatched, a mare, had only a slight trace of a stripe on the tail, and the same was the case with a young animal that I brought alive to Europe as well as with several skins of adult animals that I saw on the market in Berbera."

Menges (1887) described the hunt for wild asses on 24 December 1884 in greater detail in the journal *Der Zoologische Garten*. The herd consisted of eight to ten animals, including a number of foals, which, panicked by the shooting and the killing of the mare, fled uninjured down a steep slope that Menges had thought impassable. Menges summarised a few observations on the then still unknown Somali wild ass: "The wild asses are usually found in

herds of five to twenty, which by my observations are led by an old mare. The animals are shy and cautious to the highest degree and cannot easily be surprised, which in mostly very open terrain of the coastal plains makes hunting twice as difficult. As mentioned earlier, the animals are very frugal with regard to food and are content with the hard, dry grasses of the lowlands and the dry leaves of mimosa and acacia. If they can reach the water undisturbed, they will go to a watering hole, but never regularly, so that one can never count on a certain hour of the day. The best prospects of meeting with the wild asses are one to two hours after sunset. But as mentioned, they only come at irregular intervals and can do without water for days or even weeks.”

Late January 1892 saw Menges (1894) on his third exhibition once again in wild ass country at the edge of the Hekebo plateau, but this time further west than in 1884. He reported that members of the local “Isa Musa” people “offered to accompany the hunt for the beautiful stately wild ass of Somaliland, the ‘dabeer dabideb’ or ‘gumbirri’”. From 8 to 10 March 1892, during another excursion from Berbera, Menges camped in the plain of Bochon Demeb [45.6° E, 10.0° N], “one of the most beautiful grazing grounds I know in this part of Somaliland. The lush grass had drawn much game, gazelles, Soemmerring’s antelopes, and the magnificent beisa were to be found in large herds, but all very shy – proof that they already knew man and his gun. We also found numerous wild asses, which come to the plain to graze during the day but withdraw at night into the surrounding bare hills, the real home of these frugal, steadfast animals. The Somalis do not pay any regard to the wild asses, nor do they try to capture or tame them.”

In the bed of the Khor Henssa [43.2° E, 10.8° N], which was lined with volcanic boulders and ‘white earth’, Paulitschke (1888) described notable flora and fauna including large numbers of wild asses. Following the caravan road through northwest Somalia to Ethiopia, he spotted further wild asses in the game-rich savannah of the Djeldabal plain [42.8° E, 10.1° N]. The Field Columbian Museum’s 1896 East African expedition (Elliot 1897) met in Somalia with wild ass in considerable numbers on the high plateau west of Laferug [44.6° E, 10.0° N]. Some individuals were also seen south of the Golis range in the vicinity of ‘Nasr Hablod’ [44.2° E, 9.6° N] – the mountains called ‘Virgin’s Breast’, where they were living among the thorn forests with high aloe undergrowth, frequented by the lesser kudu. The largest herd that Elliot ever met with at one time consisted of eight wild asses.

In the following, further geographical locations are given from the list compiled by Sidney (1965), testifying to regular sightings of Somali wild ass in the region of Guban between 1895 and 1910: Drake-Brockman observed the animals south of the Golis range in the low, stony hills around Halo, Haloka Yer, near Segig, and on the Negegr plateau (45.8° E, 9.9° N). Peel met with a ten-strong herd between Hargeisa [44.1° E, 9.5° N] and Berbera and wrote that they were also said to be found south of Upper Sheikh, although he never spotted any traces there. Prince Ghika shot three wild asses on the Guban Plateau south of Berbera, and Pease found them numerous behind Gan Libah [44.8° E, 9.9° N] and the Ounanouf Plain [44.6° E, 9.7° N] and on the foothills near Argan.

Carl Akeley (1914) reported that hunting for Somali wild ass, which he did in 1896 on behalf of American museums to obtain specimens for their collections, was one of the worst of his

experiences. After strenuous preparations, he shot two wild asses in one day some 30 miles away from Berbera. After the death of the first animal he wrote, "I began to feel that if this was sport I should never be a sportsman." An hour before sundown, Akeley shot the second wild ass: "(...) five asses dashed across our path and we heard a bullet strike as we took a snap at them. One began to lag behind (...). As we got near he turned and faced us with great gentle eyes. Without the least sign of fear or anger he seemed to wonder why we had harmed him." After that, Akeley declared he had "had quite enough" of shooting wild ass, and if any more wild asses were wanted, someone else would have to shoot them. "Normally the ass is one of the wildest of creatures and it is difficult to explain the action of these two. They appeared not to realise that we were the cause of their injuries but rather seemed to expect relief as we approached – and yet one English 'sportsman' boasted of having killed twenty-eight."

When L. M. Nesbitt (1930) traversed the Danakil region on his legendary march, he saw four wild asses in the region of Sardo in great heat on 26 May 1928. Neumann (1935) reported having shot a female wild ass with a bold shoulder stripe on 20 February 1900 near Bir Kaboba (Somalia-Djibouti-Ethiopia border triangle). The stallion shot by Erlanger at the same place on 21 February 1900 did not have a shoulder stripe. W. Thesiger (1935), who travelled to the southern Danakil desert in 1934 in Ethiopia to trace the Awash river recorded the presence of wild asses in his expedition map near the Teho hot springs [41.0° E, 10.8° N] and further south [40.6° E, 10.2° N].

In "The Mammalian Fauna of the Somali Republic", U. Funaioli and A. M. Simonetta (1966) published a map of the then known distribution of the Somali wild ass in northeast Somalia with eight locations. The authors wrote, "Somali Asses are exceedingly rare, though it is not clear what is the cause of the steady decline in their numbers, which, apparently, has been going on since the last century. Asses are very wary animals and the areas where they live are almost uninhabited; they are strictly protected by law and the Somali, apparently, are not interested in hunting them, so that poaching should be irrelevant. We suspect that habitat conditions affect their numbers: Asses have always preferred comparatively desert areas, yet they need to drink every second or third day. On the other hand, these animals are predominantly grazers and watering places and edible grass during prolonged droughts are much frequented by the sparse human population, which factor may increase the difficulty of survival during such hard periods. The presence of wild asses in the upper Nogal plain at the Wadi Run [48.8° E, 8.7° N], on the northern slopes of the Nogal (close to the border between Mijurtinia and the Northern Provinces), was verified by one of us (Simonetta) in 1964. One individual was seen by prof. P. Graziosi of Florence, between Erigavo and El Afuein [250 km east of Berbera] in Sept. 1963. However the animals are reported by the local population as very rare." The authors emphasised the urgent need for research into the status, ecology and means of protection of wild asses, both in Somalia and in neighbouring Ethiopia.

A. Gunn reported about 200 wild asses in the area between Las Anod and Bur Anod in 1969. He accompanied the expedition under D. Hunt that caught five wild asses (3m, 2f) brought to Basel Zoo in April 1970 (Anonymous 1971; Lang and Lehmann 1972). Ziccardi (1970) confirmed on the basis of information he had received in 1969 that a number of wild asses had been sighted at Wadi Run and referred to a further sighting near Taleh [48.4° E, 9.2° N].

He also cited G. Ruggiero, who told him in 1970 "that on several occasions recently he had seen herds of eight to ten wild asses in the Aussa areas of the Curub-Bahari plains near to Cayele, about half way between Sardo and Abroborifaghe on the Awash River". Ziccardi himself encountered a wild ass near Channo [40.0° E, 9.8° N] west of the Awash River in Ethiopia in 1940.

The Italian researchers A. M. and J. Simonetta (1983) carried out a 20-month survey of the fauna of Somalia between 1979 and 1982. Of the Somali wild ass, known indigenously as 'gumburi', they wrote: "This species now probably survives in Somalia with but a few populations in existence; one of about 250-300 heads about 40 km north of Las Anod, a second one, of about 50 heads near Meit and some other scattered groups further down the coast in the district of Erigavo."

Blower (1968) believed the area around Sardo [41.3° E, 12.0° N], where he saw 83 asses close to the road to Assab, to be the last bastion of wild asses in Ethiopia.

It was in this region that the first large-scale field studies of the Somali wild ass were carried out by Hans Klingel in the early 1970s, including a status survey and studies of social behaviour and the threatened status of the species (Klingel 1972, 1977, 1978). The status survey was conducted both on the ground and from the air in collaboration with R. M. Watson in 1970 (July-October) and 1971 (March-April) (Klingel 1972). The aerial survey covered three regions: the Teo area, 5,280 km² in size; the Tendaho-Sardo area, 4,270 km², and the Lake Abbe area (bounded to the west, north and east by the Awash River), 6,550 km². The surveys were carried out in 1970 during the rainy period and in 1971 during the dry period. More than 400 wild asses were counted in the transect survey during the rainy period in 1970. Extrapolation for the three sectors surveyed gave a minimum of 2,000 animals, with 3,000 considered a realistic figure. The population density varied between the three areas, ranging from 30 wild asses/100 km² in parts of Teo to between one and five in the southern Abbe area. Additional reconnaissance flights showed wild ass to be very rare in the Danakil depression and the southern Danakil. They were predominantly found in the central Danakil (40.5°–42° E, 10°–12.5° N).

The ground surveys showed the wild asses in the survey areas to display differing predator avoidance and flight behaviour. In the Tendaho-Sardo area, the wild asses were very shy of vehicles as they were frequently pursued there with cars. They could be approached as close as 100 m on foot once the vehicle had been left some distance away. In the Teo area, by contrast, the wild asses were far less shy and allowed approaches both by car and on foot to as close as about 50 m. It was not possible to survey the Abbe area on the ground.

503 wild asses were seen in the ground survey, comprising 456 in the Tendaho-Sardo area and 47 in the Teo area. Multiple encounters could not be ruled out as the animals wandered irregularly each day. In 417 instances it was possible to identify the age and sex of the animals. The adult male-female ratio was around 1:3. Subadults made up 15% of the total, yearlings 12% and newborns 8%. Klingel primarily attributed the fact that adult stallions were underrepresented to the territorial social system and to lone stallions being poached, as they are easier to stalk than a group of wild ass. An important finding was an approximately 1:1 ratio between adult females and immatures. This means that the mares are able to raise a

foal every three to four years, which considering the harsh environmental conditions is regarded as a healthy reproduction rate. On good grazing land, the wild asses gathered into larger groups, the largest of which consisted of 49 animals.

Their sole source of nutrition in Klingel's observations was grass. With regard to water needs, the author wrote: "Only rarely were the wild asses seen drinking. Our rainy season observations indicated that the animals depend on surface water as they were usually encountered within 20 to 30 km from the Awash River and from springs and seasonal ponds. This pattern of distribution was even more prominent during the dry season, when the surface water was limited to the Awash river and to a few permanent springs. It can therefore be claimed that the wild ass have to drink every few days, and especially during the dry season when their water intake with food is minimal."

Regarding movement, Klingel noted the following: In the rainy season, the animals were concentrated in areas of good grazing. Herd sizes fluctuated. In the evenings, the animals split up into small groups, which moved to barren lava hills where they spent the night. They returned to the grazing areas in the mornings. During the rainy period, the wild asses wandered intermittently around due to the irregular rainfalls and the resulting variation in grass growth. He observed no large herds during the dry period. The animals were more evenly distributed singly or in small groups around the region and there were no signs of larger movements. The wild asses did not have a preferred habitat as they were sighted both in open plains and in harsh mountainous country. When disturbed, they withdrew back into the inaccessible hills.

Klingel (1972) took a close look at the question of human influence on the wild ass and its protection. He stressed that wild asses are fully protected by law in Ethiopia. In the Danakil, however, it was not possible to monitor this protection. The Afar tribesmen regard wild ass meat as a medicine, for example against hepatitis and other diseases, and when needed were able to obtain a hunting permit (from the Sultan of Assaita in 1971). Hunting sometimes also took place without permission. Klingel thought that hunting probably only represented a serious threat to the wild ass population in very dry years. A notable finding was the relatively small number of adult males, which was also attributed to targeted hunting. Klingel saw a greater threat in the constant competition for feed and water with the domestic animals kept by the Afar. The larger the herds belonging to the Afar and the neighbouring Issar, the more the wild asses were forced to withdraw. Klingel noted particularly significant problems in the Tendaho-Sardo area where the nomad population density is greater than in the other regions; the main road from Dessie to Assab runs through the area and is not only passable with all-terrain vehicles. Finally, a major threat to the wild asses consists of tourists who chase them with cars, which can be deadly.

With regard to group sizes, Klingel (1977) reported that the 456 wild asses in the Tendaho-Sardo area were organised in 80 groups. 24 groups each consisted of a solitary male (5%), 38 groups with 130 animals of two to six wild asses (28%), 13 groups with 137 animals of 7 to 20 (30%), and five groups with 165 animals of 21 to 49 wild asses (36%). The smaller groups were either all stallions, all mares, or groups with one stallion and a few mares. The largest male group consisted of ten animals; the largest observed herds, with 49 and 43

animals, each had eleven stallions. These two herds were observed to gather in the morning from solitary individuals and small groups in a limited area with good grass and to split apart again in the evening. Concerning the group and herd stability, Klingel (1977) reported: “No permanent associations of any two or more adults seem to exist (...). Individuals or small groups were recorded joining others and/or separating from them in an irregular pattern. Young and subadults up to the age of 2–3 years were regularly seen in company of an adult mare who could be considered to be the mother, and these associations are obviously the only lasting ones.”

On the territorial behaviour of wild asses, the same author (1977) wrote: “(...) a proportion of the adult males were found solitarily, and some *E. africanus* males could be recorded as resident in a particular area for several weeks. These stallions are considered to be territorial. When such individuals were approached by conspecifics, the following activities could normally be observed: The territorial stallion waits until approaching animals are within 20 to 10 m, then walks forwards to meet them, contacts them naso-nasally and naso-genitally. He then chases them a few paces, they turn away, often starting with a low canter or trot; they are followed by the territorial stallion over some distance, usually 50–100 m, but even over 1 km, then he stays behind and may later return to the place of the first encounter. In other instances the territorial stallion walked several 100 m to meet approaching conspecifics. In all encounters it was quite obvious that he was the dominant individual in the area and that his status was not challenged by the trespassers, who were, however, tolerated within the territory. The sizes of the territories could only be assessed from the distances between territorial stallions, and only in a few cases was it possible to get reasonably accurate measurements. Distances between [Somali wild ass] stallions ranged from 4 to 7 km, mean 5.5 km (n = 7). Territory sizes are calculated accordingly from 12 and 40 km², mean 23 km². (...) The territories are advertised through the presence and behaviour of the territorial individual. (...) The dung piles which are found in an irregular pattern inside the territories have no apparent effect on trespassers. They seem, however, to serve an important function for the orientation of the territorial individual.”

Apart from the special status of the territorial male, Klingel (1977) did not see any sign of a hierarchy among adult wild asses, although these were clearly dominant over juveniles. The same applied with regard to regular leadership, and any adult, male or female, could prompt the herd into movement or lead the group for a time. No antagonism was noticed when another individual took over the leadership. From such observations, Klingel inferred that the social organisation of the Somali wild ass (like that of the Turkmen Kulan, whose social behaviour he likewise discussed in the same paper) corresponded to the herd structure of Grévy's Zebra, which he likewise studied at length. It was also possible to observe and describe the mating behaviour of the Somali wild ass in the wild for the first time, including a full copulation.

In a 1973 publication, M. Bolton mentioned a sighting of Somali wild asses near Dallol, the lowest point of the Danakil Depression. The same author, who worked for the Wildlife Department in Addis Abeba, was convinced that as well as in the central Danakil, the Somali wild ass was also to be found in the provinces of Tigre and Harrar (Bolton 1976).

Simoneau (1974) stated that wild asses were to be met with on the northern border of Djibouti below Moussa Ali [42.3° E, 12.4° N], a mountain across the border in Eritrea. Bauer et al. (1994) compiled an overview map with the locations of earlier sightings in Djibouti, Somalia, Ethiopia and Eritrea showing the former geographic distribution of the wild ass in Northeast Africa on the basis of the extensive data material provided in Yalden et al. (1986) and Sidney (1965).

In December 1996, three Somali wild asses were seen in a dry valley in the eastern Danakil south of the Sharkale massif [41.6° E, 13.1° N] (Siegfried Erhardt, pers. comm. 1997).

Under the leadership of P. Moehlman, the Wildlife Conservation Society, New York, is involved in research into and the protection of the remaining Somali wild ass populations in the Horn of Africa. Moehlman (1995) estimated that the number of animals had declined by 90% in the last 10–15 years but was able to give assurance that there were residual populations in Ethiopia, Eritrea and Somalia.

Wild asses west of the Nile

There have been descriptions of wild asses in North Africa west of the Nile since historical times. The Atlas wild ass (*E. a. atlanticus*) from the Maghreb is considered an extinct wild form (Thomas 1884). Based on a rock drawing in El Hamra, Enfouss, Algeria (Werth 1930), the Atlas wild ass had a very pronounced shoulder stripe. The classification of the remaining asses found in the wild west of the Nile has frequently been the subject of heated debate. In the following, we provide a brief overview of historical reports of wild asses in the region.

Tristram (1868) saw wild asses in small troops of four or five in the Sahara, but “snuffing up the wind, they dashed off at a speed which the best of our horses could not have approached. I afterwards saw a wild ass in the oasis of Souf [about 16° E, 29° N], which had been snared when a colt; but though it had been kept for three years in confinement, it was as untractable as when first caught, biting and kicking furiously at every one who approached it, and never enduring a saddle on its back. In appearance and colour it could not have been distinguished from one of the finest specimens of the tame ass.” Tristram (1860) described the same specimen as two hands taller and with longer ears than a domestic donkey.

Geyr von Schweppenburg (1917) noted that in no instance had anyone succeeded in identifying with certainty a true wild ass west of the Nile and was unable to explain to himself why great explorers such as Barth, Rohlfs or Nachtigal never mentioned wild asses in their accounts of their travels. He himself tried in vain to find the animals in the region of the Tuareg (Hoggar/Tassili/Aïr) mountains. He cited reports from the 19th century according to which wild asses were found by the herd in the northern Tassili and in large troupes in the west of the Hoggar massif. He did not preclude, however, that these animals, which were described as being very shy, were merely feral donkeys. They were so cautious that according to Duveyrier the people caught them in traps and tamed the young, whereas the older animals were skinned. The Tuareg traded in young wild asses.

Antonius (1931) went into the distribution of asses found in the wild in the western Sahara and specifically in the Hoggar Mountains, and came to the conclusion “that it is very likely that in the Hoggar wild asses there is still a strong ‘wild-blooded component’ if they are not to be regarded as pure-blooded wild asses altogether. He emphasised that the local inhabitants even gave the asses found in the wild there a different name (ahoullil) to domestic donkeys (ehiet).

Malbrant (1936) said wild asses were found in groups of 30–40 in the Tibesti Mountains and gave information on their local distribution. Thesiger (1939), who saw the animals in 1938, considered them to be feral donkeys.

Hufnagl (1972) thought it odd that no zoologist had ever come into possession of a wild ass from Libya. He underscored that the free-roaming asses in Libya were invariably considered to be feral donkeys, even though there were no feral camels or horses there either as owners did not allow animals of value to get away. He drew up a list of reports of asses found in the wild in the Sahara from the 1970s – while not ruling out that they might be true wild asses – citing in this connection the Libyan border region with Chad (Fezzan province north of the Tibesti), the Tibesti (Chad) and the Hoggar Mountains (Algeria).

Groves (1986) conjectured in his taxonomy that wild asses were probably once found in the Sahara and that these probably corresponded to the Nubian subspecies.

Taxonomy of the African wild ass

In his “Naturgeschichte der Säugetiere”, Fitzinger (1858) gave the African wild ass the name *Asinus africanus*. Brehm (1863) introduced the name ‘Steppenesel’ in German. Schlawe (1980) provides further information on the requirements for naming. Fitzinger (1866) later listed both an *Asinus africanus* found in Nubia and the *Asinus taeniopus* occurring further south, each with Heuglin’s 1861 description.

The male wild ass from Somalia caught by Menges and held by Hagenbeck was described by Noack (1884), before its delivery to London, under the name *Asinus taeniopus somaliensis*. The London Zoological Gardens received the same male Somali wild ass from Hagenbeck in August 1884. As London Zoo had already been in possession of an African wild ass from the Nubian Desert since May 1881, it was easy for Sclater (1884) “to institute a comparison between the two, and to assure ourselves that they belong apparently to distinct species or subspecies.” The two animals were shown together on a plate drawn by J. Smit, on which Sclater wrote, “As will be seen by Mr. Smit’s drawings, (...) the Somali wild ass (...) differs from that of the Nubian Desert (...) in its generally paler and more greyish colour, in the entire absence of the cross-stripe over the shoulders, in the very slight indication of the dorsal line, and in the numerous black markings on both front and hind legs. It has likewise, as will be better noticed on examining the living animals, smaller ears and a longer and more flowing mane.” Sclater ruled out that the two wild asses might be individual variations, citing as proof the description given by one E. Lort Phillips, who had seen a small herd of wild asses about 20 miles to the west of Berbera in March 1884, and was able to bag one, which was identical to the Somali wild ass. Sclater proposed the name *Equus asinus somalicus* for the Somali wild ass and *Equus asinus africanus* for the Nubian wild ass. The wild ass

designated by Heuglin as *Equus taeniopus*, whose locality was not certainly known, could not be the Somali wild ass according to Sclater because of its entirely different appearance. As Noack's publication appeared in April 1884 and that of Sclater not until November, many taxonomists name Noack as the first to describe the Somali wild ass, whereas English-speaking authors tend to give Sclater.

The often vehemently heated debate over more than a hundred years on the taxonomy of Heuglin's *Equus a. taeniopus* is described at length in Lang and Lehmann (1972), Bemmell (1972), and Schlawe (1980). Heuglin himself gave rise to later confusion by assigning different geographical locations to *taeniopus* in his various works. For many years, and in some cases to this day, three subspecies of African wild ass are named alongside the extinct Atlas wild ass (*E. a. atlanticus*): the Nubian wild ass (*E. a. africanus*), the Somali wild ass (*E. a. somaliensis*) and then what is often designated the Ethiopian or Eritrean wild ass (*E. a. taeniopus*). Milne-Edwards (1869), Lydekker (1916) and Bemmell (1972) were among those in favour of retaining the name *taeniopus*, with Matschie (1894), Antonius (1937), Harper (1945) and Groves (1966, 1986) arguing to the contrary. Trumler (1961) even used *E. taeniopus* as a species name. Bemmell (1972) gave reasons for recognising the *taeniopus* described by Heuglin, which he considered to refer to the wild asses of the Danakil Desert. According to Lang und Lehmann (1972), *taeniopus* is an extinct wild form.

The wild asses referred to by Heck (1973) as having originated from Eritrea and coming to Munich zoo in 1937 (1m, 3f) from the zoo in Rome were considered by Groves (1986) to be Nubian wild ass, although in a table of skull measurements they were listed separately. Bemmell (1972) published a 1930 photograph from Rome and classified the animals as *taeniopus*. Pohle (1973f.) stated 'Danakil' as the region of origin, however their places of capture are ultimately unknown. The coat and markings of the animals vary so much that some were interpreted as Nubian and some as Somali wild asses. As documents were destroyed in the Second World War, it is no longer possible to determine whether there was hybridisation with donkeys (Schlawe 1980). In 1997, Catskill Game Farm, New York, still held ten descendants of these unspecified wild asses, identified in the studbook (p. 27) as *Equus africanus ssp.*

Groves (1966) published a taxonomy of the African wild ass, which in extended form is included in the taxonomy of all equids (Groves 1986). His classification was adopted, for example, by the IUCN and is taken as binding in the present publication. Groves, who compared the appearance and measurements of the specimens available to him, classified African wild asses by origin into five groups, although for Webbe Shibeli (Ogaden, Ethiopia) only one specimen was available (without dorsal or shoulder stripe). The other groups were: 1) Atbara (Sudan, around Berber); 2) Red Sea Hills/North Eritrea; 3) Danakil/Djibouti; and 4) Somalia. Groves distinguished three general types of shoulder stripe: a short, marked stripe (Atbara type), a longer, thinner stripe (Somalie type) and no cross-stripe at all (absent). He found that all Group 1 animals (n = 6) were of the Atbara type, whereas Group 2 (n = 6) includes all types. In Group 3 (n = 9), the Atbara type no longer occurred; about half of these had the Somali type and the other half had no cross-stripe at all. In Group 4 (n = 16) from Somalia, just under 20% had the Somali type cross-stripe, whereas the majority lacked any cross-stripe. Group 3 and 4 showed an increasing tendency towards interruptions in the

dorsal stripe. The mean withers height increased from north to south (Group 1 to 4), while ear length decreased. After weighing various criteria, Groves classified Groups 3 and 4 together as the Somali wild ass. In contrast to his 1966 publication, in 1986 he presented Group 2 (Red Sea Hills/North Eritrea) as an intermediate form, although significantly closer to the Nubian, Group 1 (Atbara) form. He thus remained with two recent subspecies, the Nubian and the Somali wild ass.

Klingel (pers. comm. 1998) pointed out that the majority of the wild asses he observed and photographed in the Danakil in the 1970s had a long, narrow shoulder stripe together with leg bars. In our usable photographs taken in the same region in 1995, just two out of ten animals had a faint cross-stripe over the shoulders, with all having no more than faint barring on the legs.

Populations of African wild ass

Moehlman (1992) compiled an overview on the status of the African wild ass on behalf of the IUCN. This can be summarised as follows: The asses found in the wild in northern Chad and the Hoggar Mountains are probably feral donkeys. Because wild and feral animals are difficult to distinguish, the historical record needs to be treated with caution.

Klingel (1980) made aerial sightings of Nubian wild asses in Eritrea in 1971. M. Watson reported having seen hundreds from the air in 1975/76 in the border areas between Sudan and Eritrea, but cautioned that the animals were of mixed characteristics. Moehlman cited Ansell (1974) and Yalden et al. (1986), according to whom the Nubian wild ass population is probably extinct.

With regard to populations of the Somali wild ass, Moehlman stated the following: Aerial sample counts in 1970-71 of a 12,000 km² area of Ethiopia provided an estimate of 3,000 head (Stephenson 1977, Klingel 1980). Watson thought that this was undercounted and that there were 6,000–12,000 (Watson in litt. 1982). Total counts of part of the same area in 1978 (Stephenson) led to the following population estimates: Yangudi-Rassa National Park 675; Southern Danakil 725; Danakil Depression 75. These figures are not comparable but indicate sharp population decline. There were no more recent aerial censuses (up to 1992), but ground observations showed that there were at least a few animals left. Systematic aerial sample counts in the late 1970s provided estimates according to Watson of 4,000–6,000 animals for the northern region of Somalia. Ground observations were an order of magnitude lower, however. In 1970, Hunt estimated the population of Somali wild asses in the Nogal Valley at 250. Figures for the years 1979–1982 were similar (Simonetta 1983). In 1988/89, Moehlman estimated the number at scarcely more than 100. The same author (1992) put the remaining populations of Somali wild asses in Ethiopia and Somalia at a few hundred. Classified by the IUCN as critically endangered, the African wild ass is thus in urgent need of effective protection.

Own observations of the Somali wild ass

Civil war in the Horn of Africa has threatened the survival of many wild animal species. Enforcement of nature conservation laws and the protection of animals have fallen victim to the chaos of war. The war in Ethiopia ended in 1991 after twelve years. When I (Gertrud) enquired with the Ethiopian Environmental Protection Authority about the situation of the Somali wild ass in 1992, I was told it was too early to say in any detail. I was to ask again at a later date once the situation in the country had stabilised. In 1994 I was then told that a visit was possible and I set out on my way.

The approximately 600 km drive from the capital Addis Ababa to the Danakil Desert led in many places past destroyed tanks and other military equipment as reminders of the recently ended war. The people, however, looked full of confidence to the future.

At the headquarters of the Yangudi-Rassa National Park where we presented ourselves, we were told that no more wild asses were to be found within the park limits and were pointed to a last range in a wide radius around Sardo. The people there relate that at the time of Emperor Haile Selassie (reigned 1930–1974), wild asses were so common that cars had to sound their horns in order to drive them out of the road. The decline in wild ass numbers was blamed on soldiers of the military government who, it was said, indiscriminately hunted wild animals in the late 1980s. Today, the wild ungulates are so shy and scarce that we would be unlikely to find any without the aid of the Afar who live in the area. They readily agreed to help me look, and so I stayed in the region from 4 to 26 February 1995. The proud Afar nomads, who never enter the desert unarmed, did not allow strangers to encroach upon it without their consent and escort. They regard the Danakil country as the personal inheritance of their tribe and consider themselves under obligation to watch over all activities. To this day, they engage in armed conflict with the neighbouring Issa tribe for the rights to use watering places and grazing land. The territory of the Afar and Issa comprises a total of 22,000 km².

The Afar are powerless, however, to prevent the passage of large armed camel caravans, often carrying smuggled goods, that cross the border to and from Djibouti. As we were about to start ascending Mount Kurub, an extinct volcano near the thoroughfare, warning shots were fired from an unknown source. My Afar guides suspected that we had strayed too close to a stash of contraband, perhaps waiting to be loaded onto trucks at night, and urged that we turn back. My binoculars were incidentally in frequent demand for the purpose of identifying who was leading a caravan. If they were unknown, then utmost caution and mistrust were called for. If they were known, the opportunity was gladly taken to go up to them, swap news and if necessary help each other out with water or fresh milk.

Besides large caravans, we frequently encountered nomads roaming the desert with their herds of sheep and goats. The distances between the few springs are large, and people were always very thirsty when we met them. We therefore kept an adequate supply of water in our car so that we always had some to spare. On making such contacts in the desert, we naturally always asked about wild asses. Most Afar shepherds had last seen some in recent

days rather than months or years ago. This was a sure sign that the animals could not be fully eradicated here, even if they proved hard to find.

The Ethiopian region has high linguistic diversity and a correspondingly wide variety of names are used for the wild ass. For the Amhara, whose language is the official language of Ethiopia but who do not come into direct contact with the Somali wild ass, the wild ass does not have a specific name of its own, but is referred to in Amharic as 'yedur ahya' (wild ass), where 'ahya' is the word for 'ass' in general. The Afar, on the other hand, who are very closely associated with the wild ass, refer to it in Afar as 'dibakoli', whereas for the donkey they have a completely different word, 'danan'.

The donkeys of the Afar, which are left to find their own food in the vicinity of the tents and are consequently free to wander in the desert, no doubt occasionally meet upon wild asses there. It is quite possible that bachelor wild asses sometimes mate with female donkeys in estrus if they lack the opportunity to gain their own territory on the grazing land of their wild conspecifics and so roam constantly around. The faint leg bars seen on the donkeys may be evidence of such interbreeding, which is indeed welcomed by the donkeys' owners. The donkeys I saw in the Danakil, however, could not be mistaken for the wild asses as they were smaller and thicker set, meaning rounder and with shorter legs, had only a short mane, and also featured a bold, deep black dorsal stripe and a long but thin shoulder stripe.

The Afar, who have long shared their surroundings with the wild ass, value and pursue it most of all on account of its medicinal importance – although they speak no less enthusiastically of the good taste of its meat. For the Afar, the wild ass is a wandering pharmacy; it is even referred to as a mobile hospital. All parts of its body, in the opinion of the Afar, are rich in vitamins and healthy. Almost every severe illness, including cancer, they believe can be effectively treated by consuming its meat. The liver is the most valuable organ, but special importance is also attached to other parts of the wild ass: The fat is good for rheumatism, allergies and skin diseases, the blood for anemia, and the smoke from burning the pulverised hoof relieves respiratory diseases. Only the skin and bones of the wild ass are considered worthless. The Afar say quite openly that it is currently impossible for them to refrain from shooting the occasional wild ass as they have no other source of medical care. Doctors, hospitals, affordable medicines and ambulance services are not available. The wild asses mean so much to them that they do not generally waste their expensive ammunition on shooting other wild animals. Only for a few diseases such as malaria and headaches does the wild ass not provide medicine. Such maladies require the occasional shooting of a gazelle or dik-dik.

During my stay in the Danakil region (from Logia and back), I drove nearly 2,000 km through the country. The smaller portion of this was taken up by trips for refuelling and purchases, while the search for wild asses far from any road accounted for 1,477 km. We nonetheless discovered wild asses only fairly infrequently on these offroad surveys with the car. The probabilities of tracking them down on foot in the stony hills were far higher. Accompanied by between one and three Afars familiar with the country and an interpreter, I clocked up 59 hours hiking on foot and 54 hours resting and ambushing. Of the 30 wild asses we encountered in total, six were seen from the car, 17 while stalking on foot and seven while

ambushing. I myself observed 23 wild asses and seven others were seen in the vicinity of the parked car, where a number of our escort usually waited while the rest of us went out on foot. The 30 wild asses tracked down were in 15 very small groups (range 1–3) with a mean number of 2.0 head per group (breakdown: 6 x 1, 3 x 2, 6 x 3; i.e. median 2).

There follow some impressions of the Danakil desert based on my diary entries. The many mosquitoes made it impossible to spend the night in the open, and the only way to stand the heat in the tent was wrapped in wet cloths. Only in the early hours did the air become noticeably cooler. We drove out into the desert before sunrise, left the car at the foot of the hills and climbed rocky slopes and screes strewn with loose chunks of volcanic rock. Small Speke's pectinators (*Pectinator spekei*) basked here in the early sun, showing by their presence that they were able to live on the sparse vegetation between the rocks, far from any source of water. And indeed, here and there grew a clump of tall grass, a euphorbia or a low-growing shrub on a barren patch with soil that had accumulated between the stones as a product of weathering.

Between the detritus we found also the first signs of the wild ass in the form of old dung piles. Deposits of hard earth in the intermediate valleys also showed hoof marks, including the fresh tracks of a mare with a small foal. Then shortly afterwards, all of a sudden we saw a single stallion grazing further up the valley. We took cover straight away and hoped he would make his way down the valley towards us. It was a favourable wind and he had not yet noticed us because of the large distance. He took endless time, but gradually he came nearer. We watched him spellbound and were fascinated by his beauty. He was a large, powerful animal with a softly lustrous coat, passing at a leisurely pace at a distance of about 150 m while we sat crouched among the rocks. He had no shoulder stripe, a barely discernible dorsal stripe and only indistinctly barred legs. Other than the colouration, I noticed the following differences compared with the Asiatic wild ass: longer ears, narrower hooves, smaller chestnuts on the inner sides of the forelegs, a more drop-shaped, less tassel-like tail, and finally the long mane with stiff upright hairs, pale in colour and only trimmed with black at the very end. The stallion bore his mane like a proud crest in the nape of his neck, and it was very becoming on him indeed.

Only when the animal had gone out of sight did we venture to speak again. From that moment, notwithstanding all cultural and linguistic barriers that might separate us, we were of one mind that wild asses are exciting beautiful animals. It was with all the more enthusiasm that we continued our search in the days ahead. These saw us explore various regions and cover long distances on foot. The downside on such surveys was that the wild asses mostly noticed us from a distance, whereas we only spotted them when they were already running away. Any hope of sticking hard on their heels proved illusory. They disappeared among the elevations as if the ground had swallowed them whole. We once followed their tracks for hours along a ridge to where a large plane opened out near the Djibouti border. The tracks showed that the wild asses must have gone down into the plane, but despite intensive searching with the binoculars we were unable to find them. On the way back, the Afar astonished us with a secret source of water whose existence is only handed down by word of mouth. Twisting an arm shoulder-deep into an inconspicuous cleft in the rock, they scooped

out water with a small container. It was evidently rainwater that had collected there and stayed far cooler in the depths of the rock than the supply of water I had in my backpack.

When the midday heat brought all activity to a standstill, we sought shade among the rocks or beneath thorn bushes. Under the bushes there were always many ticks on the desert floor. We soon learned, however, that these did not care for humans. Once, we rested high up on a mountain slope and for several hours watched a wild ass roaming alone through the desert, miles distant. At first its shape appeared completely distorted to us because of the heat haze. Then, as the sun slowly declined, its form gradually stood out increasingly clearly against the background. When it moved away, we believed we could predict its path and meet upon it again down in the desert. After an arduous descent that took longer than we thought, we had to realize that our chances of finding it again in the rocky labyrinth were rather slim. But then, on the way back to the car, we came completely unexpectedly upon another individual, of which at first only the ears were to be seen. The animal was evidently in a hollow and may have already heard us, as its ears were turned our way. We froze and did not move from the spot. When after a few minutes it turned its ears towards a different direction, I could no longer stand the wait and readied my camera. The moment I inadvertently banged the tripod against the rocks in my haste, the shy animal took flight. It had only been 60 m away – too close for its good hearing not to pick up the giveaway sound.

Another day, we heard the telltale clatter of falling rocks. We immediately sat down and waited. When nothing more had come to our notice after over an hour, we became inattentive, passed the water bottle around and began to whisper. Then there was the clattering again, and three wild asses that we had been unable to detect rushed away at the top of the slope without once looking back. It was obvious to us, of course, that to the wild asses, the faint sounds of crunching stones and falling rocks must be extremely important signs when it comes to detecting threats.

When after many days of roaming around and analysing tracks we knew the areas where wild asses were likeliest, increasingly often we would get down under cover between the rocks and wait. We would then strain our ears so we might hear the animals coming in good time. Sometimes we even wished to be endowed with long ears like the wild asses, having learned the value of acoustic location in this rocky terrain. Time and again in these many hours of waiting, I thought about the comparison between the African and the Asiatic wild ass. On the one hand, the desert climate in which the African wild asses live, with its hotter annual average temperatures, favours long extremities by Allen's rule – and hence also favours long ears. On the other, it appeared evident to me that the evolution of long ears in the African wild ass might have been favoured by the stony surroundings. Besides, this habitat seemed to have shaped their characteristic behaviour in the event of danger. Whereas the Asiatic wild ass prefers open steppe and desert plains where they can see threats coming from afar and evade danger by flight, the African wild ass reacts completely differently: In the face of danger they withdraw into difficult, stony regions and rely on their camouflage and their good ears. The reason they stop and wait when uncertain – and thus for the stubbornness of the domestic donkey – is evidently linked with the conditions of their habitat. This is why a donkey will never bolt like a domestic horse, because in its original habitat it would break its legs. When it takes flight, then, it is not heady, but with caution.

Regrettably we never managed while sitting in wait to see wild asses passing within camera distance. Instead, we frequently discerned them far away – once even a mare with a small foal. As there are two rainy seasons here, there are presumably also two seasons when foals tend to be born – in spring and in summer. There is no sound evidence to support this, however. The rains of the short spring rainy season started in 1995 on 9 February and barely lasted longer than a day. So much rain came down, however, that the world around came into flower. In the barren loess desert beneath the Gamare mountains [41.4° E, 11.7° N], which the Afar call the Aura, the water collected and formed shallow lakes where waterbirds already came in search of food the very next day. The tracks of wild asses, too, led over the softened desert floor to the lakes, where in all probability they drank. Yet within three days the water had evaporated, leaving just an area of ground riddled with drying-cracks. As we stood at a dried-up lake and examined tracks of wild asses by number and size, a slender form unexpectedly broke away from among the dromedaries grazing at the foot of the nearest hill. It was a single wild ass stallion unhurriedly wandering out into the loess desert and heading to the east. It would have been easy on that hard surface to overtake it with the car. Instead, I shouldered my tripod and camera and followed on foot. It allowed me to approach to within 200–300 m and then wandered ahead of me as if to show that this flat expanse, too, was part of its habitat.

In the open desert, the wild asses face great danger when poachers pursue them with their cars or tourists chase them. They only survived the chaos of war because they sought refuge in rocky areas, where only a few Afars know how to waylay them. When tourism picks up in Ethiopia in the years ahead, more people will no doubt come too to the Danakil Desert. It would be helpful here if visitors would permit themselves to be guided by the Afar on foot, and if the latter were to realise, on account of growing interest in the wild ass, how valuable these animals are – firstly for the joy they bring, secondly as a source of income, and finally in order to stay in charge of their own land. Only locals should be allowed to guide visitors to the wild asses so that they reap direct benefits from the animals' wellbeing.

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