

# A Diamond in the Rough

## Hirola conservation in Ijara, Kenya

BY ABDULLAHI H. ALI AND JACOB R. GOHEEN

The Hirola (*Beatragus hunteri*) is a poorly-known antelope endemic to the Horn of Africa, from southeastern Kenya northward to southern Somalia. For decades, its taxonomic classification has vexed scientists: it was initially classified as a subspecies of Hartbeest, and then as a subspecies as Topi, before being recognised as distinct enough to merit its own genus.

In 1965, Louis Leakey discovered fossil remains of a congener—*Beatragus antiquus*—in Tanzania’s Olduvai Gorge, and work by Leakey, Gentry, and others concluded that Hirola were probably common ancestors of both Hartbeest and Topi. Subsequently, Kingdon proposed that the evolution and expansion of Hartbeest throughout East Africa over a million years ago might have led to the Hirola being restricted to its current range, north and east of the Tana River to a transitional region along the Kenya-Somali border, where grasslands give way to thick bush.

In addition to its unique taxonomy, the Hirola also has the unfortunate distinction of being one of the most—if not the most—endangered antelope in sub-Saharan Africa. Indeed, the Hirola has been identified as one of the highest-ranking mammals on the Zoological Society of London’s EDGE (Evolutionarily Distinct and Globally Endangered) of Existence Programme, which seeks to promote understanding and conservation of globally-endangered species that have few living relatives.

Although they have never been common, Hirola have dwindled in numbers from roughly 10,000 in 1973 in Kenya to fewer than 500 today. It is likely that Hirola have been wiped out

in Somalia, although a small number may persist in extreme southwestern Somalia. Hirola have been legally protected in Kenya and Somalia since the 1970s, but their numbers have declined by more than 80% since 1976. Remaining populations occur almost solely on pastoral lands with no formal protection, while the few conservation areas that do exist within the Hirola’s native range (e.g., the Arawale National Reserve and the eastern part of the Tana Primate National Reserve) lack adequate protection and attention from the international conservation community. Thus, ironically, the Hirola ranks among Africa’s greatest conservation concerns, but public knowledge regarding its plight is almost entirely lacking outside of Kenya.

Because of historic, political instability in this area, it has been difficult to pinpoint the reasons underlying Hirola declines, although it is likely that many factors underlie this population crash. From the 1960s to the 1980s, Butynski, Kock, and others documented a series of disturbances—overgrazing, fire suppression, and local extinctions of Elephants and Black rhino—that occurred in Ijara, Fafi, and Garissa Districts. All three of these factors tend to favour the growth of trees and shrubs at the expense of understory plants, particularly grasses. Indeed, a recent analysis of satellite imagery demonstrates a slow but steady conversion of savanna grassland to *Acacia refeciens*-dominated bush over the past 30 years

The geographic range of Hirola has contracted with this shift in vegetation types, such that it now persists only in the small fraction of its historic range that is relatively open, and not dominated



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by trees. Because Hirola are pure grazers that rely on grasses like *Chloris*, *Cenchrus*, and *Digitaria* throughout the year, these results imply that the chances of Hirola recovery are low, so long as their preferred forage remains rare in Ijara. In addition, the increased cover afforded by trees and shrubs might result in more efficient killing of Hirola by predators relative to historic levels of predation in open, grassy expanses.

In 2011, and along with a team representing the Hirola Management Committee, the Kenya Wildlife Service, and the Northern Rangelands Trust, we initiated work to answer the following questions that are critical to understanding and (hopefully) curbing declining numbers of Hirola. These questions were identified by Butynski over 10 years ago as knowledge gaps

that were necessary to fill to successfully conserve the animal.

First, what is the relative importance of range degradation, competition with livestock, and predation in driving the continued decline of hirola in Ijara? Answering this question requires conducting a series of repeated surveys, over many years, to document the birth and death rates for male, female, juvenile, and adult Hirola in herds inhabiting areas with different levels of grass cover, livestock, and predators. From this data, we can build population viability analyses (PVAs), tools that can project the future status of populations under various environmental scenarios. Currently, we are conducting such work in Arawale National Reserve, Gababa Community, and Ishaqbini Conservancy to construct the building blocks necessary for PVAs. Armed with this knowledge, we will be able to 1) assess how important predation, for example, is, versus range quality in driving declines of Hirola; 2) estimate which herds of Hirola have the best chance of persisting 10, or 50, or 100 years into the future; and 3) inform which management solutions will provide the best “bang for our buck” to maximize chances for Hirola recovery.

Second, what range management practices can be taken to offset the

negative effects of tree encroachment on Hirola, while simultaneously permitting livestock production through traditional pastoral practices? Because both Hirola and cattle are pure grazers that depend on high-quality, open range, Hirola declines can be regarded as the proverbial “canary in the coal mine”: they indicate chronic range degradation under which both Hirola populations and cattle grazing will be very difficult to maintain over the long-term. Potential solutions that might enhance the long-term compatibility of Hirola and livestock include, but are not limited to, ripping and reseeding large areas of range, prescribed burning, and holistic livestock management.

Finally, and most importantly, the success of our work hinges on close collaboration with Somali pastoralists, whose involvement is absolutely key to the long-term conservation of this species in its native range. In 2010, we administered a structured questionnaire to homesteads in Arawale, Gababa, and Ishaqbini. We made inquiries as to historical Hirola distribution in the region, attitudes toward Hirola, threats to livestock of humans from Hirola, threats to Hirola from people, and the future of wildlife in the areas. We were pleasantly surprised by the enthusiasm and support for our work

by local communities. We appointed and trained three community scouts in each area as part of our team to assist in Hirola research as a part of community capacity building.

Through our work, we hope to better understand and thus curb declines of this wonderful animal. Our work is supported through the following generous organizations: Association of Zoos and Aquariums, Denver Zoo, the Haub School of the Environment and Natural Resources at the University of Wyoming, Idea Wild, International Foundation for Science, Mohamed bin Zayed Species Conservation Fund, National Museums of Kenya, St. Louis Zoo, and the Rufford Foundation. ●

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**ABDULLAHI H. ALI** has been working on wildlife conservation in eastern Kenya for the last seven years. Mr. Hussein has extensive experience in community conservation around his hometown of Garissa. He is a member of the University of Wyoming’s Program in Ecology, where he is carrying out his dissertation work on the conservation of hirola in Ijara.

**JACOB R. GOHEEN** is an assistant professor in the Departments of Zoology/Physiology and Botany at the University of Wyoming who works on ecosystem responses to declines and extinctions of wildlife.

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## In an era of deforestation, a forest fragment found

BY LUCA BORGHESIO AND LAWRENCE WAGURA

**T**he Taita Hills are a small mountain massif located in southern Kenya, not far from the Tanzanian border. The unimpressive maximum elevation, about 2250m, belies the high biological importance of these small mountains, which host several endemic species of vertebrates, invertebrates and plants. Geologically,

the Taita form the northernmost end of the Eastern Arc, a range of mountains stretching from Northern Mozambique through Tanzania and Southern Kenya. Old age, estimated to more than 20 million years, isolation and climatic stability are the causes of the outstanding biological richness of the Eastern Arc, which was originally

entirely cloaked by thick rainforest. Unfortunately, stable climate and high rainfall are also favourable to agriculture, and rates of deforestation have been high in the last century. In the Taita, it is estimated that more than 95% of the original vegetation has been lost, and currently less than 500 hectares of forest remain, scattered in