

ENDANGERED SPECIES

Technical Bulletin Reprint

Wildland Management Center
School of Natural Resources
The University of Michigan

From The New York Zoological Society

Conservation in Ethiopia's Bale Mountains

by Dr. Jesse C. Hillman

In 1986, a National Park was proposed in Ethiopia's Bale Mountains to conserve two of that country's endemic large mammal species — the Mountain Nyala and the Simien Fox. Little was known of either species, but what was known suggested that numbers were low and both species were localized to just a few mountain tops.

Management of the areas as a National Park began in 1970 and has continued since that time, though the Park remains ungazetted. The number of Mountain Nyala increased dramatically as a result of localised protection, but little was known about the rest of this large and rugged mountain massif. Contacts were made between the Ethiopian Government and Dr. David Western, Resource Ecologist of Wildlife Conservation International (WICI), a division of the New York Zoological Society. The services of an ecologist were requested to study the Park ecosystem and to make recommendations for the future management of this 2,200 km² mountain area. Dr. Jesse C. Hillman began work in the Bale Mountains in October 1983 and has just completed two years of study in the area. He has worked closely with the staff of the Ethiopian Government Wildlife Conservation Organization (EWCO).

The Park comprises three main habitats which are not used equally by the various wildlife species. The northern woodlands and grasslands range from 3,000 m altitude to the treeline at 3,400 m, but only comprise 10% of the Park area. This is where the greatest numbers of the Mountain Nyala exist, together with other antelope species — the Bohor Reedbuck, Common Duiker and Menelik's Bushbuck, an

endemic subspecies.

Above the treeline the slopes are covered in giant heather moorlands, but these soon give way to Afro-alpine vegetation on the cold and high Sanetti Plateau. Several peaks of over 4,000 m rise from the plateau, including Tullu Deemtu, at 4,377 m the second highest peak in the country. This area comprises 42% of the total and is characterized by sparse, short vegetation adapted to low rainfall, temperatures that reach minus 15°C at night in the dry season, and drying winds.

The plants must also withstand the ravages of a dense rodent population of 9 species that includes the endemic Giant Molerat, a "gopher-like" creature weighing a kilo that harvests food above ground, but lives below ground. This rodent population is the

support for the endemic Simien "Fox", actually a long-legged, long-snouted jackal, as well as numbers of birds of prey.

The mountain massif falls away sharply to the south through a heather and bamboo-covered escarpment, and the southern half of the Park is a dense, tropical moist forest known as the Haremma Forest. This area comprises 48% of the total and ranges in altitude from 1,500 m to 3,400 m, from dry wooded grasslands, through dense *Podocarpus* forest to mixed bamboo forest and heather covered slopes.

THE STUDY

The objectives of the study were:
1) To make a catalogue inventory of

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A young Mountain Nyala: an endangered antelope of the Bale Mountains

Bale Mountains continued

the entire Park area, its boundaries, flora and fauna, and the part man plays in the environment.

2) To obtain more detailed information on the requirements of the target conservation species — the Mountain Nyala and Simien Fox.

3) To formulate management plans for the Park, recommending to the Ethiopian Government the best ways to manage the area in the future.

It soon became evident that while the numbers of Mountain Nyala in the northern grasslands and woodland were high, this was a localised phenomenon. In addition, all Park Management is concentrated in this small area (less than 10% of the whole), since it is easily accessible, the Park HQ is there and it is the best wildlife area. Monthly monitors of this northern area and the resighting rate of known individual animals have indicated a population in the region of one thousand Mountain Nyala. Data

from exploration of the rest of the Park have indicated that there are none in the Harena Forest and very few in the main mountain massif. Probably 95% of the total population occurs in the small northern area. Fifteen years ago, however, it was considered a good month if 5 animals were seen there; now as a result of conservation by EWCO, over 500 hundred different individuals can be seen in a single afternoon.

The northern area is crossed by a major communication route through the mountains used by vehicles, people on foot and horseback, and large numbers of domestic livestock. Mountain Nyala will stand within 200 m of this route without undue alarm. On the rare occasions when they are seen in the mountains, however, they disappear over the horizon as fast as possible, whether from vehicles on the one road that crosses the plateau or from people on foot or horseback. Poaching is non-existent; however, limited pastoralist settlement occurs in the mountain area, and disturbance is increased as a result of large numbers of livestock going into the mountains to make use of naturally-occurring mineral springs.

An aerial survey and reports from EWCO personnel and sport hunters indicate that this is the best remaining

population of Mountain Nyala in Ethiopia. Others occur in relict habitat on a few high peaks of the Eastern Highlands and probably number less than two thousands. There are none in captivity.

The Simien Fox population is small (around 750 animals) and is almost entirely confined to the high mountain area. In contrast to the Mountain Nyala, these animals show almost no fear of humans, particularly those in vehicles. This lack of fear, combined with drivers' superstitions that a wild canid crossing the road brings bad luck, has resulted in some deaths on the new road across the plateau. The Simien Fox have been shown to feed entirely on the plentiful rodents, but will take carrion. Movements appear to be fairly limited, and care of the young is communal, as with several other jackal species. Only two other much smaller populations are known to exist in Ethiopia, in the Arssi and Simien Mountains. Like the Mountain Nyala, there are no Simien Fox in captivity.

Apart from the use of parts of the mountain range for grazing and mineral supply mentioned earlier, other demands on the environment by man include large amounts of fuelwood and some construction timber from the woodlands fringing the

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The Simien Fox:
a long-legged, long-
snouted jackal.

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Bale Mountains continued

mountains. These supplies are needed by the burgeoning rural and urban populations on the grain-growing plateau surrounding the north of the Park. The Haremma Forest represents considerable logging potential both inside and outside the Park. However, the whole mountain massif and forest area also protect a major water catchment area that supplies four major rivers via 40 tributaries. These four rivers, the Web, Wabe Shebelle, Dumal and Welmel, continue to supply all the arid lowland Bale Region, as well as much of the neighboring country of Somalia. Major modification of their catchment will undoubtedly affect catchment and flow regulation characteristics.

Management Plans for the area have now been completed, and were presented at an International Workshop held in Bale in October 1985. Representatives of the Ethiopian Government, EWCO, IUCN, WWF and NYZS attended. The Management Plan and discussions at the Workshop made the following conclusions and recommendations:

1) Bale Mountains National Park conserves a large area of Afro-alpine habitat and mountain scenery, together with the complete altitude and habitat gradient from wooded savannah grasslands to the sub-nival zone; these habitats are a centre of endemism that represents an important gene reservoir; the mountains further conserve a major water catchment area important to both Ethiopia and Somalia.

2) Formal legal gazettment of the Park's boundaries is a prime requirement.

3) Two minor changes to the proposed boundaries will ensure more successful conservation of optimum Mountain Nyala and Simien Fox habitat.

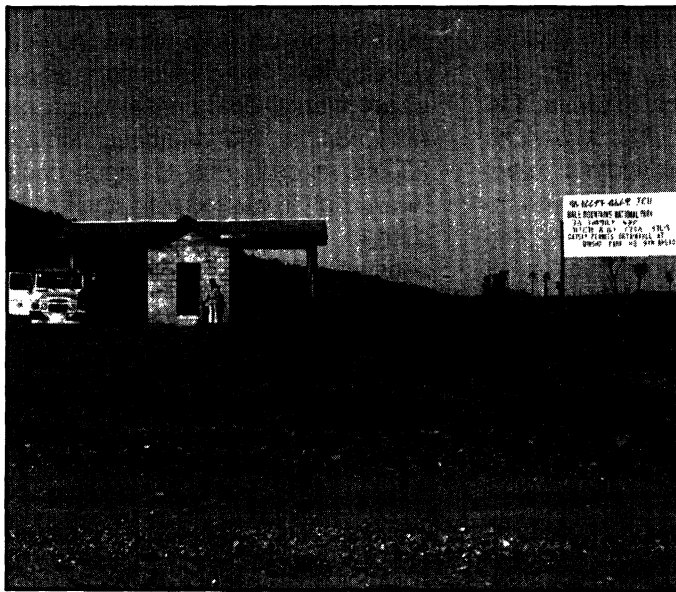
4) Park Management must become extensive through the construction of outposts and a sub-headquarters in order to conserve more successfully the entire Park area.

5) Settlement and human activities in the Park area must be removed and/or carefully regulated in order to conserve the water catchment and flow regulation characteristics of the mountains.

6) The Park must participate in sustained-yield management of natural

resources in the areas bordering the Park.

The Management Plan is now being revised as recommended by the Workshop, and will then be used to solicit international funding for implementation of the recommendations. Foremost among the conclusions of the Workshop participants was the realization that this Park has a part to play in human development of the area and in the conservation of the environment and the natural ecological processes on which man closely depends. The critical environmental problems currently being experienced in Ethiopia have made the Government acutely aware of the need to consider these factors in all developmental proposals.



The new "malngate" to Bale Mountains National Park in Ethiopia.

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Botanic Gardens and The Conservation Strategy

In November, 1985, 220 plant conservation experts from 42 countries gathered in Las Palmas, Gran Canaria for a four-day conference aimed at turning botanic gardens into active centers of rare plant conservation. The IUCN called the meeting to mobilize concern among the world's main botanic gardens and institutes for the future of the world's plant species, 25,000 of which are imminently threatened with extinction. WWF sponsored the meeting which included papers by experts from India, Switzerland, New Zealand, UK, USA, Australia, Spain, South Africa, Las Palmas, Italy, Sri Lanka, Colombia, and China.

IUCN's involvement with botanic gardens recently began with the formation of the Botanic Gardens Conservation Co-ordinating Body of the Threatened Plants Unit. This Body has been instrumental in linking botanic gardens of the world, with its 138 subscribing institutions (plus the 116 gardens of the USSR). The aim of the organization has been twofold: keeping botanic gardens in touch with international conservation issues, and monitoring *ex situ* conservation of threatened plants. Several times a year, member gardens receive a list of threatened plants for a region or plant group of special interest. The lists are derived from the IUCN's database on threatened plants which presently includes 15,870 plant taxa threatened on a world scale. Gardens are asked to indicate plants they have in cultivation

and submit the information to the database at Kew. Presently there are two major countries — the United States and the USSR, that have encountered difficulties in preparing an accurate and consistent threatened plants list.

From the data, two types of reports are issued. 1) "Botanic Garden Reports" show which threatened species in a certain group or region are in cultivation. 2) "Garden Printouts" are sent annually to each subscriber. These list all conservation plants recorded by that garden, and the full distribution, degree of threat worldwide, the source of the acquisition, and the number of other botanic gardens growing that plant. These reports and printouts are the beginning of a long term venture and do not achieve conservation in themselves. However, they do provide garden managers with the information from which they can develop their living collections as part of an international conservation network. So far the database contains 20,244 records, one for each occurrence of a threatened plant in a botanic garden. Of the 15,870 threatened species, 4,346 are in botanic gardens, but the true total must be considerably higher. Although some plants were in nearly 100 gardens, many are in too few gardens for safe-keeping — 36% of the taxa are in only one garden and 77% are in 5 gardens or less.

As conservation work continued during the 1980's, the feeling grew that botanic gardens should play a more

substantial role. One of the components of the IUCN/WWF Plant Conservation Program was the contribution botanic gardens can make in saving plant species. The biggest project undertaken was the Botanic Gardens Conservation Strategy which was presented at the Las Palmas meeting. The Botanic Gardens Conservation Strategy is intended to stimulate a far greater involvement by botanic gardens in implementing the World Conservation Strategy. The Strategy outlines the contribution that botanic gardens can make to achieving the three main objectives of living resource conservation: a) to maintain essential ecological processes and life support systems, b) to preserve genetic diversity, and c) to ensure the sustainable utilization of species and ecosystems.

Hopefully, these measures will draw botanic gardens closer into the conservation network and assist in preserving plant diversity.

This article is provided by Jane Villalobos, Smithsonian Institution.

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