



NON-DETRIMENT FINDINGS FOR THE GENUS *ANSELLIA* LINDL. IN KENYA

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I. BACKGROUND INFORMATION ON THE TAXA

1. BIOLOGICAL DATA

1.1. Scientific and common names:

Scientific name: Genus: *Ansellia* Lindl.; Family: Orchidaceae

Common names: 'Leopard' or 'Tiger' orchid

1.2. Distribution

The genus *Ansellia* is widely distributed throughout, but restricted to the continent of Africa, south of Sahara to South Africa. In Kenya, the genus is widespread, but highly concentrated along the coast, central eastern and western parts of Kenya (fig. 1 send as a separate attachment).

Distribution range falls within high potential zones with high human population and intense agriculture.

The genus *Ansellia* is morphologically variable and monospecific i.e. comprising of the species, *Ansellia africana* (Cribb, 1984; Khayota, 1995).

There is some degree of morphological, geographical and ecological variation in *Ansellia* populations. However, there are no discontinuities within the spectra of variations exhibited and the populations are not discrete entities.

Plants from the Kenyan coast are predominantly epiphytic with yellow flowers with bold, clearly defined reddish-brown, to maroon spots. They are distributed along the Kenyan coast from Malindi to Lunga Lunga, into Tanzania and inland as far as Shimba Hills and Taita.

In central and eastern parts of Kenya, the *Ansellias* are terrestrial or lithophytic on outcrops of archaic rocks or granite, in dry grassland, with few epiphytics. Flowers are greenish-yellow, densely spotted with small brown spots, sometimes so numerous that the flowers appear to be uniformly brown.

Rift Valley plants are both epiphytic and terrestrial. The flowers are pale yellow or more or less greenish-yellow, with small, less distinctly outlined reddish- brown to deep brown spots.

The 'black' *Ansellia* is found in the western part of the country. The plants are usually epiphytic in dense rain forest, with flowers heavily marked with large dark brown spots, on a brownish background. The general impression is that of a dark, almost black flower with scanty pale yellow network.

1.3 Biological characteristics

1.3.1. General biological and life history characteristics of the species

Ansellias are erect, medium sized to large epiphytic, lithophytic and less commonly, terrestrial perennial herbs. They are usually found on specific substrates and are occasionally host specific, as noted in Coast Province, where they are found predominantly on *Hyphaene compressa* H. Wendel. Three forms of growth habits are exhibited. These include, epiphytic, terrestrial and lithophytic.

1.3.2. Habitat types:

Ansellias are found in a wide range of habitats, ranging from tropical rain forests, open woodlands, wooded grasslands and volcanic and rocky terrain. Epiphytes occur in habitats ranging from equatorial forest usually high up in the trees in heavy shade with high atmospheric humidity to moist montane forests. This habitat is prevalent in western part of Kenya in Kakamega forest, slopes of Mount Elgon, around Lake Victoria and Taita Hills.

Some grow in riverine vegetation, others in open woodland and grassland with isolated trees, while others are found in intensely dry conditions, under prolonged periods of drought in full sun, with no shade. This type of habitat is common along the Kenyan coast, Eastern, Central and Rift Valley parts of the country. Most epiphytic *Ansellias* are often on old, dying or dead trees.

Terrestrials on the other hand, grow on the ground, among succulents in leaf litter, sandy or well drained soils. Lithophytes are found on outcrops of rock, especially in Makueni in eastern part of the country. Some populations are found mainly on the north eastern and eastern facing slopes of a crater, among pumice rocks in volcanic ash in asso-

ciation with *Erica* sp. and *Tarconanthus* sp., surrounded by hot springs, in Hells Gate National Park and around Lake Elementeita in dry Savannah forests.

The plants can tolerate moist to extremely dry conditions as well as a wide altitudinal range. *Ansellias* are generally found from sea level to about 2,500 meters above sea level.

1.3.3. *Role of the species in its ecosystem*

Ansellia like all species in the family Orchidaceae is an indicator species for habitat and environmental degradation in general. They occur in fragmented habitats and are adapted to specialised and restricted habitats. They are therefore at risk from any habitat alteration or loss.

1.4. **Population:**

1.4.1. *Global population size:*

No data

1.4.2. *Current population trends:*

increasing decreasing stable unknown

Marked declines in the populations of *Ansellia* have been noted in various localities in the country (Khayota, 1990, 1993, 1995; Veyret, 1991; IUCN/SSC Orchid Specialist Group, 1996). At the Coast, the once conspicuous orchid along roadsides at Tiwi, Waa, Kwale, Msambweni, Port Ritz and Ukunda, ten years earlier, have been extensively collected and are no longer visible. The plants are now only found further inland. The vendor at Ukunda, who has to travel for over 90 km to Lunga Lunga, towards the Tanzanian boarder, to collect the plants, supported this observation. It is therefore evident that the *Ansellia* populations have been drastically reduced and are still decreasing in the area.

Declines in the rest of the Provinces are random, due to the occasional habitat loss through logging, overgrazing and clear felling of host trees for agriculture and development.

1.5. **Conservation status**

1.5.1 *Global conservation status* (according to IUCN Red List):

Critically endangered Near Threatened
 Endangered Least concern
 Vulnerable Data deficient

According to the IUCN Red List of Threatened Plants (Walter & Gillett, 1997), 1,779 out of 30,000 orchids are threatened. The records indicate that, 21 orchids are extinct, 16 extinct or endangered, 325 endangered and 529 vulnerable. *Ansellia* is not included in any of the categories neither is it in the Hilton-Taylor (2000) IUCN Red List of Threatened Plants. The omission of *Ansellia* from the IUCN Red Data list may not necessarily mean that the plants are not threatened, but an indication of lack of conservation data on the status of the genus.

1.5.2. National conservation status for case study country

There is a provision in the five years National Biodiversity Strategy and Action Plan of 2000, to protect ecosystems and natural habitats including, rehabilitation of degraded ecosystems, *in situ* conservation and recovery of threatened species. There are also areas designated as important for conservation purposes. These include National Parks, Nature Reserves and Wildlife sanctuaries.

None of these measures are specific to *Ansellia* habitats, whose distribution is widespread and fragmented, with a high percentage outside protected areas. Measures need to be taken to accord special protection to these plants especially those outside protected areas.

Of significance to *Ansellia* conservation at the international level are, the Convention on Biological Diversity (CBD), Convention on International Trade in Endangered Species of wild fauna and flora (CITES) and the African Convention on the Conservation of Nature and Natural Resources.

1.5.3 Main threats within the case study country

- No Threats
- Habitat Loss/Degradation (human induced)
- Invasive alien species (directly affecting the species)
- Harvesting [hunting/gathering]
- Accidental mortality (e.g. Bycatch)
- Persecution (e.g. Pest control)
- Pollution (affecting habitat and/or species)
- Other Inappropriate transport, handling and cultivation cares. Loss of host trees.
- Unknown

According to Khayota, 1995, *Ansellias* have been subjected to excessive collection for commercial purposes from the wild, poor handling and cultivation of harvested material, habitat and host tree loss.

The problem is further aggravated by the unsustainable harvest from the wild. Host trees are usually cut down and sections with the orchid are removed, leading to the wholesale destruction of both the

host and orchid. This practice is common at the coast. The slow mode of transport and handling of the plants is yet another threat to *Ansellias*. After harvesting, plants are transported in open handcarts, to be sold along roadsides in the hot sun, sometimes for up to two weeks. Consequently, the plants wilt and do not survive in cultivation.

Large clumps of *Ansellia* are usually split up into small sections, severing the roots in the process. Once the roots are destroyed, there is little chance of their further survival or growth. In cultivation, the plants are grown either in too much shade or sun, or put in inappropriate containers like coconut husks or tins, confining the normally extensive root network. A combination of these factors has resulted in high mortality rates in cultivation.

In Kwale district, the growth of the predominant host tree, *Hyphaene compressa* is suppressed through pruning and burning, in order to obtain material for weaving of baskets, mats and roofing.

Other threats to *Ansellia* include the loss and fragmentation of their habitats. According to the *Kenya National Biodiversity Strategy and Action Plan* of 2000, 80% of Kenya's population directly or indirectly relies on biodiversity for survival. A lot of plant and animal species are being exploited for food, medicine, fuel, and many other commercial purposes, leading to widespread genetic erosion. This is caused by clear felling of forested areas, to meet the ever-increasing demand for agricultural land and development. Selective logging, tree poaching, unsustainable harvest of various biodiversity products and encroachment, pose a great risk to the survival of orchids, especially the epiphytes that occur in moist forests.

2. SPECIES MANAGEMENT WITHIN THE COUNTRY FOR WHICH CASE STUDY IS BEING PRESENTED.

2.1. Management measures

2.1.1. Management history

Wildlife utilization in Kenya was conceptualised as a fallback position following the ban on hunting in 1977 and revocation of dealership in wildlife products in 1978. The framework for wildlife utilization is drawn from Sessional Paper No. 3 of 1975 *Statement on Future Wildlife Management Policy in Kenya* and the Wildlife (Conservation and Management) Act CAP 376. Further policy framework *Annex 6: A Policy Framework and Development Programme 1991-1996: Community Conservation and Wildlife Management outside Parks and Reserves* (Zebra Book) guidelines reinforce the basis on which the present utilization program was established. However, since the inception

of the community wildlife utilization program in 1990, there has never been approved regulatory framework to ensure procedures, regulations and appropriate systems in place to guide the operations of the program.

2.1.2. *Purpose of management plan in place*

Draft *Wildlife utilization: Operations and Tariffs* Guidelines have been developed to streamline wildlife utilization operations in order to meet the emerging challenges as well as creating alternative investment opportunities that will justify and support conservation of wildlife, especially outside protected areas. It is anticipated that some of the guidelines will be incorporated in the revised Wildlife Act that is pending enactment by parliament and discussed further with stakeholders for endorsement.

2.1.3. *General elements of the management plan*

The Guidelines provide for:

- Scope of wildlife utilization operations which include, captive breeding, ranching, artificial propagation, ecotourism and sustainable harvesting from the wild.
- Wildlife species authorized for farming
- Conditions under which wildlife sanctuaries/conservancies may be authorized
- Conditions under which wildlife utilization operations may be authorized
- Monitoring, enforcement and compliance

Selection of species for management is species specific and is based on importance and levels of threat. *Ansellia* like most plants is not among species selected at the moment for inclusion in the strategy due to the bias towards animals in general.

2.1.4. *Restoration or alleviation measures*

Basic research has been conducted at the National Museums of Kenya (NMK), on *Ansellia* seed propagation, with the ultimate aim of producing sustainable quantities for the horticultural industry and other interested parties.

To date, seeds have germinated *in vitro* using commercial orchid media with 95% survival rate and 75% of the seedlings have been weaned and are growing at the NMK nurseries. There is scope for extension of this initiative into a larger operation for artificially propagated plants, as indicated by internet offers of *Ansellias* from cultivation.

Several NGOs are very active in matters of habitat conservation. Among the local ones and of relevance to the species in question are Nature Kenya, the Kenya Orchid Society Kenya Forest Working Group and the East African Wildlife Society. At the international level, collaborators include World Wide Fund for Nature (WWF), International Union for Conservation of Nature (IUCN) and the Environment Liaison Center International (ELCI). These work closely with the government and are members of various National environmental committees.

2.2. Monitoring system

2.2.1 *Methods used to monitor harvest*

There are no specific programmes in place to monitor the status of wild populations and sustainable off take from the wild for *Ansellias* and plants in general. There is neither monitoring of effects of the harvest nor budgetary provision for the formulation of management plans, their implementation and harvest controls. Initiatives to address the matter are in formative stage.

2.2.2 *Confidence in the use of monitoring*

Ansellia populations particularly at the Kenyan coast have been drastically reduced and are still decreasing. This has been as a result of unmanaged and illegal exploitation of wild populations for commercial purposes especially at the national level. There is therefore a low confidence in the probability that the harvest is sustainable and requires attention/action. It is also evident that there is lack of resources and political will to initiate and implement monitoring schemes or plans across a wide range of species in trade.

2.3 Legal framework and law enforcement

Kenya has since independence introduced policies and legal measures to promote environmental management in general and biodiversity conservation in particular (Mugabe, *et al*, 1998). Acts of parliament and statutes, which derive their force from the Constitution, formally governs Kenya. The overall authority is the Minister with a principle technically qualified enforcing officer, who operates under a policymaking Board of Directors. There are more than 77 statutes that deal with the environment and the sustainable utilization of its resources. Some of the statutes relevant to the conservation of *Ansellia* in particular the epiphytes and terrestrials include, the Chief's Authority Act (Chapter 128), which provides for the control of cutting of tree, prohibits wasteful destruction of trees and control of grass fires. Legislation on Specially Protected Areas and in particular, Forest Act (Cap 385) of

the Laws of Kenya, which provides for the establishment, control and regulation of forests is also relevant. The Wildlife Conservation and Management Act (Cap. 376) for the protection and conservation of wildlife in Kenya, is of significance to the species in question. The implementation of the Act is the responsibility of The Kenya Wildlife Services. The Plant Protection Act (Cap 324) makes provision for the prevention of the introduction and spread of diseases destructive to plants.

Kenya has enacted the Environment Management and Coordination Act, 1999. The Act now provides a legal mandate to enforce environmental standards directly. It is anticipated that if effectively implemented, the Act will consolidate the sectoral laws on environment and thus provide focused enforcement machinery.

Kenya believes in supremacy of Parliament. International laws once signed do not automatically translate into Kenyan laws. They have to be tabled in Parliament for enactment. With the new provision in the Environment Act for International treaties and agreements, it is anticipated that either an amended Wildlife Act that incorporates domestic CITES legislation or a new independent CITES Act will be enacted.

3. UTILIZATION AND TRADE FOR RANGE STATE FOR WHICH CASE STUDY IS BEING PRESENTED.

3.1. Type of use (origin) and destinations (purposes)

Orchids are highly valued for their beauty and have been collected from the wild as ornamentals for at least 2000 years (IUCN/SSC Orchid Specialist Group, 1996). Apart from their use as ornamentals, *Ansellias* are commonly used in folk medicine. Infusions of the pseudobulb have been used to treat earache, throughout Africa, whereas extracts from roots, pseudobulbs and leaves have been used to treat, diarrhoea, and madness and as an emetic in eastern and southern Africa (Lawler, 1984). *Ansellia* is also included in the list of plant species and their parts traded for their medicinal properties as per the requirements of Decision 11.165 of CITES.

An analysis of data from the World Conservation and Monitoring Center (UNEP-WCMC) indicate that of the exports total *Ansellia* exports from Kenya, United States of America imported 51% of the total including two shipments of unknown quantity, followed by the United Kingdom 38%, Australia 7%, Netherlands, 3% and Switzerland 1%.

All the plants imported were live. The purpose of the imports was 46% primarily commercial, 46% scientific, 3% unspecified, 1% personal and 4% re-export.

The source of specimens is not indicated, with the exception of 38% coming from the wild and one shipment from artificial propagation. Records also indicate that 146 shipments of *Ansellia* species were made in total globally, with 27% from Range States and 73% from non-Range States, of which, 84% were from primarily artificial propagation.

3.2 Harvest:

3.2.1. *Harvesting regime*

There is no control or management programme for the offtake of plants. There are no restrictions on the age or size of plants to be harvested. Host trees are usually cut down and sections with the orchid are removed. This is because the *Ansellia* root network is extensively entwined into the bark of the host, making it difficult to detach the plant from the tree. As a result, a tree is cut down for every orchid collected, leading to the wholesale destruction of both the host and orchid. The current wholesale removal of the plants and their hosts is detrimental and unsustainable for the survival of the species in the wild.

3.2.2. *Harvest management/control*

It is apparent that *Ansellia* has a history of ongoing illegal and unmanaged offtake from the wild. There is no approved management plan or equivalent. The harvest is market driven, opportunistic and indiscriminate. With proper management, there is potential for the sustainable offtake from the wild, in certain parts of the country with healthy populations.

3.3. Legal and illegal trade levels

Trade in *Ansellias* as an ornamental was first reported in a local newspaper 1989 as occurring predominantly at the Kenyan south coast. The area is close to Diani Beach, a popular tourist destination. Huge clumps of *Ansellias* were seen on sale, by the road sides in temporary stalls, alongside vegetables and fruits. The price ranged from Kshs. 200 (USD 2.5) for a small piece, to Kshs. 600 (USD 7.5) for a larger piece.

National utilization of *Ansellia* as ornamentals for commercial purpose is localized and is still ongoing at the Kenyan coast and Nairobi, but none in other Provinces. The target group seems to be collectors, tourists, expatriates and upper class Kenyans. This is evident from the strategic location of stalls in places frequented mainly by the above groups. Most ordinary Kenyans are unaware of the existence or even the value of the plants.

Information from TRAFFIC East/Southern Africa-Kenya Office (Barnett, pers. com., 2002) indicates that there are no records of illegal trade in *Ansellia*, neither have there been any seizures by customs officers nor the Kenya Wildlife Service, the CITES Management

According to the UNEP-WCMC data, volumes of *Ansellia* in legal international trade are insignificant. There are however discrepancies between UNEP-WCMC and the Kenya Management Authority annual reporting data. The total number of export permits issued and quantities of *Ansellia* shipped do not tally with UNEP-WCMC records, at the ports of entry of importing countries. It is therefore not clear whether this is an indication of illegal trade or a sign of poor record keeping by the Management Authority. It may also be possible that there are illegal export permits issued from other sources, other than the official one. This needs to be investigated further.

There is also an import record showing the source as from artificial propagation. However investigations to date indicate that there are no records of artificial propagation facilities in Kenya.

Neither studies nor investigations seem to have been undertaken to establish the existence of illegal trade in *Ansellia* or orchids in general from Kenya. It may be possible that there is no such trade. There is need for further investigation in this.

A search of orchid websites indicates that *Ansellias* are popular in cultivation and sought after by collectors internationally. The prices offered for *Ansellias* are fairly competitive, in relation to other orchids. Although most of the plants are from artificial propagation, some nurseries indicate their source as Africa and East Africa. These need to be investigated to establish whether they originate from Kenya and if the source is from the wild.

II. NON-DETRIMENT FINDING PROCEDURE (NDFS)

1. IS THE METHODOLOGY USED BASED ON THE IUCN CHECKLIST FOR NDFS?

yes no

Yes, as found in the Inf. 11.3 CITES document.

2. CRITERIA, PARAMETERS AND /OR INDICATORS USED

Distribution, habitat availability, population status and threats in the wild, national utilization, international trade, illegal trade and impacts, legislation, programmes for species control and management.

3. MAIN SOURCES OF DATA, INCLUDING FIELD EVALUATION OR SAMPLING METHODOLOGIES AND ANALYSIS USED

Prior to the field survey, a comprehensive literature search was carried out, including the examination of herbarium specimens, in order to collect data on distribution, localities, altitudinal range, frequency of occurrence and related botanical information. Field trips were undertaken to the various Provinces, to gather information on distribution, habitat availability, status and threats to the wild population. Some of the information was based on good local qualitative data, based on interviews with the local people, to give some indication of levels of offtake and decline in populations. The IUCN Red List of Threatened Plants (Walter & Gillett, 1997) was checked for possible listing of *Ansellia* as a threatened species.

Field and market surveys were carried out in the selected Provinces to evaluate the availability of *Ansellia* in the national market, whether the trade was significant and to identify the purpose of the exploitation, i.e. national utilization. This was done through a questionnaire and interviews (Annex 1). The personnel interviewed included, CITES Management and Scientific Authorities, environmental and plant inspectorate officers, vendors, hotel owners and members of the Kenya Orchid Society, amongst others. A survey of plants offered for sale at the local orchid shows and meeting was undertaken. Data was also gathered on the scale of artificial propagation of *Ansellia*, from Research Institutions, nurseries and private collectors.

International trade data was obtained from UNEP-WCMC. The data was analyzed to confirm whether *Ansellia* from Kenya was in international trade, quantities, patterns of trade and to establish the purpose of exploitation. A search of orchid Websites was carried out to identify plants offered for sale on the Internet and nursery catalogues, in order to reflect the actual or potential trade globally. Further information was obtained from TRAFFIC East/Southern Africa-Kenya Office, to verify if there was any illegal trade.

A survey of the existing legislation, both national and international, relating to environmental conservation and management was carried out. This was done through literature search and interviews of the relevant authorities including Kenya CITES Management and Scientific Authorities, legal advisors on environmental issues, personnel from the Ministry of Environment and Natural Resources, National Environment Management Authority (NEMA) and the relevant Institutions. Field studies were undertaken to establish the existence of any programmes for population monitoring, habitat conservation, management and control measures for the species in question.

4. EVALUATION OF DATA QUANTITY AND QUALITY FOR THE ASSESSMENT

Results of the species management and control measures were tested against a checklist to assist in making non-detriment findings designed by IUCN/CITES Secretariat as found in Inf. 11.3 CITES document and responses plotted in Table 1.

Results presented in a radar chart indicate that most of the scores are outlying (fig. 2 *Send as a separate attachment*), a confirmation of a low confidence in the probability that the harvest is sustainable and requires attention/action by the Scientific Authority.

In general the finding allows for the identification of possible problems and their rectification as soon as possible. It is evident from the results that *Ansellia* harvest is unsustainable. There is a need for a thorough review of the harvest management system. The aspects requiring urgent attention are methods used to monitor and harvesting in areas with open access. It may therefore be necessary to undertake further investigations in order to obtain sufficient data on which to base a non-detriment finding.

5. MAIN PROBLEMS, CHALLENGES OR DIFFICULTIES FOUND ON THE ELABORATION OF NDF

- Inadequate resources and personnel to undertake NDFs
- Inadequate information on status of species in the wild
- Lack of or non existent management plans for the sustainable use of species
- Lack of standardized procedures for NDFs
- High turnover of conservation and enforcement personnel
- Minimal political will to approve and implement species management strategies

Table 1: Responses to non-detriment findings questions for *Ansellia* in Kenya

Question no.	Question category	Question	Responses
2.1	Biology	Life form	3
2.2		Regeneration potential	4
2.3		Dispersal efficiency	4
2.4		Habitat	3
2.5	Status	National distribution	2
2.6		National abundance	2
2.7		National population trend	4
2.8		Information quality	2
2.9	Management	Major threat	3
2.10		Illegal off-take	4
2.11		Management history	4
2.12		Management plan	4
2.13		Aim of harvest	4
2.14		Quotas	4
2.15		Control	Harvest in PA
2.16	Harvest in strong tenure		2
2.17	Open access harvest		5
2.18	Monitoring	Confidence in harvest management	4
2.19		Monitoring method	5
2.20		Confidence in monitoring	4
2.21	Incentives	Effect of harvest	4
2.22		Species conservation incentive	4
2.23	Protection	Habitat conservation incentive	4
2.24		Proportion protected from harvest	3
2.25		Effectiveness of protection	3
2.26		Regulation of harvest	4

6. RECOMMENDATIONS

- There is need for the development of standard NDFs procedure for Parties
- Species in trade should be subjected to an NDF process before and after listing on the Appendices
- There is need for Parties to develop an updated database on the status of species i.e. conservation and utilisation. Such a database should be linked to regional and global processes
- There is need for national management plans or equivalent in order to establish the process of sustainable use
- There is need for continuous training in NDFs procedures of managers and scientists in relevant institutions
- Parties should be urged to avail funds and resources for NDFs

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Appendix 1

Questionnaire on trade and utilization

1. Background information
 - Name of interviewer
 - Date of interview
 - Name of respondent
2. Identification variables
 - Questionnaire number
 - Village
 - Location
 - Division
 - District
 - Province
3. Type of vendor: permanent or temporary stall
4. How long have you been selling at this location?
5. How often do you sell here?
6. Do you collect or buy what you sell?
7. Where do you collect or buy?
8. In what form are your plants sold? Whole or sections
9. What is the price per unit of plant?
10. How much is sold now compared to the last ten years?

Quantity	Price
1 More	More
2 Less	Less
3 Constant	Constant
11. What is the reason for the above answer?
 - 1 Availability
 - 2 Demand
 - 1 Other (specify)
12. How do you rate the products?
 - 1 High demand
 - 2 Low demand
 - 3 Average
13. Who are the main buyers?
 - 1 Local people
 - 2 Tourists
 - 3 Hoteliers
 4. Other (specify)