

Sustainable Use of East African Aloes: the case of commercial aloes in Kenya

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Introduction to aloes

- Predominantly African distribution
- Over 450 taxa described
- Highest (260) concentration in Southern Africa, 180 in Eastern Africa and over 77 in Madagascar



Characteristics

- Perennial succulent herbs, shrubs and small trees
- Dryland species with adaptations for xerophytic habitats
- Are monoecious, reproduce both vegetatively and from seed
- Are long-lived, lifespan of up to 150 years documented

Kenya

- About 80% dryland and rich in aloes; About 60 taxa known
- Over two thirds endemic with narrow distribution
- IUCN categorisation has been done for a limited no. of species

Trade

- All Kenyan aloes are listed on Appendix II of CITES
- Local trade amongst neighbours mostly for use at household level
- Commercial exploitation emerged in the mid 1980s, prompting a Presidential Ban on harvesting from the wild



Uses and parts

Use	Part
Aesthetics	Whole plants
Traditional Liquor	Roots
Soil conservation	Whole plants
Medicinal and cosmetic (household and large scale)	Leaves



NATIONAL MUSEUMS OF KENYA

WHERE HERITAGE LIVES ON



CITES reports....

- Based on Aloe gum trade and reports on illegal harvesting in Kenya, CITES secretariat undertook a significant trade review of East African aloes.
- In respect to CITES findings they recommended the following:



CITES recommendations....

- Establishment of quotas for harvesting and monitoring based on *resource assessment*.
- Field monitoring for sustainable harvesting
- Collate market information to monitor trade volumes.
- Establishment of commercial plantations.
- Develop regulatory guidelines for CITES compliance. e.g. Certification procedures.

...Aloe Resource Assessment

- To establish resource base, abundance, production units and sustainable yields, harvesting techniques. Generated information is meant:
 - To demonstrate sustainability to guide in harvesting
 - For use at national level planning
 - To assist in domestication of CITES in the Kenya



NATIONAL MUSEUMS OF KENYA

WHERE HERITAGE LIVES ON



Methodology

6 districts were sampled with the total area of over 163,000km².

- Reconnaissance survey to locate geographical sites where critical mass of aloes were growing naturally.
- In reconnaissance, types of aloes, resource ownership, current use and GPS points of identified localities were documented.
- Also sampling design, plot dimension, enumeration methods and data sheets to capture information were developed

Sampling Methods

- Based on growth form, size discontinuous distribution and clustering properties convention methods of aerial distribution could not be used.
- Modified cluster sampling was used

Major commercial aloes.

A. scabrifolia



A. rivae



A. turkanensis



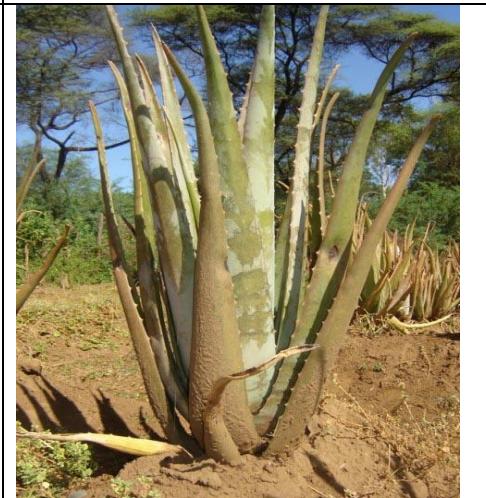
A. secundiflora



A. calidophila



A. vera

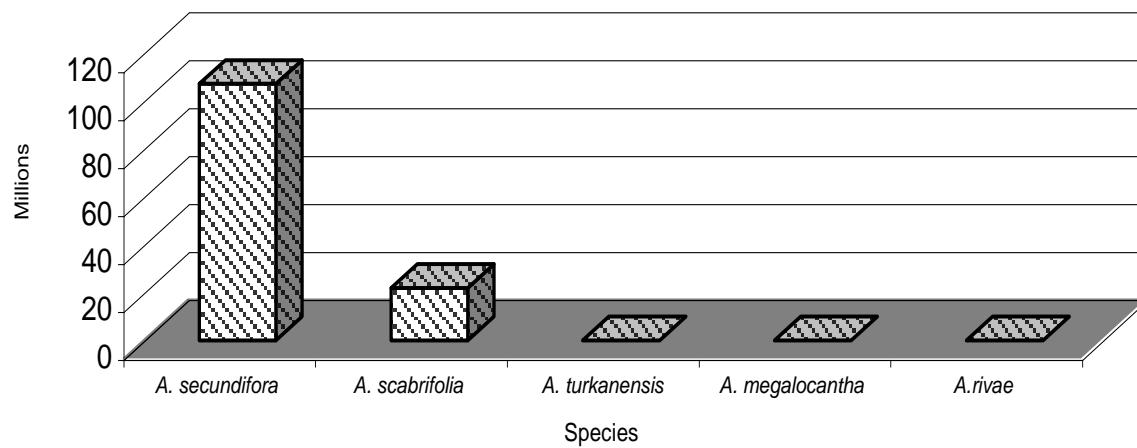


Aloe Quantities and Distribution

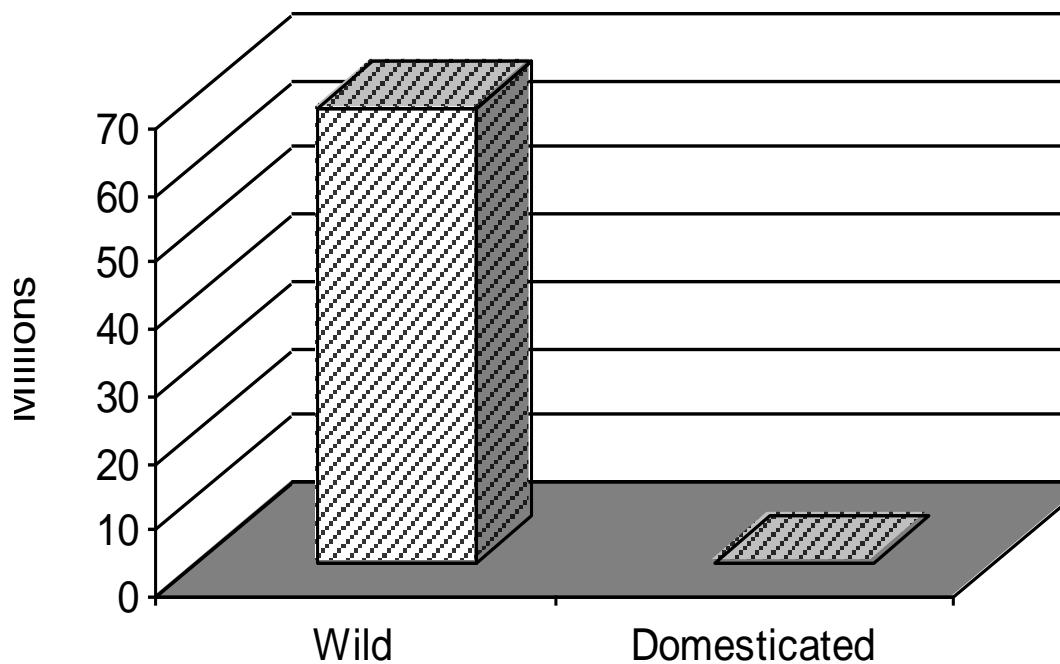
- A. *secundiflora* (Kenya, Uganda, Tanzania, Rwanda, Ethiopia)
- A. *calidophila* & *A. rivaе*- Kenya and Ethiopia
- A. *turkanensis*- Kenya and Uganda
- A. *scabrifolia*- Endemic to Kenya

Quantities of commercial Wild aloes

Bar graph depicting quantities per species of commercial Aloes in the study area



Domesticated Population



NDF Assessment...

- Based on IUCN checklist detailing:
 - 1) Life History
 - Reproductive success
 - Ecological adaptability
 - Efficiency of dispersal
 - Resilience to human disturbance



NDF Assessment...

2. National Status

- Spatial distribution
- Abundance
- Population trends
- Threats



NDF Assessment

3. History of management of aloes

- National Ban on commercial harvesting
- Recent legislation on aloes, a national strategy for commercialisation
- CITES protection of species

Review of Criteria, parameters and indicators used in ndf

Impact of commercialisation based on:

- Biological characteristics of species
- ✓ Distribution
- ✓ Biological characteristics
- ✓ Resilience to disturbance



....Review of Criteria, parameters and indicators used in ndf

Sustainability of harvest:

- Current and projected optimal harvest regimes
- Current and anticipated trade levels

All okay but....



Additional information???

- No statistics on post-harvest responses e.g on reproductive ability and species lifespan
- Inadequate monitoring Framework/plans



Data Sources

- Commercial aloe mapping report; 2005
- Review of significant trade report
- Taxonomy, Conservation and ethnobotany report
- Export Permits from the management Authority
- Status Report; 2004

Challenges in elaboration of NDF

- Inadequate information on auto-ecology, demography and population dynamics



Recommendations

- Sensitisation on optimal harvesting to avoid over-exploitation for market purposes
- Detailed studies on spatial and genetic structure and dynamics of target species

Recommendations

- Branding of species and their products to enable monitoring through the market chain
- Enhance identification and authentication tools for officers in the aloe trade compliance chain



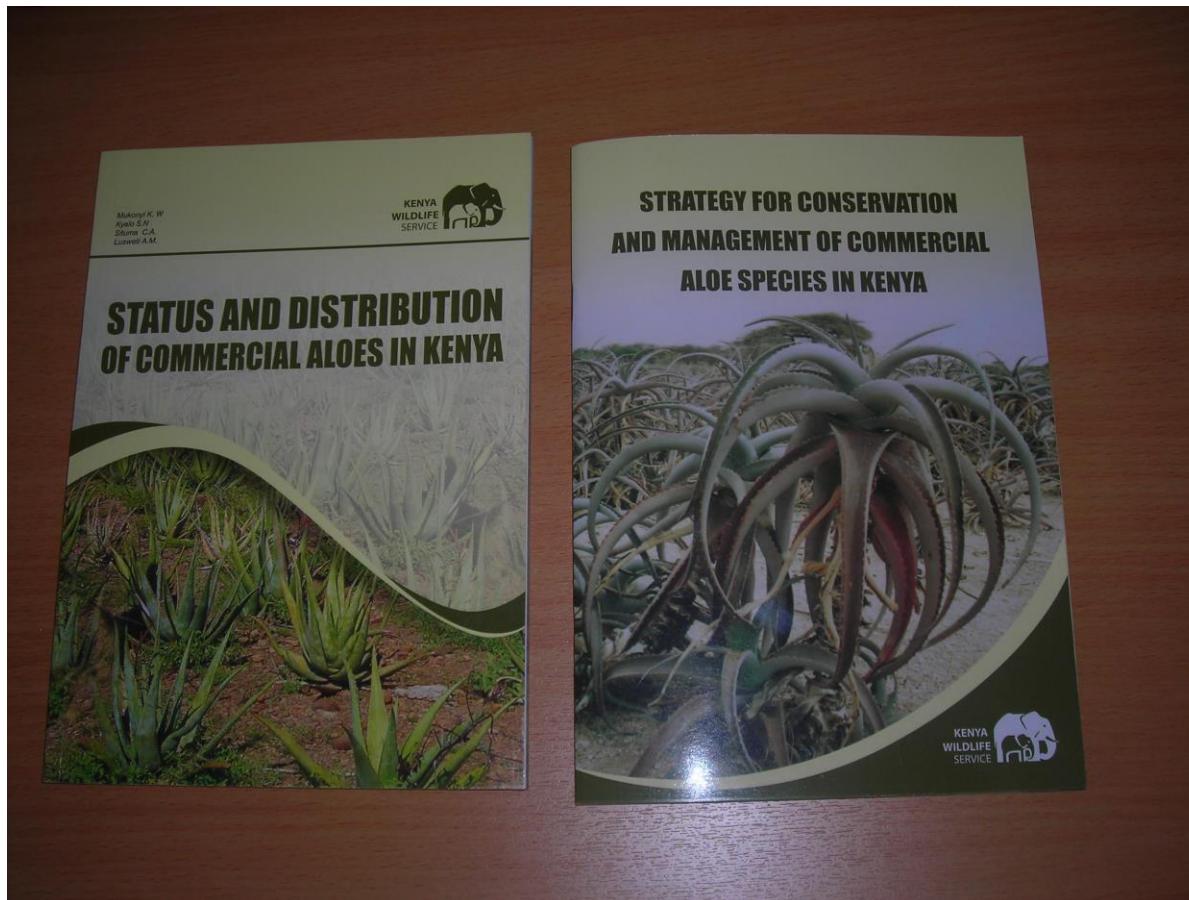
Conclusion(s)

- Kenyan drylands have vast potential of untapped indigenous aloes which could be used to revitalize the economy rural communities.
- There is need to improve aloe product value chain through well established technology creation in support of community livelihood and aloe resource conservation.

Outcomes from aloe census-the Way forward

- Development of National Guidelines for utilization of commercial aloes in Kenya
- Subsidiary legislation on Aloes: The Wildlife (Conservation and Management) (Aloe Species), 2007; Legal Notice 403 of 2007
- National Strategy for sustainable utilisation of aloes (implementation of guidelines)

Publications



Acknowledgments

- National Museums of Kenya
- Kenya Wildlife service
- The aloe survey Team 2005
- Aloe researchers East and Southern Africa

