

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**



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Uses and parts

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



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.



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...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



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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



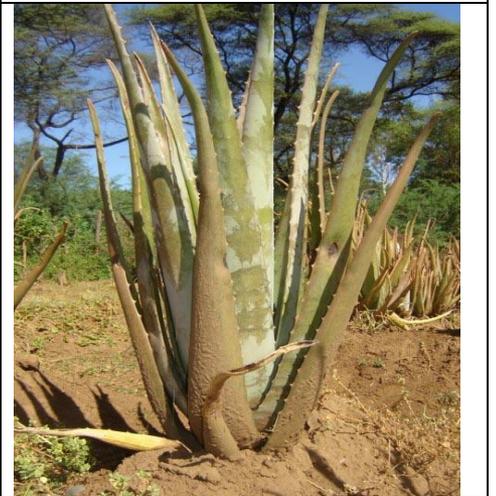
A. secundiflora



A. calidophila



A. vera



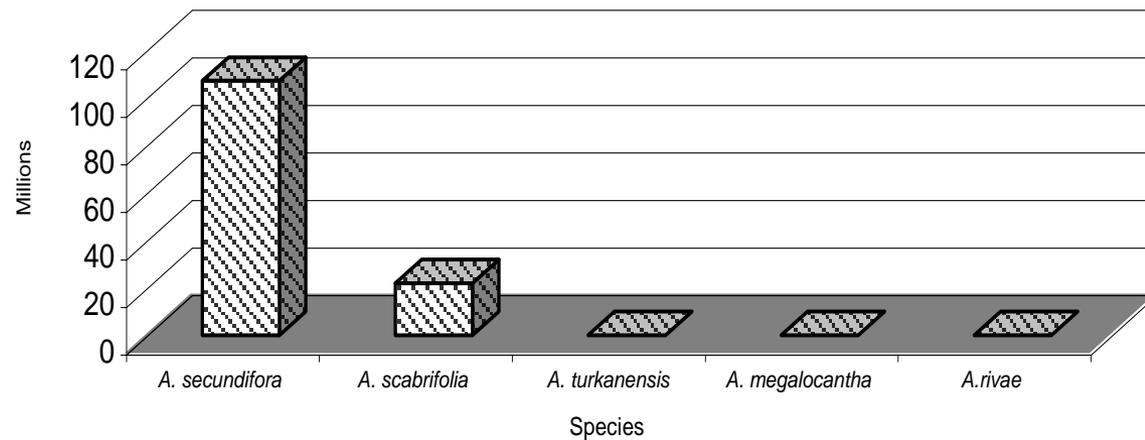
Aloe Quantities and Distribution

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

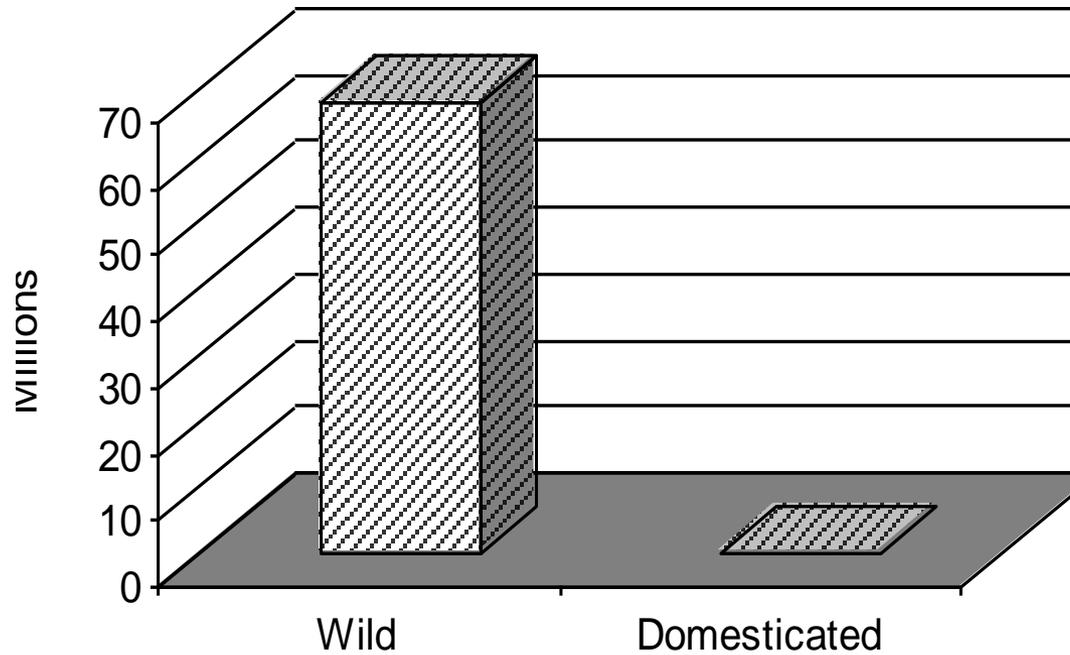


Quantities of commercial Wild aloes

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



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NDF Assessment...

2. National Status

- Spatial distribution
- Abundance
- Population trends
- Threats



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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



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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.



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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)

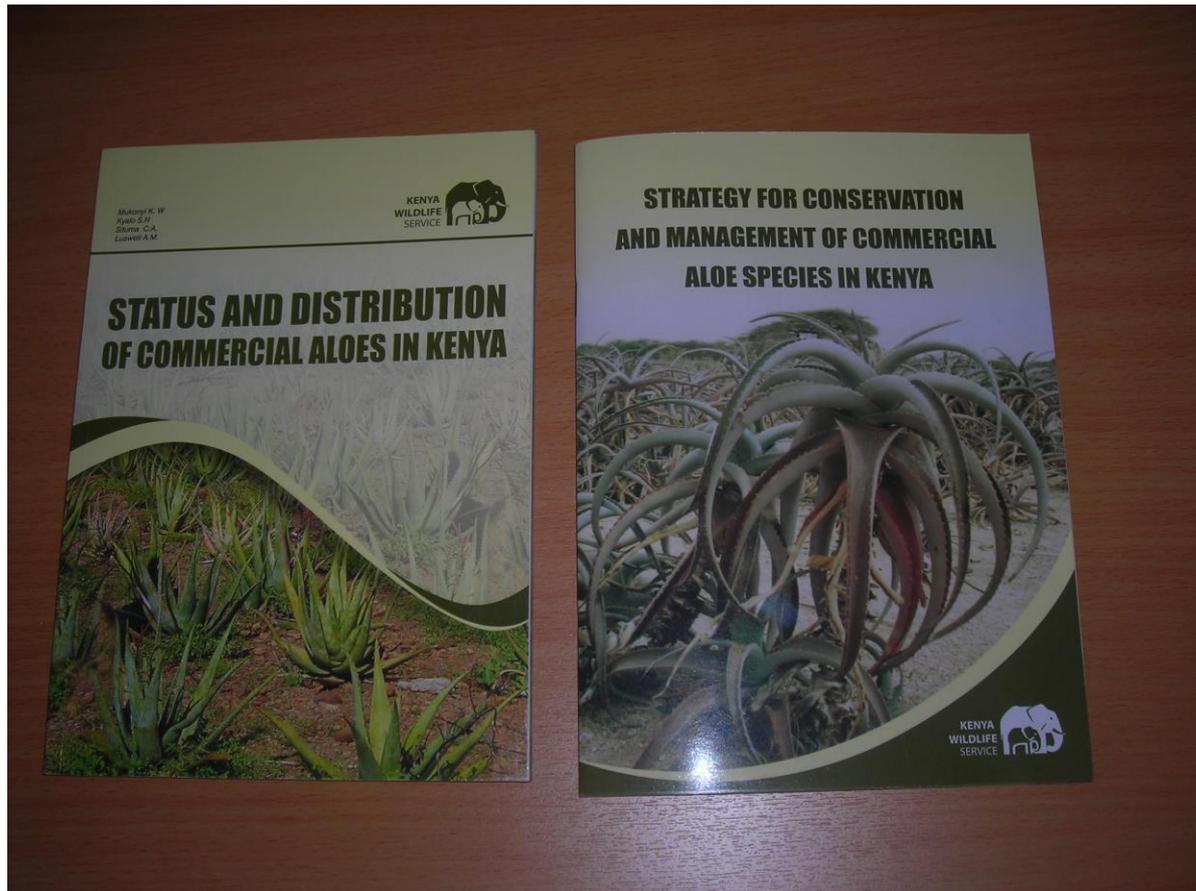


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Publications



Acknowledgments

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