DEVELOPMENT OF A NON-DETRIMENT FINDING PROCESS FOR *PELARGONIUM SIDOIDES* IN LESOTHO

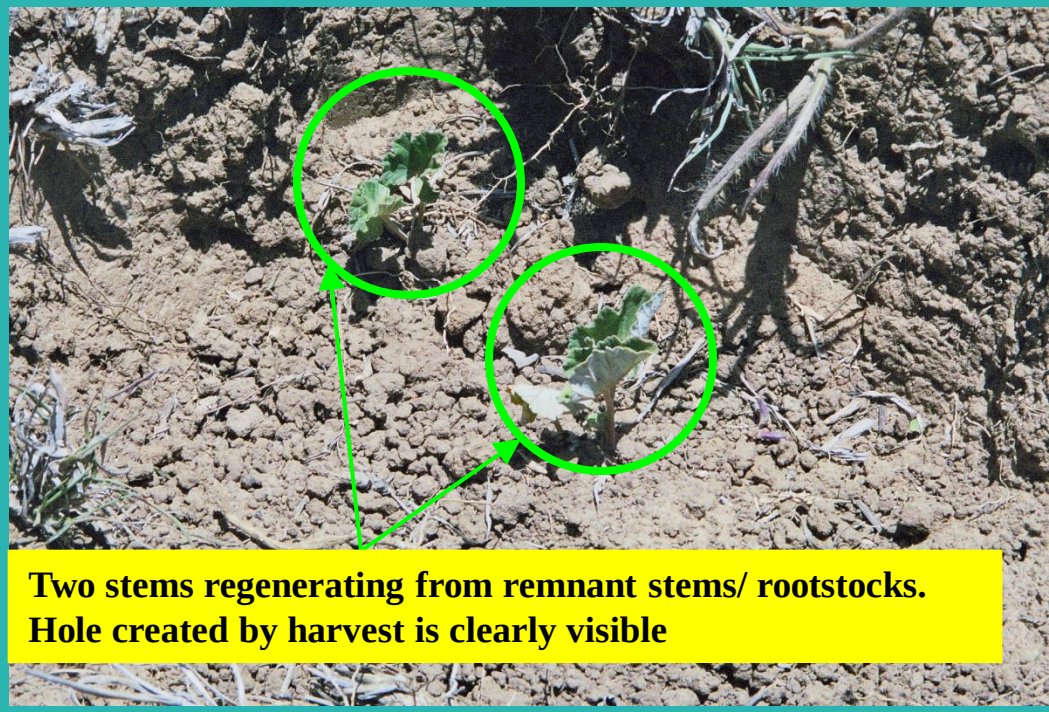
Presented by David Newton

Content of NDF Case Study

- A brief history of the *Pelargonium sidoides* project
- NDF Methodology
- Field work and results of resource assessment
- Further NDF research required
- Status of management plan development
- Recommendations

History…..

- Large scale commercial use in South Africa and Lesotho
- No formal monitoring or management plans for harvest
- Preliminary research for ZA conducted in 2003/ 4, identified ligno-tuber recovery as bottleneck.
- Minimal information on trade in LE and request for CITES training.



Two stems regenerating from remnant stems/ rootstocks. Hole created by harvest is clearly visible

NDF Methodology

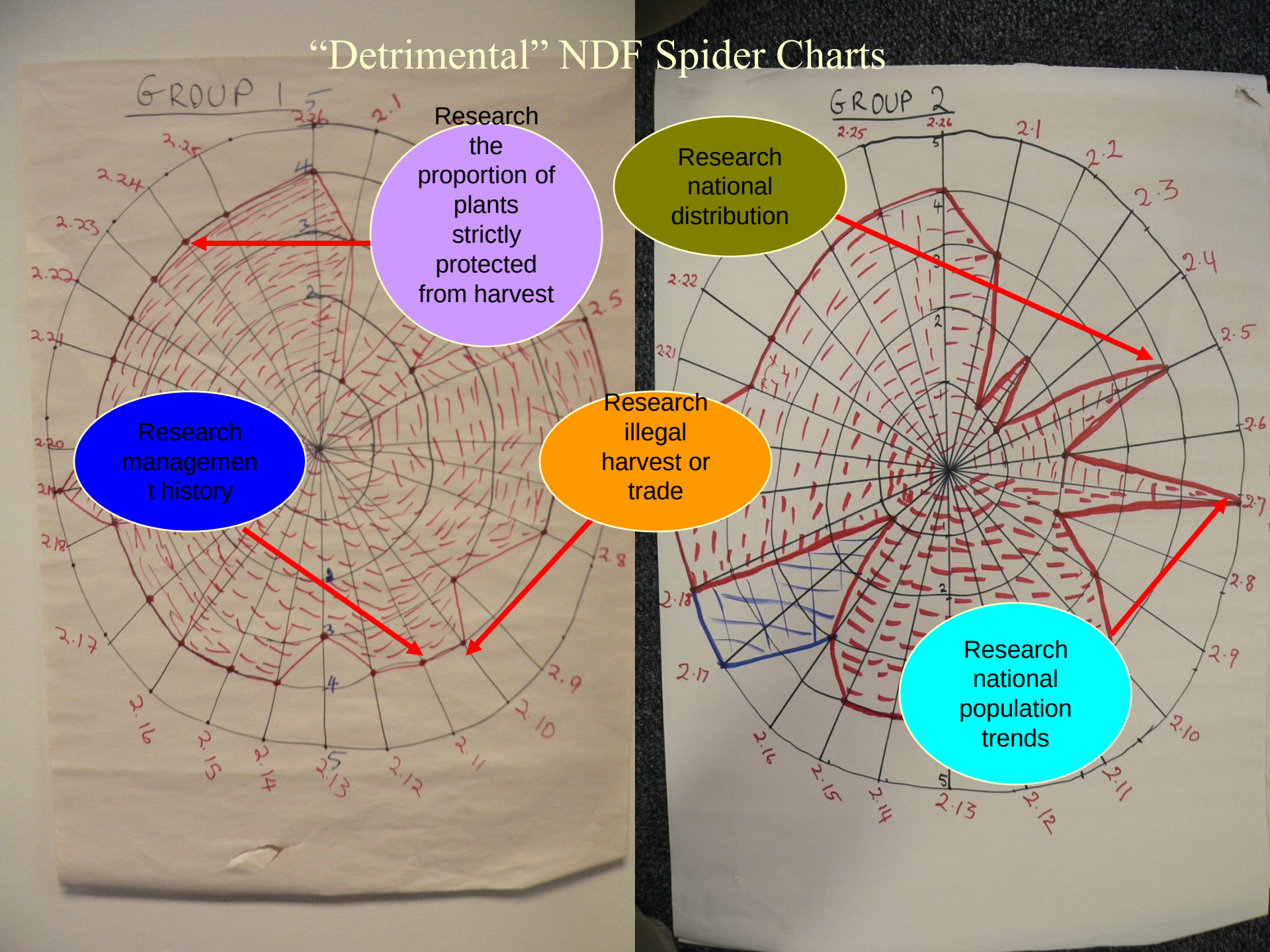
- Phase 1: Situation Analysis workshop
- Phase 2: CITES SA training workshop using IUCN and ISSC MAP criteria to ID bottlenecks and research priorities
- Phase 3: Field work and interviews
- Phase 4: Analysis of field research (including GIS-based analysis)
- Phase 5: Management plan and feedback loops


H. odorotisimum
A. polyphylla
Pelargonium spp.
Marxmuelera?
P. sidoides
H. odorotisimum
A. polyphylla
M. drakenbergensis
P. caffra
H. odorotisimum
A. polyphylla
A. ferox
A. polyphylla
A. aristata
A. polyphylla
A. polyphylla
Phase 1: Situation Analysis workshop
CITES Training requirements
Priority species list
Baboons
Antelope spp.
Springbuck
Maloti minnow
A. polyphylla
P. sidoides
African potatoe
Pelargonium spp.
A. ferox
Lesotho
International boundary
District boundary
BUTHA-BUTHE
LERIBE
BEREA
MASERU
THABA-TSEKA
QACHA'S NEK
QUTHING
Butha-Buthe
Leribe
Maputsoe
Peka
Pitseng
Mapoteng
Teyateyaneng
Tweespruit
Ladybrand
Maseru
Mazenod
Roma
Morija
Matsieng
Thaba-Tseka
Tlokoeng
Mokhotlong
Sehonghong
Himeville
Underberg
Wepener
Sehlabathebe
Sekake
Qacha's Nek
Mohale's Hoek
Mount Moorosi
Zastron
Franklin
Ficksburg
Libono
Clocolan

Phase 2: CITES SA Training and NDF Research prioritization workshop

- CITES SA Training course included the following actions:
  - The IUCN NDF Guidelines were used to train SA staff by:
    - Through debate and discussion clarifying state of knowledge,
    - Determining **“qualified” (precautionary)** “detriment” or “non-detriment”,
    - Identifying knowledge gaps, and
    - Identifying research priorities at a CITES specific level.

“Detrimental” NDF Spider Charts



CITES SA Training and NDF Research prioritization workshop in Lesotho

- From IUCN NDF it was possible to say trade was detrimental, BUT, could not say much about physical or quantitative nature of impacts or how to manage them.
- Therefore, to include all resource management aspects, the ISSC-MAP Situation Analysis Questionnaire was used to identify additional knowledge gaps and priorities, for instance,
  - Q: Is the collection of *P. sidoides* following specific volume and quality instructions from the buyer?
  - A: "No. We don't know the quality requirements but we can safely say there are no volume restrictions."

Phase 3: The Field-Based NDF

- Using ISSC MAP questionnaire the following priority data gaps were filled:
  - *P. sidoides* distribution;
  - Plant density and population;
  - Tuber age classes harvested;
  - Total harvest volumes;
  - Post-harvest plant recovery rates;
  - Harvest and post-harvest methods;
  - Ligno-tuber or resource recovery rates;
  - Illegal/legal trade volumes, and
  - Trader views and perspectives

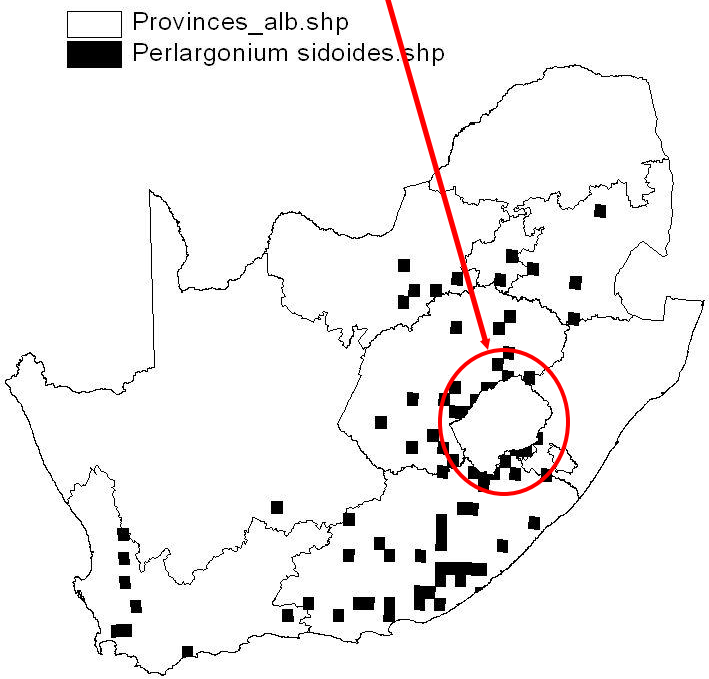
Resource assessment methodology

Data Sheet

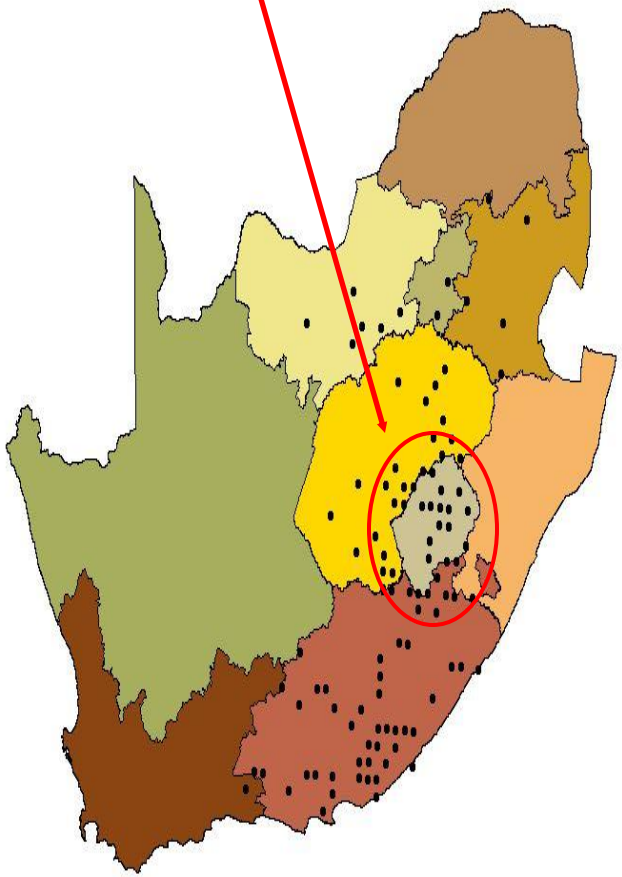
unique ID	Sample code	Site number	Site name	Plant number	GPS reading	Altitude	Date of last known harvest	Fresh weight(g)	Dry weight (g)	Signs of new tuber (Y/N, describe)	Photograph ID	Sample Bag ID	Maximum Diameter	Minimum Diameter	Length
A016	Checked	1	Thoteng ha tlhaku (North facing slopes)	T1	S 30° 09 13.8 E 28 14 09.8	2107	Jun-07	29.41	9.39	N, but shows	1060271	T1	2.04	0.9	7;3
A013	Checked	1	Thoteng ha tlhaku (North fa	T2	S 30° 09 14.4 E 28 14 10.7	2112	Jun-07	58.59	15.84	Y, 1 but only	1060268	T2	1.95	1.39	5.3;3.1
A014	Checked	1	Thoteng ha tlhaku (North fa	T3	S 30° 09 14.0 E 28 14 11.4	2113	Jun-07	90.37	25.89	not Harvested	1060267	T3	2.07	0.41	12.8;14
A015	Checked	1	Thoteng ha tlhaku (North fa	T4	S 30° 09 15.2 E 28 14 10.9	2111	Jun-07	17.04	5.27	not Harvested	1060266	T4	1.08	0.3	5.2;6.6
A012	Checked	1	Thoteng ha tlhaku (North fa	T5	S 30° 09 15.2 E 28 14 11.0	2108	Jun-07	247.28	86.46	Y, 1 white tu	1060269	T5	3.2X5.6	0.81	2.4;10.

Used distribution, dry/wet weight mainly; new tuber data inconclusive; diameter and length data yet to be used.

Distribution 2007

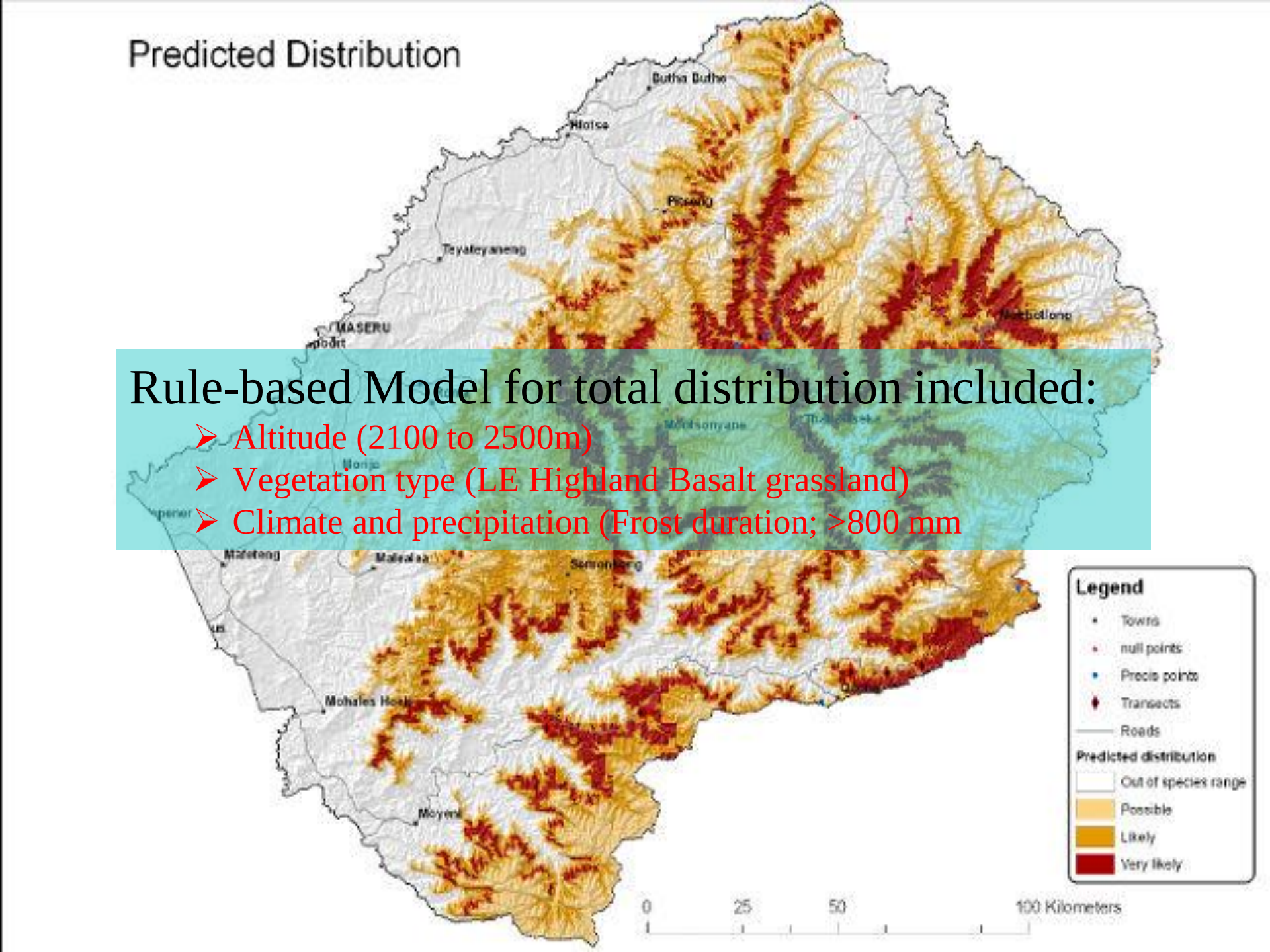


Distribution 2008



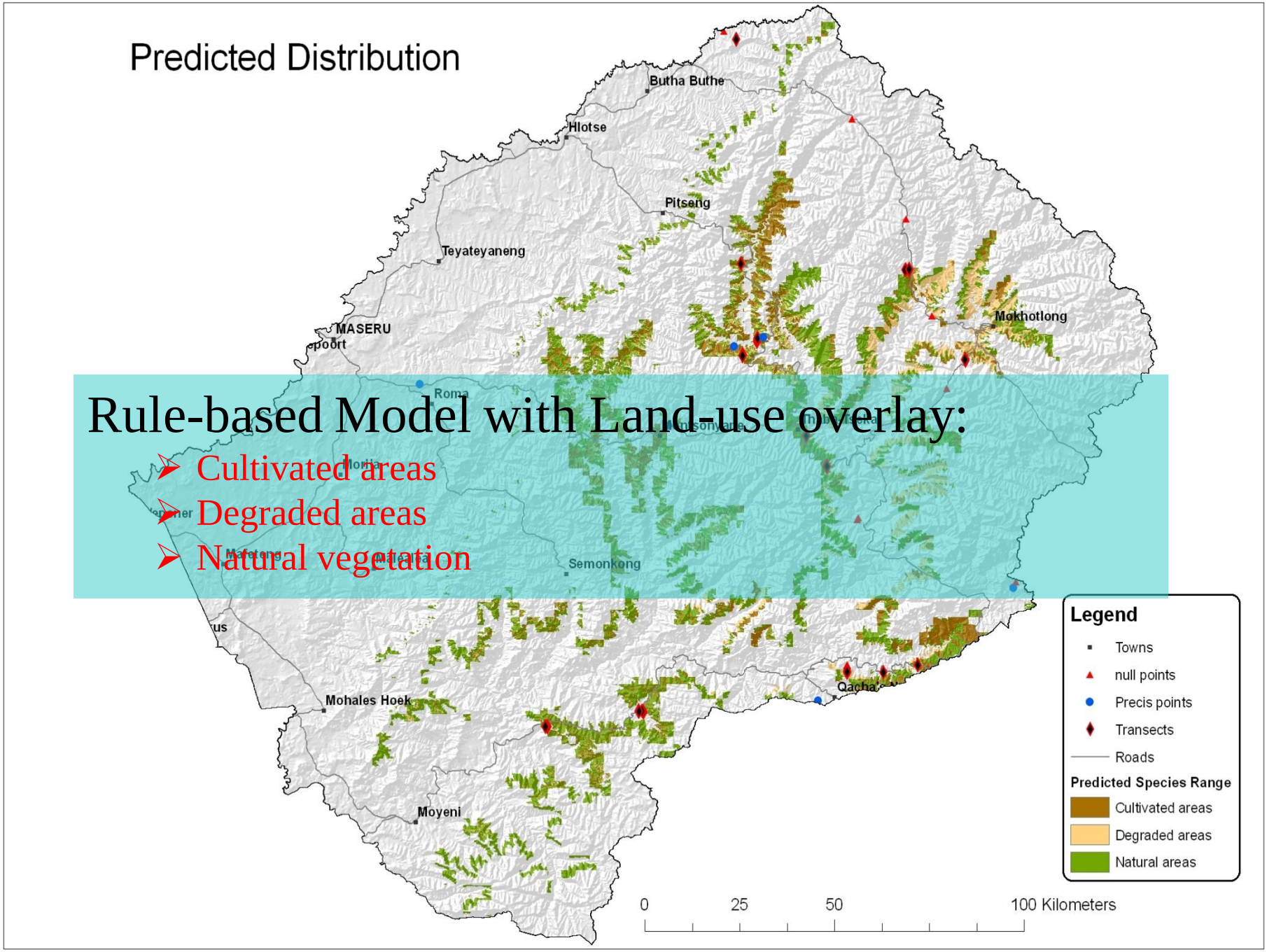
Phase 4: The Analysis of Field data

- Joint SANBI/TRAFFIC/ LE SA GIS modelling workshop. Objectives were to:
  - Model the total distribution of *P. sidoides* in Lesotho;
  - Use predicted distribution, field density data and a “patchiness” factor to estimate Lesotho’s total population.
  - To assess whether total harvest represented a detrimental impact on *P. sidoides*.

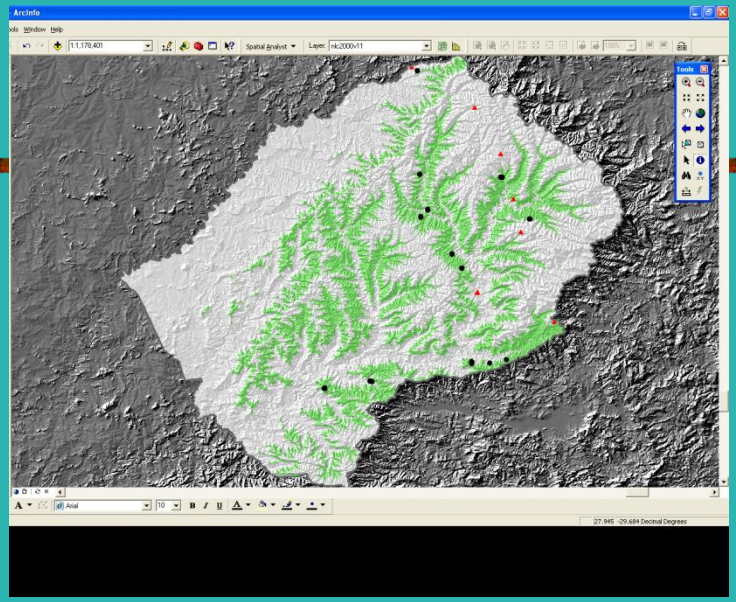


Rule-based Model for total distribution included:

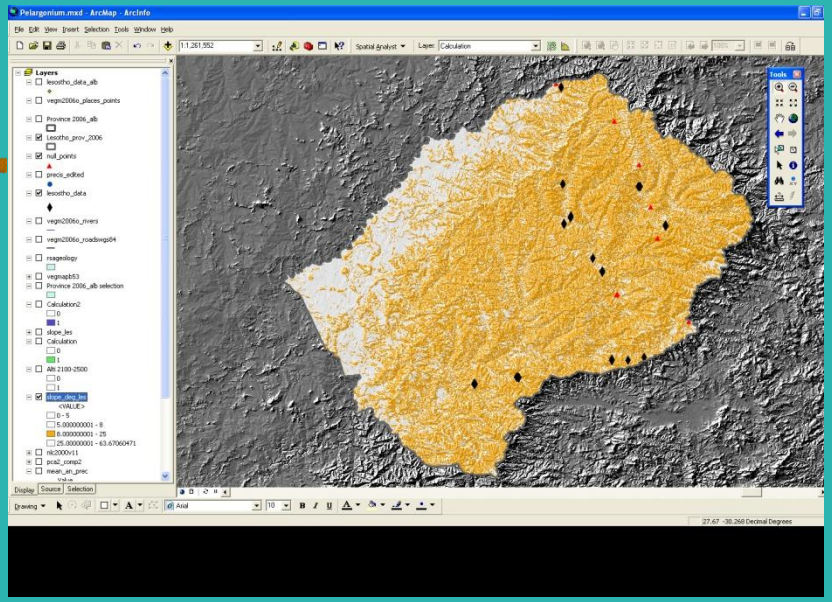
- Altitude (2100 to 2500m)
- Vegetation type (LE Highland Basalt grassland)
- Climate and precipitation (Frost duration; >800 mm


Predicted Distribution
Butha Buthe
Hlotse
Pitseng
Teyateyaneng
MASERU
Mokhotlong
Roma
Semonkong
Mohales Hoek
Qacha's
Moyeni
Rule-based Model with Land-use overlay:
Cultivated areas
Degraded areas
Natural vegetation
Legend
Towns
null points
Precis points
Transects
Roads
Predicted Species Range
Cultivated areas
Degraded areas
Natural areas
0
25
50
100 Kilometers

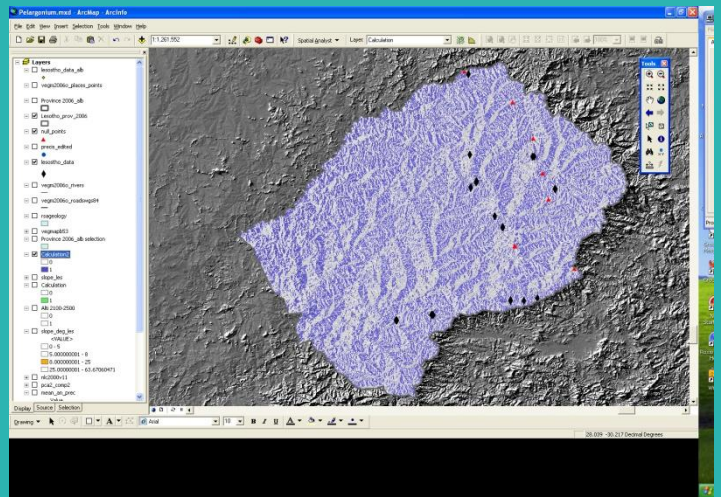
EXPERT RULE-BASED - Altitude 2100-2500
74/100 Transects included



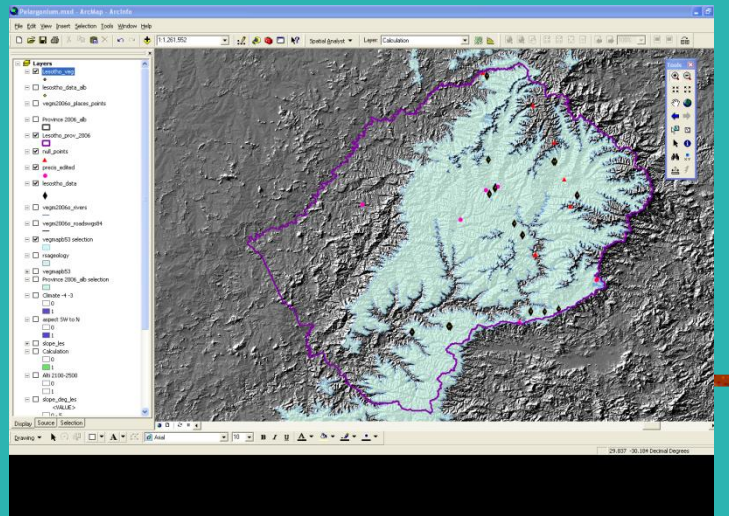
EXPERT RULE-BASED - Slope between 8 and 25 degrees
73/100 Transects included



EXPERT RULE-BASED - Aspect (SW to N) – between 225 and 360
43/100 Transects included



EXPERT RULE-BASED - Vegetation type: Lesotho Highland Basalt Grassland
All Transects included



Status of NDF and management plan for *P. sidoides*.

- Have completed draft NDF for LE in 2008
  - Total predicted area is 2100 square km
  - Total population approximately 5 million plants based on estimated 0.5% patchiness factor
  - Total harvest every seven years is approximately 50% of total population.
  - Research priorities into tuber recovery & harvest methods for M.Sc student
- Draft assessment for ZA due in 2009
  - To be completed by SANBI/ TRAFFIC during ISSC MAP field work in 2009
- ISSC MAP management plan complete in 2009

Recommendations

- Although trade deemed detrimental the following shortfalls apply:
  - Determine more accurate patchiness factor – currently estimated from field observations rather than field data - due to selective sampling.
  - Quota difficult to determine without tuber recovery rate estimate – further work and guidance on quota setting required
  - More transects required - Sample size small (100 transects)


Thank You