FACULTY OF LIFE SCIENCES
UNIVERSITY OF COPENHAGEN

Towards valid non-detrimental findings for *Nardostachys grandiflora*

Helle Overgaard Larsen and Carsten Smith Olsen

NDF Workshop case studies, WG 2 – Perennials
Mexico, November 2008

Towards valid NDF for *N. grandiflora*

Structure

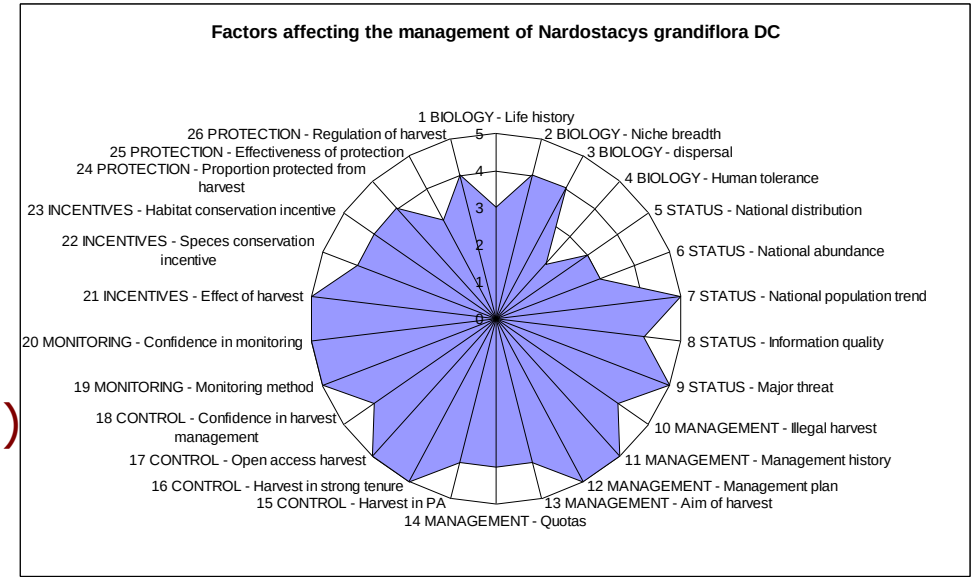
1. Species overview
   - What do we know?

2. An approach to generate valid NDF data
   - Current stock
   - Sustainable harvest level
   - Sustainability assessment

Towards valid NDF for *N. grandiflora*

Species overview – what do we know?

- ❑ Alpine herb, rhizome traded from Nepal to India in large amounts
- ❑ Slow recovery after harvest, that often includes juvenile plants
- ❑ No functioning monitoring of population or harvest (no NDF statement when traded to India)
- ❑ Harvest contributes to the livelihoods of rural collectors
- ❑ Population assumed threatened



Towards valid NDF for *N. grandiflora*

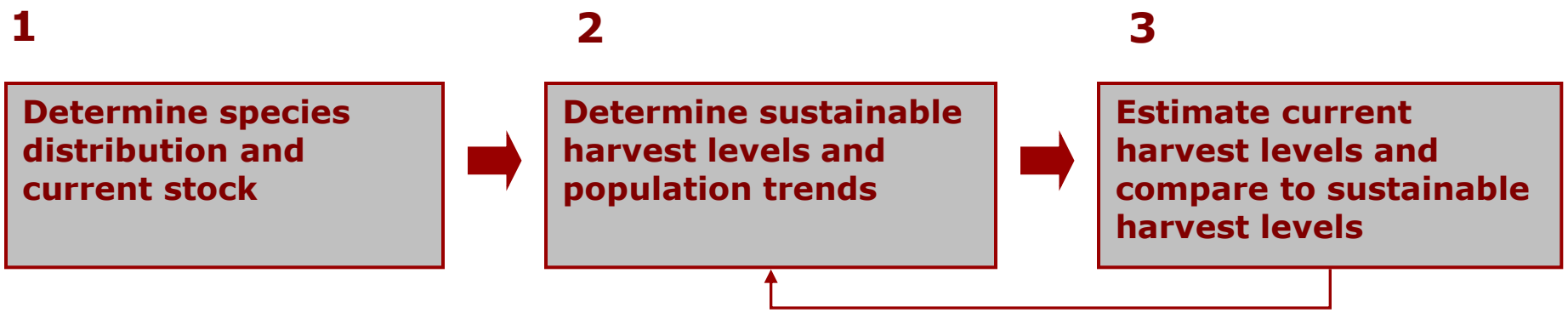
Generating NDF data – moving into unknown territory …

In any moment of decision, the best thing you can do is the right thing, the next best thing is the wrong thing, and the worst thing you can do is nothing.

Theodore Roosevelt

Towards valid NDF for *N. grandiflora*

Three-step approach to generate valid NDF data at meso and macro levels



Towards valid NDF for *N. grandiflora*

Step 1 – Species distribution and current stock

Data need	Method
1.1 Geographical occurrence	1.1.1 Expert workshop
1.2 Distributional parameters	1.2.1 Expert workshop
1.3 Triangulation	1.3.1 Review of vouchers
1.4 Distribution map and area estimates	1.4.1 Use above to create map
	1.4.2 Use map to calculate area estimates
1.5 Current stock estimate	1.5.1 Select areas for pilot study
	1.5.2 Conduct pilot study
	1.5.3 Conduct meso/macro level survey

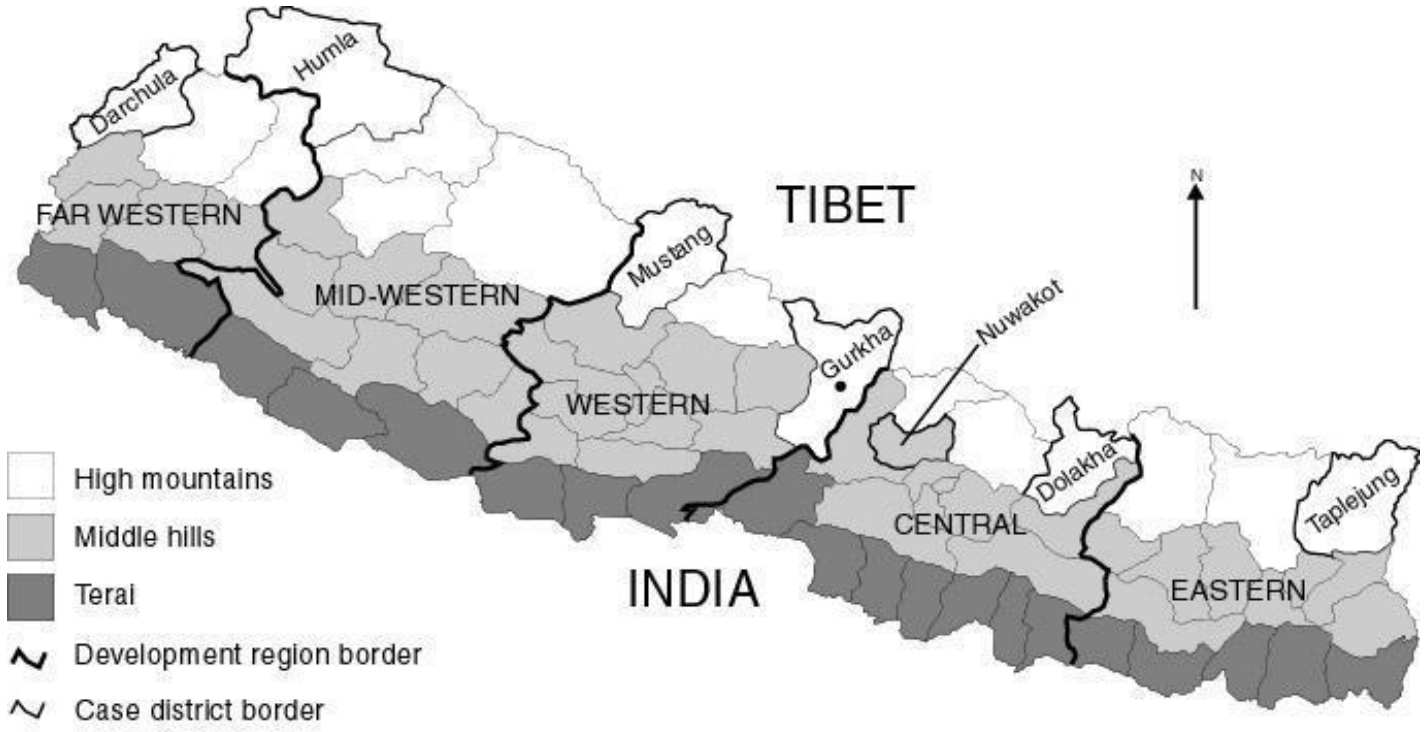
Towards valid NDF for *N. grandiflora*

Step 1.5 Current stock estimate

Method	Activities
1.5.1 Select areas for pilot study	1. Selection criteria: min-max harvesting pressure ⇨ Mustang and Nuwakot Districts
1.5.2 Conduct pilot study	1. Calibrate district level distribution using aerial photos and harvester focus group interviews 2. Revise distribution area map; distinguish distribution according to main vegetation types 3. Randomly select areas across vegetation types for field investigation (no. dependent on resources available) 4. Random placement of transect walks in randomly selected areas 5. Field data collection 6. Calculation of current stock
1.5.3 Conduct meso/macro level survey	1. Review of pilot data resource requirements 2. Review of pilot data findings 3. Design of survey; implementation; calculations

Towards valid NDF for *N. grandiflora*

Altitudinal zones of Nepal, randomly selected high-altitude districts for trade study



Towards valid NDF for *N. grandiflora*

Step 1.5 Current stock estimate

Method	Activities
1.5.1 Select areas for pilot study	1. Selection criteria: min-max harvesting pressure ⇨ Mustang and Nuwakot Districts
1.5.2 Conduct pilot study	1. Calibrate district level distribution using aerial photos and harvester focus group interviews 2. Revise distribution area map; distinguish distribution according to main vegetation types 3. Randomly select areas across vegetation types for field investigation (no. dependent on resources available) 4. Random placement of transect walks in randomly selected areas 5. Field data collection 6. Calculation of current stock
1.5.3 Conduct meso/macro level survey	1. Review of pilot data resource requirements 2. Review of pilot data findings 3. Design of survey; implementation; calculations

Towards valid NDF for *N. grandiflora*

Registration in 10 m wide transects

Transect lines systematically located across slopes

Distance between transects depends on desired accuracy and time (funds) available

Where present: area of occurrence, number of plants/area, wet & dry weight rhizome/plant for different vegetation types

Towards valid NDF for *N. grandiflora*

Step 2 – Sustainable harvest levels and population trends

Data need	Method
2.1 Sustainable harvest levels	2.1.1 Data for initial NDF assessment can be extracted from available literature (Larsen 2005; Ghimire et al. 2008) 2.1.2 In plots from 2.2.2 conduct long-term harvest treatment experiments to document regeneration rates after harvest
2.2 Population trends	2.2.1 Use data from step 1 to identify main habitats 2.2.2 Plan system of long term plots for demographic studies of population viability across main habitats 2.2.3 Fund and implement system 2.2.4 Use findings to revise sustainable harvest levels

Towards valid NDF for *N. grandiflora*

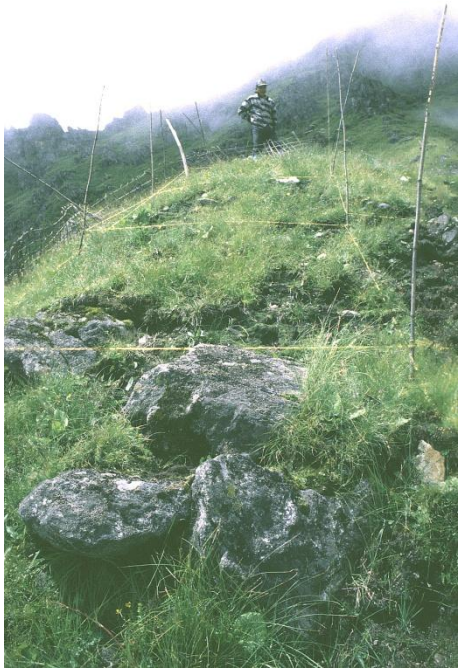
Step 3 – Current harvest levels and sustainability assessment

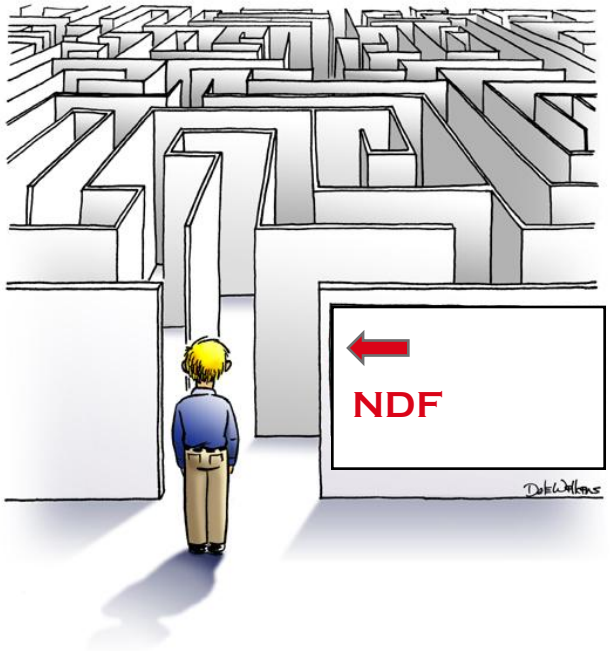
Data need	Method
3.1 Current harvest levels	3.1.1 Local marketing chain analysis as part of pilot study (using existing data collection instruments) 3.1.2 National level marketing chain analysis (using existing data collection instruments)
3.2 Sustainable harvesting guidelines	3.2.1 Document and synthesise all of above 3.2.2 Compare trade data and sustainable harvest estimates 3.2.3 Prepare sustainable harvesting guidelines

Towards valid NDF for *N. grandiflora*

If I have ever made any valuable discoveries, it has been owing more to patient attention, than to any other talent

Isaac Newton





Towards valid NDF for *N. grandiflora*

Conclusions

- **Collecting data to generate valid NDF is difficult but possible**
- **Species-level funding requirements will vary but remain unclear**
- **Multidisciplinary teams are required, e.g. to do inventories, population ecology studies and marketing chain analysis**