

**Reader for the
3rd BIOTA para-ecologist training course
at Gellap Ost Research Station /
Keetmanshoop**

(17th February till 2nd March 2006)



Conducted by
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Team contract

Do not interrupt each other
Respect each other
Respect each other's privacy
Respect each other's opinions
Don't sleep in classes
No mini meetings in classes
Speak through the facilitator
Punctuality and flexibility
Stick to feed back rules
Respect each other's language and writing
Do good team work
Respect need for further clarification
No alcohol during the week

Feed back rules

Remember: feed back is a gift

Giving feed back

- Don't generalise
- Be specific
- Use "I..." Messages ("I think that ...", "I feel that ...")
- Talk about what you know for sure
- Don't suggest solutions
- Be calm

Receiving feed back

- Breath
- Don't reply immediately
- Listen to what you hear
- Decide what you want to take and what belongs to the speaker
- Ask questions for clarification (only!!)

Challenges of Para-Ecologists: Communication with supervisors (SV) and other researchers

Why is it important to communicate regularly with your supervisor?

- to avoid misunderstandings
- to ask for clarification
- to get clear information
- to update the SV about process of work (and problems)
- to discuss working schedule
- to keep up friendly relationship

Problems encountered with respect to communication with SV

- finances -> costs (affecting the own budget)
 - ⇒ write sms, emails, faxes in order to keep own costs low
 - ⇒ write records of your phone calls (who, when, why, how long, cell / land line), when cell justify why not landline in order to get reimbursed for the costs
- telephones are broken / gone / disconnected
 - ⇒ contact SV (send sms from somebody else's phone) if telephone is broken / gone / disconnected for more than a few days

- feel uncomfortable when communicating (personal reasons)
 - ⇒ stick to emails (on a regular base)
- takes too much time (talkative person)
 - ⇒ stick to emails (on a regular base)
- no clear responsibility
 - ⇒ make sure that responsibilities are clarified (follow it up: ask next time again whether the question has been solved)
- general economic reasons (with respect to BIOTA budget)
 - ⇒ write sms, emails, faxes in order to keep own costs low

General comment:

- always take notes of business phone calls: write down date and time, name of person you talked to, topic / issue, agreements, tasks that you discussed at the phone

How to avoid and deal with misunderstandings?

- ➔ Try to approach the other person and address the misunderstanding
- ➔ Write down decisions / instructions / tasks immediately (if possible while they are discussed) and show the other person for approval to be sure there is no misunderstanding.
- ➔ Follow up misunderstandings and strive to solve them
- ➔ Apologize if you misunderstood something or caused misunderstanding?

How to get reimbursed?

- ➔ agree with your supervisor on expenses before you spend the money
- ➔ get receipts (prepare a receipt yourself and let it be signed in case you can't expect people to have a receipt book). Also note company and name of the person.
- ➔ Keep receipts carefully
- ➔ Make copies of receipts. Keep copies for yourself
- ➔ Send receipts to Tessa or Bertchen
- ➔ Contact supervisors and get OK for expenses, SV shall contact Bertchen or Tessa to confirm.
- ➔ Get reimbursed.

Expenses you will get reimbursed:

- Costs for telephone, fax, email. If you have to use cell for work purpose (while you are in the field or on the road) write down time, duration, purpose and person you called and why you had to do it from cell.
- Photocopies (of data sheets, monthly reports, receipts, time sheets, forms)
- Repairs, spares for bicycle and other equipment
- Transport to Observatory (where necessary and agreed upon)
- Stationeries and other equipment for your work

Work to be done by para-ecologists on they own

- phenological monitoring: Should be done monthly for 30 – 40 plant species
- livestock census: should be done monthly
- dew collection: should be done every second day (roughly)

- tree census: should be done once only (and only in a few years again)
- Insect traps (S10)
- Grass clipping (Snake / Ben)
- Interviews on biological soil crusts: should be done once with different farms.
- Interviews on special plants: should be done once for 10 plants per farmer
- Interviews on wild animals: should be done once for 10 plants per farmer.

Challenges and opportunities of scientific conferences

Presentations at conference where particularly interesting if

- I am familiar with the subject (farming methods, rainfall patterns, “my locality”, a project I worked for, animals or plants I am particularly interested in)
- the subject is well presented and visualised (use of pictures and graphs)
- the presenter speaks in a way that I can follow easily (slowly, clearly, without a strong accent)
- no too many technical or scientific terms are used.

What do I do if I can't follow / don't understand?

- Ask the speaker at the beginning of the presentations to speak slower / clearer / harder (if it is a small group, such as in a workshop).
- Ask the person afterwards (if you are generally interested in the subject but could not follow). People are always happy if someone shows interest in their talks and like to explain and give more details if asked.

Please note: Don't worry if you can't follow all talks of a conference. This is normal and everybody experience it like that. Just try to relax and get ready for the next talk which might interest you more.

How to prepare and deliver effective presentations

1. Learn about your audience

In order to prepare an interesting presentation, you must know your audience:

- Find out what background they have, do they already know anything about the topic you will talk about?
- Do they all have a similar background?
- Which elements of your presentation will be particularly interesting to them?
- What connects your work with theirs?

2. Create a good structure

Think about a clear message you want to deliver and the points that support your message

- Explain why the audience should listen to you
- List the types of information you will be presenting to support your message
- Introduce your points with a clear link to your message

- Summarise and give an outlook regarding future activities

3. Make visual

Using visual aids (e.g. flipchart, slides) can help your audience to understand and remember your message:

- Try to visualise your main structural points and anything the audience needs to remember.
- Decide whether you need to use charts or graphs to show how numbers relate, a picture of a concept or words to precisely identify the actions or terminology the audience must understand.
- Use images for statements you want the audience to remember.
- When using words, keep your visual statements short and simple, 3 to 5 statements of identical grammatical structure are ideal.
- The flipchart or slide you are using should be easy to read and not too busy with too much information. When you introduce a visual aid you need to give the audience approx. 20 seconds to look at it and take in the information.

Never rely on your visual aids to guide you through your presentation, be prepared to deliver a clear message to your listeners without any assistance. The rule with any equipment is that you can never rely on it; overhead projector's bulbs have a tendency to fuse, flipcharts collapse, etc. Make sure you test your equipment before your presentation, but still be prepared to deliver your talk without it.

4. Maintain focus

Make eye contact

During your presentation you need to look at individuals in the audience.

- Make eye contact with one person at a time and vary between people sitting in the middle, front or in the back, on the left or the right side of the room.
- When reading a note or looking at your visual aid, stop talking, then look up, make eye contact and carry on.

Take your time

There is no rush. If you are nervous, taking your time will make you appear calmer.

- Take a moment to look at the audience before you start talking and concentrate on breathing so you don't get out of breath when you have started your presentation.
- Short breaks during your talk give the audience time to take in what you said or look at a visual and give you the time to collect your thoughts and concentrate on your next statement.

Focus on the audience

The main goal of your presentation is to make the audience understand you:

- Make sure they follow what you are saying. Can they hear and understand you?
- If they look confused, ask them whether they have any questions or comments!

Master difficult situations

Sometimes you might have to deal with trouble-makers:

- Treat negative comments as valuable and relevant, but maintain your eye contact away from this individual afterwards.
- If s/he persists, ask him/her to hold her comments until you have completed the presentation. Discuss the concerns one-on-one after your talk.

Enjoy yourself!

Try to see the presentation situation as a positive opportunity to tell the audience about your work and to receive interesting feedback from them.

- You don't have to be overly formal to come across as professional. It is always positive to try and be oneself, the audience will like you for being sincere.
- Smile every now and again when you look at individuals who are showing a positive response.

Conference on ecological research, land-use and policy

Gellap Ost Agricultural Research Station
23rd February 2006



Program of the conference:

- 8:00 Registration
- 8:15 Opening and welcome – U. Schmiedel
- 8:30 UNESCO Kid on Combat Desertification – J. Kham
- 8:50 Mahango milling and processing – R. S. Mukuya

- 9:10 Nieuwoudtville Eco Club – D. Kotze
- 9:30 Interviews with farmers – J. Scott
- 9:50 Rehabilitation on quartz fields – G. Kriel
- 10:10 TEA / COFFEE
- 10:30 Spider survey – R. A. Christiaan
- 10:50 Water committees – a challenge – R. Isaacks
- 11:10 Para-Ecologists in Paulshoek – M. Lot
- 11:30 Award for best presentation
- 11:45 Closure

What is biodiversity (compare also reader from 2004)

Bio = life, biodiversity is diversity in life

- Richness of plant and animal species
- Richness in shape
- Variety in species (plant in animals)
- Richness in interactions and processes

What drives biodiversity

- climate
- different soil types
- landscape: variety in landscape
- Land-use (mining, agriculture, grazing / browsing)
- Animals (like termites), any kind of interaction among organisms (plants and animals)
- Disturbance
- Water (by erosion and also lack or abundance of water)

Where would you expect highest biodiversity?

- Amazon rainforest
- Mile 46 (Kavango region with high rainfall)
- On mountains (because of additional water supply, sun, shade, habitat diversity)
- River beds (seeds transported by water, good water supply)

What is a species?

All individuals of a species can interbreed with each other and reproduce off-springs that are viable and that can reproduce themselves successfully. Individuals of a species look identical (except for some differences between male and female). A species has a scientific name comprising of two parts (e.g., *Psilocaulon dinteri*, *Acacia erioloba*).

Closely related species are grouped into a genus (plural: genera). Several closely related genera are grouped into a plant family. For instance

Zygophyllaceae (Zygophyllum family) comprise the following genera with and species (example):

- Zygophyllum cordifolium
- Zygophyllum retrofractum
- Zygophyllum simplex etc.
- Augea capensis

Tribulus zeyheri
Tribulus ...

Important plant families and some of the genera (examples):

Fabaceae (pea family): Acacia, Lebeckia, Vicia, Lotononis, Lessertia, beans, peas, lentils etc.

Poaceae (grass family): Stipagrostis, Fingerhuthia, Schmidtia, Eriogrostis, Ehrharta, Poa, etc.

Asteraceae (daisy family): Arctotis, Tripteris, Osteospermum, Eriocephalus, Gazania, Senecio, Pentzia, etc.

Aizoaceae (ice plants) : Mesembryanthema, Galenia, Tetragonia, Psilocalon

How to identify a plant? (also compare report from 2004)

In particular look for the flowers and fruits (shape, colour, size!)

But also check shape, colour, hairiness position (opposite or alternate = “step by step?”) of the leaves, whole structure of the plant, life form (annual, bulb = geophyte = bol plant, grass, perennial herb, shrub, climber, tree).

How to plan my own project

- 1) Decide on type and topic / subject of the project (What exactly do I want to do?)
- 2) Decide on the objectives (What should be the outcome? What do I want to achieve with this project?)
- 3) Research for activities needed (What do I have to learn BEFORE I can do my project?)
- 4) Decide on the process / methods (How exactly do I want to do it?) Plan every single step in detail that you know every moment what exactly you have to do and how:
 - ➔ What exactly do I want to do
 - ➔ Ho do I want to do it?
 - ➔ How long would it take?
 - ➔ What is the right sequence?
- 5) Decide on place, time, duration (Where, when, for how long or how often?)
- 6) Decide on preparations that need to be done (What recourses do I have or need?):
 - ➔ arrangements for room
 - ➔ partners, assistance, support
 - ➔ logistics (transport?)
 - ➔ equipment needed
 - ➔ permissions needed (for instance collecting permits)
 - ➔ research for activities needed (what do I have to learn BEFORE I can do my project?)
 - ➔ budget (what expenses would be involved and who will pay for it?)

How to plan an activity for children (by Donna Kotze)

Step 1: Decide on age of group

Step 2: Research for activity

Step 3: Decide on place, date and time and how many children

Step 4: Contact the school and inform about the activity

Step 5: Prepare the activity, make posters and register list

Step 6: Remind the children of activity

Step 7: Do the activity

Step 8: Evaluation of the activity

Projects planned by para-ecologists (so far):

Roberth: Project with school kids on deforestation

Richard: Organising a meeting to solve misunderstandings among farmers

Reginald: Scorpion awareness and survey project

Marianna: Navorsing op skilpaaie

Jerome: to be announced

Justine: Survey on traditional medicines and medicinal use

Gerda: Winter school with kids

Some arithmetic problems

How to calculate the area of a face (e.g., camp, room, table, releve)

Multiply length by width of the area (e.g., the releve is 20 m width and 50 m long = 1000 m²).

How to calculate the volume of an object (plant, box)

Multiply length by width by height of the object (e.g., the plant is 50 cm in width and 1 m in length and 1 m high = 0.5 m x 1 m x 1 m = 0.5 m³).

Please complete the following equations (for results check own task sheet)

$2 \times 10 =$ _____

$5 \times 10 =$ _____

$10 \times 1 =$ _____

$2 \times 10 =$ _____

$5 \times 3 =$ _____

$2 \times 7 =$ _____

$1 \times 1 =$ _____

$1 \times 2 =$ _____

$2 \times 2 =$ _____

$10 \text{ m} \times 10 \text{ m} =$ _____

$20 \times 10 \text{ m} =$ _____

$20 \times 50 \text{ m} =$ _____

$2 \text{ m} \times 50 \text{ m} =$ _____

$5 \text{ m} \times 20 \text{ m} =$ _____

$100 \text{ m} \times 100 \text{ m} =$ _____

$10\,000 \text{ m} \times 10\,000 \text{ m} =$ _____

$0.5 \text{ m} \times 4 \text{ m} =$ _____

$0.5 \text{ m} \times 10 \text{ m} =$ _____

$10 \times 10 \times 10 \text{ m} =$ _____

$5 \text{ m} \times 5 \text{ m} \times 2 \text{ m} =$ _____

$2 \text{ km} =$ m

$1 \text{ m} =$ cm

$1.5 \text{ m} =$ cm

$25 \text{ cm} =$ m

$225 \text{ m} =$ km

On a 100 m² plot:

1 m² = %

0.5 m² %

10 m²%

50 m²%

2 m² %

On a 1000 m² plot:

1 m² = %

0.5 m² %

10 m²%

50 m²%

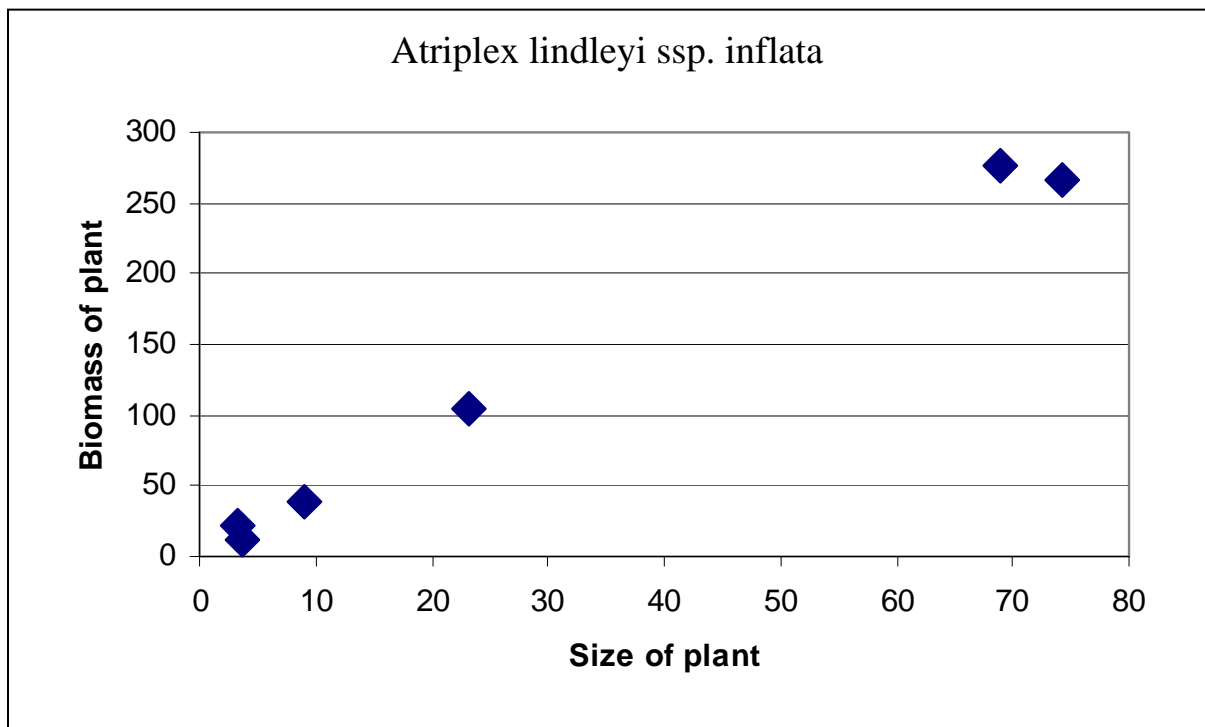
2 m² %

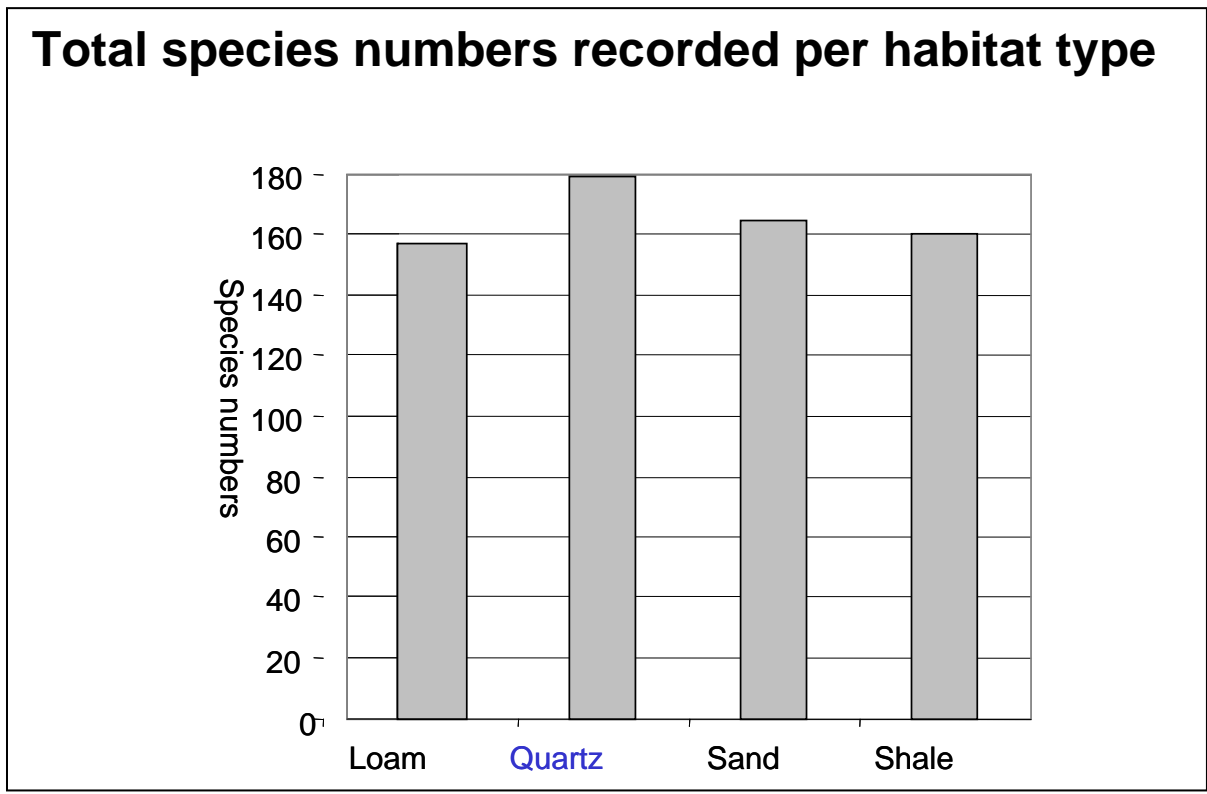
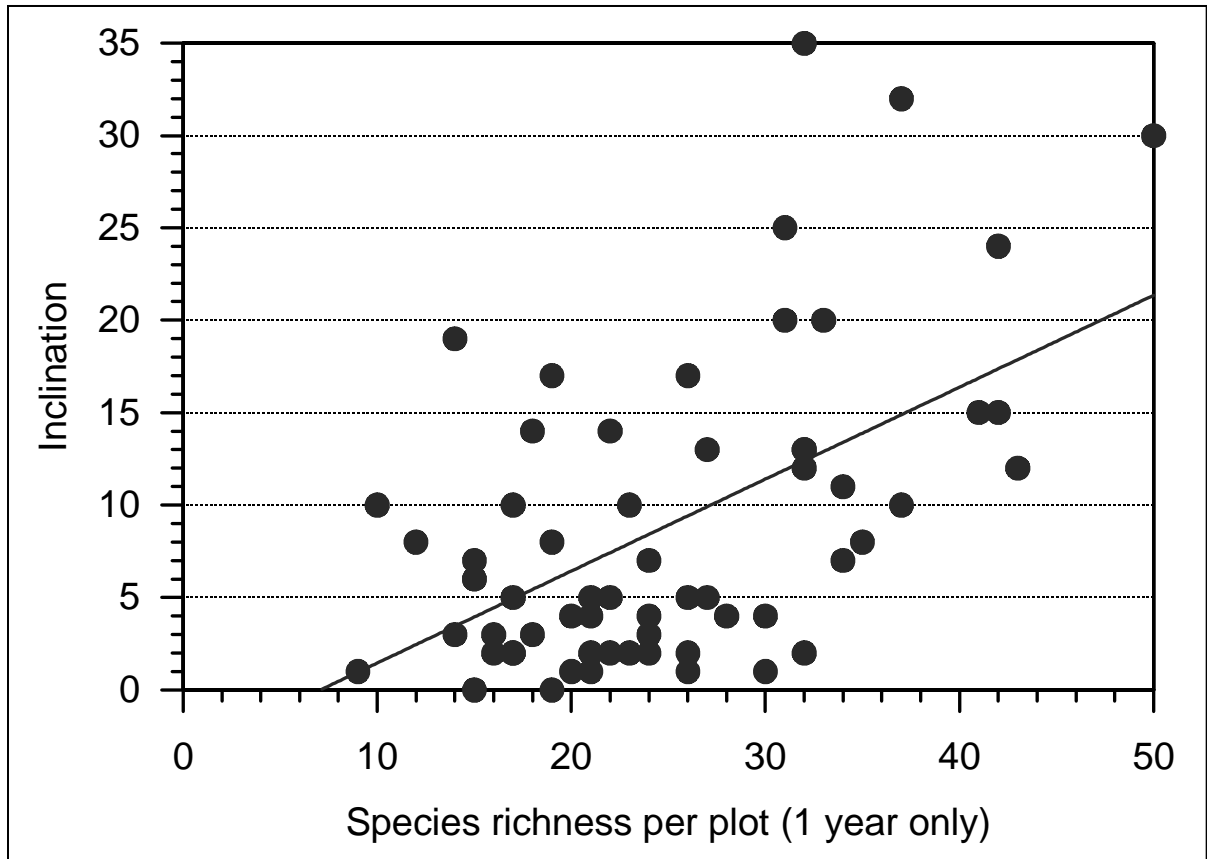
500 m² %

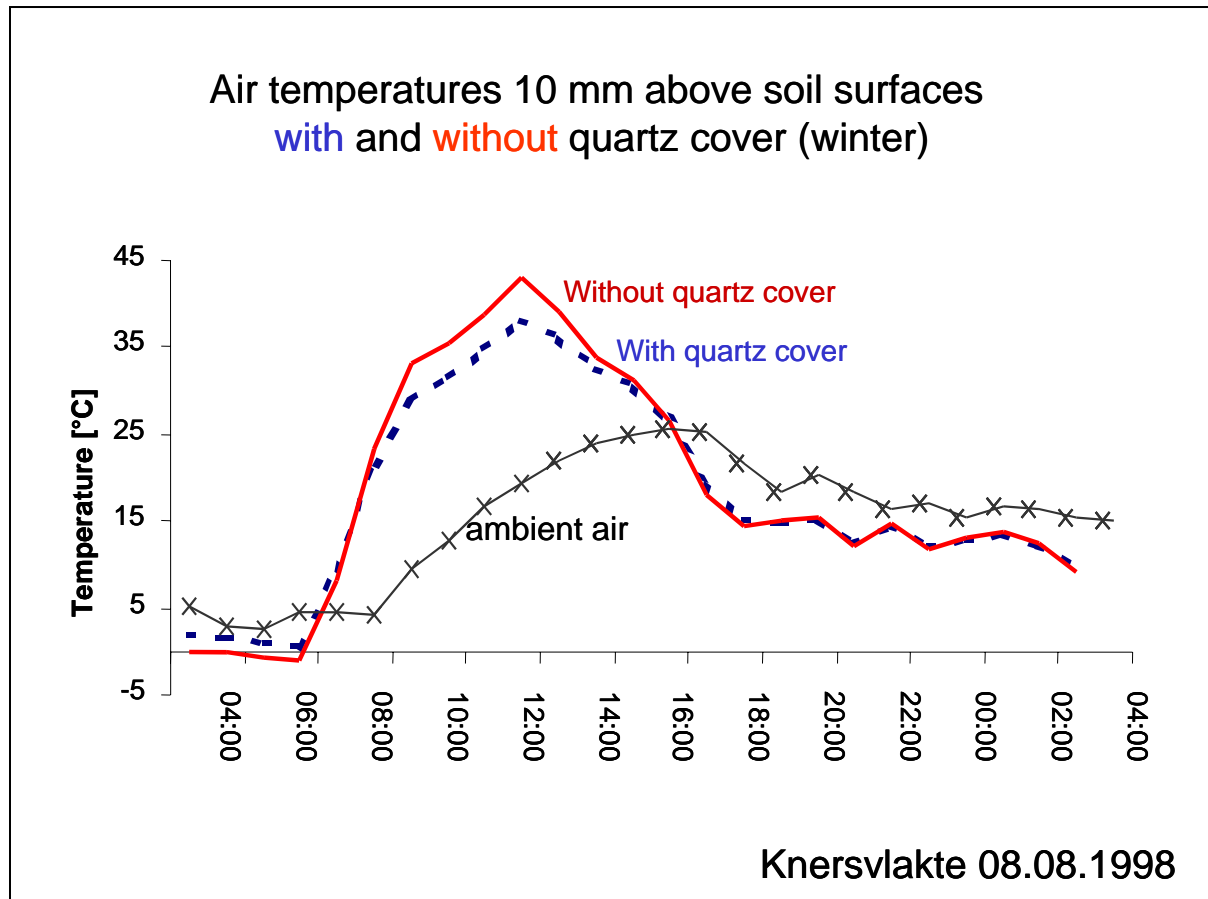
250 m² %

Use and understanding graphs

Graphs help to visualise data and help to understand the data easier.







Communication with farmers

Do's

- Make appointments with farmer
- Upon arrival report to headman / woman or Authority.
- Make appointment before arrival.
- Dress adequately
- Be friendly, be polite
- Introduce yourself
- Simplify the purpose of your visit
- Be clear and understandable
- Participating in community activities
- Stay calm and relax
- Respect the culture
- Say how long you will stay and how much time you need
- If you can communicate with the farmer give your translator assistant the time/chance to introduce you
- Use simple language
- Speak in a language, which the farmer understands
- Be patient there is time enough
- Always thank the people for their time
- Feed information back to the farmers
- Assist where it is needed
- Bring small gifts sometimes

Don'ts

- Not to pressurize the farmer
- Do not offer money for information
- Don't use difficult words/scientific
- If people do to you don't get angry or frustrated
- Do not play loud music at late night
- Don't offer alcohol
- Not to violate the privacy of the farmer
- Do not disturb while people are resting.

What is a Biome?

Biomes are areas defined by climate, ecology, plants and animals. Along the BIOTA transect there are 5 different biomes:

a) Winter rainfall

- high (500 to 100 mm / a): **Fynbos biome**: very rich in species, hard, narrow leaved shrubs and trees (Protea, Renoster, Erica) Fires are important!
- Low (50 – 200 mm / a): **Succulent Karoo Biome**: very rich in species, small shrubs, leave succulents (mesem / vygies, Namaqua daisies, bulbs)

b) Summer rainfall

- low (100-250 mm / a): **Nama Karoo Biome**: comparably species poor, shrubs, some trees, grass (Rhigozum trichotumum = driedoring, Acacia karoo).
- High (250-500 mm / a): **Savanna Biome**: trees (Acacia sp.) & grass. Fires are very important.
- Very high (> 500 mm): **Forest Biome**: high trees, high grasses (Marula tree, Acacia sp.).

Plant communities

Often the a group of plant species often occur together, forming a plant community. They occur together because they have similar requirements to the environment with regard to climate, soil, water supply, land use impact. The plants in a community may even compete with each other.

Biological soil crusts

Crusts at the soil surface that is formed by algae, lichens and / or fungi (and sometimes mosses). Biological soil crusts form a patchy layer of blackish, greenish, brownish or reddish-brown colour.

They differ from other (chemical) soil crusts by being formed by the organisms. Other non-biological crusts are formed by soil particles or salt or gypsum, or silcrete (dorbank).

Biological soil crusts

- stabilise the soil surface
- fixate N (nitrogene / stickstoff) from the air (some algae, i.e., cyano bacteria)
- sometimes prevent establishment of new plants (but allows it between the patches of crusts)
- reduce infiltration of water (but allows infiltration between the patches of crust)
- do not occur on very soft sand (dunes, Kalahari)
- do not occur on gravelly soil (like Gellap Ost / Nabaos Observatories)

Plant pressing (check reader of November 2004)

BIOTA para-ecologist - Monthly report

Name:	Observatory:	Month / year:
Date:		
Standard activities:		
Other activities performed:		
Positive experiences:	Problems encountered and possible solutions:	
Expenses: Items (give reasons)		Costs
Activities planned for next month:		

