QMS MACROFUNGI WORKSHOP – BEGINNERS

9.30 INTRODUCTION (PL)

Workshop covers the basics of collecting and identifying fungi. People are interested in fungi for a range of reasons:

- Wild food – which fungi can I eat.
- Taxonomy - knowing what fungi there are and how they are related.
- Ecology – what do fungi do in the environment.
- Photography – taking pictures of beautiful natural objects.
- Social – going for a walk in the bush with a bunch of interesting people.

Whatever your interest, we are all united in the desire to learn which fungi are which and get to a name. The name of the fungus is the link to lots of information and pictures of that fungus. Going on a foray, a walk to look for fungi, is by far the best way to learn. This workshop will take you on a notional foray and explain what happens before during and after a foray and the basics of finding out what fungi you have collected. We will start by putting a fungus down for a spore print because that takes time.

9.40 PRACTICAL EXERCISE 1 MAKING A SPORE PRINT (FEG)

9.50 MODULE 1 – WHERE TO BEGIN? (PL)

BEFORE YOU GO ON A FORAY

EQUIPMENT

1. Basket or punnet to place your collections in.
2. Penknife or dibber.
3. Grease proof bags, or aluminium foil or plastic containers.
4. Notebook and pencil, or dictaphone or palmtop/tablet.
5. Plastic box with numbered compartments for small specimens.
6. Field Guide.
7. Hand lens
8. ID tags
9. Camera and tripod

Many other things are carried by mycologists in the field, for example: Ferrous sulphate crystals if you study the genus Russula, white paper handkerchiefs if you collect the genus Lactarius, hammers and chisels if you collect corticoids. You do not need these things when you are a beginner.

WHAT HAPPENS ON A FORAY (PL)

QMS forays have a foray leader who knows the place you are visiting and tries to identify what is found and a recorder who makes a list of the finds. If you are a beginner make sure you stick close to the leader. Make notes about what is found, ask questions, ask the leader to explain why he or she has given a fungus a particular name. Collect a few named fungi and take them home to study. Most people learn between 3 and 5 new fungi each time they go out.

HOW TO COLLECT A SPECIMEN (FEG)

1. Collect only good specimens, don't waste hours on lousy material.
2. Try to collect a mature fruiting body and a younger one as well if you can. This gives you some idea of how the fungus changes as it gets older.
3. Collect the whole fungus carefully. You will need the base of the stem in many species in order to make a good identification, so use your penknife.
4. If the fungus is small and firmly attached to wood, or some other substrate, collect a slice of the wood as well.
5. A photograph or field sketch can sometimes be very helpful. Make sure you get a picture of the top and the underside of the fungus. Be sure to cross reference the photo to the specimen.

PRACTICAL EXERCISE 2 FEG

Collect a fungus

WHAT TO RECORD (FEG)

When you collect a fungus you must record:

1. Location, where you collected it.
2. Substrate, what was it growing on, wood, soil etc but be careful.
3. Associated organism, what species was it growing on/with? If you cannot identify the associated plant or tree, place a leaf or flower in with the fungus. For dung fungi use a dung id guide.
4. Note ephemeral characters such as colour, smell, colour changes, presence of milk, these often fade or are difficult to detect when you get home.
5. Note whether the fungus is solitary, growing in troops, or fasciculate.

10.30 COFFEE BREAK

10.45 MODULE 2 – AFTER THE FORAY

When you get home from the foray with a few specimens you need to get spore prints, describe the fungus and then dry it. If you can't start on your fungi straight away, put them in a fridge but do not freeze them!

PROCESSING YOUR SPECIMENS (PL)

- Put a fungus cap down for a spore print (we have already done this)
- Write a small label with the collection details on it:
    - Reference
    - Site name
    - Date
    - Substrate
    - Host
    - Habitat
    - Fungus name
    - Collectors name
    - Determiners name
- Place any spare specimens on your drier with the label.

KEEPING TRACK OF YOUR FUNGI (PL)

Keeping track of your fungi collections is surprisingly hard. For each collection you may end up with:

1. A note in your field note book.
2. An ID tag.
3. A specimen label.
4. One or more photos.
5. A spore print.
6. Specimens on the drier.
7. A description sheet.
8. Lab photos including microscope photos.

They must all have the same unique identifying reference. Even the best people lose track of some of this so please develope the habit of identifying all these bits as you go along.

11.00 DESCRIBING YOUR COLLECTION (FEG)

Now write a description of your fungus. Most people use a structured recording sheet and a set of description aids, but you don't have to.
As you gain experience you will realise that different genera and different groups of mushrooms require you to record different things.
Treat the mushroom you are describing as a portrait artist would treat a subject, look at it very carefully before you start writing or drawing, decide what are the main characters. If you cannot find the right words, use a description aid or make a sketch.
The main characters you need to record are listed below.

Main macro characters:

- Measurements
- Colour
- Features of the pileus (cap)
- Features of the lamellae (gills)
- Features of the stipe (stem)
- Growth habit
- Fruiting body attachment
- Spore colour

PRACTICAL EXERCISE 3 (FEG, PL & VR)

- Describe your fungus

Handouts:

- ID tags
- Field label.
- Structured recording sheet
- Description aid
- Colour charts BFF - Fungimap

Follow up: Try to describe up to 3 fungi in full, after each foray. Concentrate on one group if you can.

11.45 MODULE 3 – WHAT FUNGUS IS THAT?

Identifying fungi is the most difficult and often the most interesting and rewarding part of mycology. It is a bit like doing a difficult crossword or puzzle, you have a whole lot of clues from your description, but you often find you need to get other information to reach an answer. Be aware that you are the frontiers of science here, lots of the fungi you find in Queensland are still unknown to science, no one has ever described them!

When you start, there are really only two ways to find out what the fungus is, asking someone who knows or looking in a field guide.

IDENTIFICATION METHODS (PL):

- Asking an expert – there are advantages and disadvantages in asking an expert, often you get a short answer in Latin which is not helpful, so:
    - Do not settle for a name, ask: why is it in that genus?
    - Try to find out if you can learn to ID this fungus in the field.
    - Remember, most experts might identify a few fungi for you, but you cannot get them to come out with you every time you go foraying!
    - You can become an expert, if you adopt a genus.
- Field guides: what you can and cannot do using a field guide. Understanding the importance of coverage, short descriptions and illustrations (photos vs paintings).
    - Use a field guide which covers your area.
    - Use it to help you identify a genus.
    - Use it as a memory aid to remind you of the name of a fungus.
    - Never use it to identify a fungus that you have never seen before.
    - Most field guides have more species than are in experts heads, but the expert is more likely to know local things.

PRACTICAL EXERCISE 3 (FEG)

- Identifying a fungus using a field guide.

Follow up:

- Keep a record of your finds and of your success rate in identifying fungi on forays using the “ask an expert” and “field guide” methods.

12.15 MODULE 4 – USE OF KEYS (PL)

What are keys for?

- Explaining taxonomic relationships?
- Identifying fungi?

PRACTICAL EXERCISE 4

- Identifying a fungus using a dichotomous key.

Handout:

- Key to Agaricus species in Queensland

Follow up: Keep a record of your success rate in identifying fungi collected on forays using keys. Build up a list of key characters for each genus that interests you. Try writing you own key to a genus you have adopted.

12.45 LUNCH

13.15. MODULE 5 – IDENTIFICATION WITH THE MICROSCOPE

Sometimes you cannot get an answer without looking at microscopic characters, and often you need to check the microscopic characters to confirm your earlier conclusions.

ADDING TO YOUR FUNGUS DESCRIPTION (FEG)

Main microscopic characters:

- Basidiospores
- Basidia
- Cystidia

PRACTICAL EXERCISE 5 – DEMONSTRATION (PL)

- Cutting a lamellar section
- Describing your fungus

Follow up: Cut a section and examine it after every foray; do 5 if you want to improve your technique quickly.

13.45 MODULE 6 – CONCLUSIONS - PUTTING IT ALL TOGETHER - THE FUNGAL ID KIT (PL)

Introduction:

- Recap on Modules 1-5. All methods are important but you must use them in the right order.
- The sieve method.

How to approach a fungal ID - general:

Use a sieve:

- Expert tells you what it is:
  - if yes: write it down
  - if no: ↓
- Have you seen it before? Is it in your field guide?
  - if yes: write it down
  - if no:↓
- Is it in a structured guide? Fungimap or FoQ:
  - if yes: write it down
  - if no: ↓
- Write a macroscopic description and try a specialised key. Can you now identify your fungus?
  - If yes, write it down
  - if no go to the microscope: ↓
- Write a microscopic description and try the specialised key again. Can you now identify your fungus?
  - If yes, write it down
  - If no: better luck next time.
- Now dry your fungus, add your notes and any photographs and send it to the Queensland Herbarium.
- Accurate description is everything.

How to approach a fungal ID – detail:

- Field notes
- Macro characters
- Spore print
- Microscopic characters
- Keys used
- Photograph

Handout: How to identify Fungi by the sieve method.

WORKSHOP CONCLUSIONS FEG:

- Structure your approach.
- Use the sieve.
- Do not collect more than 3 different fungi when you first start, try to get at least two specimens of each, young and mature if possible. If there is only one, don't touch it.
- Adopt a genus. Broaden your knowledge by choosing a different one next season.

14.00 WORKSHOP ENDS – TIDY UP

FURTHER READING:

Largent, David L. "How to Identify Mushrooms to Genus: Macroscopic Features." Mad River Press.

Watling, Roy. "Identification of the Larger Fungi."

Both these books are in the QMS Library and deal with aspects of the beginners workshop.

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