Collection and Curation of Fleshy Fungi

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Fleshy Fungi (Macro-fungi)

- Basidiomycota
  - Agarics (gilled fungi) and boletes
  - Polypores, bracket fungi, shelf fungi
  - Jelly fungi – various groups
  - Puffballs, earthstars, stinkhorns, bird’s nest fungi — formerly referred to as “Gasteromycetes”
- Ascomycota
  - cup fungi, morels, false morels

Excluded from this presentation:

plant pathogens, water molds, slime molds, fungus cultures
Voucher collections important in research:

- Biodiversity/Taxonomy
- Cytology
- Ecology
- Biogeography
- Morphology
- Phylogenetics
- Molecular studies
Specimen collection

- Agarics and boletes are soft and putrescent so special care needs to be taken in their collection and preservation

- Collecting equipment:
  - Collecting basket
  - Knife
  - Wax paper, aluminum foil
  - Compass, GPS
Be sure to get stipe base

If possible, collect all stages of development
Wrap specimens in wax paper or aluminum foil
Another way to transport specimens . . . .
When collecting record the

- Site location – state, county, locality, GPS
- Growth habit – solitary, gregarious, caespitose
- Substrate – soil, lawn, wood (logs and sticks, mulch), living tree, dung
- Forest type, tree associates
Preserve by drying, but appearance of sporocarps changes substantially upon drying.

Macroscopic features must be recorded when fresh.
Macroscopic characters

- Pileus size, shape, surface features, color, any changes during maturation
- Lamellae size, attachment, color, discolorations
- Stipe size, shape, color, discolorations
- Presence/absence of partial or universal veil
- Odor and taste
- Chemical spot tests
Sample Data Sheet

Genus __________________________ Species __________________________

Coll. no. __________ Date: __________ Collector: ________________ State: ________________

County: __________ City: __________ Locality/GPS: ________________

Substrate __________ Habit: __________ Ecology: ________________

**Pileus** diameter range: __________ Shape (young) __________ (mature) __________

Surface: dry ____ viscid ____ Surface features: ________________

Color: (young) __________ (mature) __________

Flesh color __________ Latex color if present ________________

**Lamellae** (tube) attachment __________ Color ________________

**Stipe**: l x w range __________ Shape: ________________ Surface ________________

Color: ________________

**Annulus**: present ____ absent ____ **Volva**: present ____ absent ____ type ________________

**Spore print** color: ________________
Use a color guide if possible
Record fresh characters
Photography helps document fresh features
Make a spore print
use white paper
Preserve by drying
Store in boxes with labels
Herbarium cabinet storage
Microscopic analysis is equally important and can be done on dried material.
- Dried tissue suitable for DNA extraction
- Preserve a small piece of pileus/lamellae in silica gel
Literature

Field guides

Technical literature/monographs
Regional Mushroom Clubs

- New Mexico Mycological Society
- Gulf States Mycological Society
- Kansas – Kaw Valley Mycological Society
- Arkansas Mycological Society
- Colorado – Colorado Mycological Society, Pikes Peak Mycological Society
- Oklahoma – Oklahoma Native Plant Society, Mycology Chapter; Oklahoma Mushroom Enthusiasts
- Arizona Mushroom Club
- National organization: North American Mycological Association (NAMA)
Conclusions

- Progress is slow in documenting macro-fungi diversity
- Dependence on moisture, ephemeral nature of fruiting bodies
- Many areas poorly documented
- You do not have to be a Mycologist to collect and preserve fungi, e.g., contributions of field biologists and amateurs are important