



SCHOOL OF
PUBLIC
HEALTH

INTRODUCTION TO POLLEN IDENTIFICATION

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CCSD/UNLV Pollen Monitoring Program

Program In charge:
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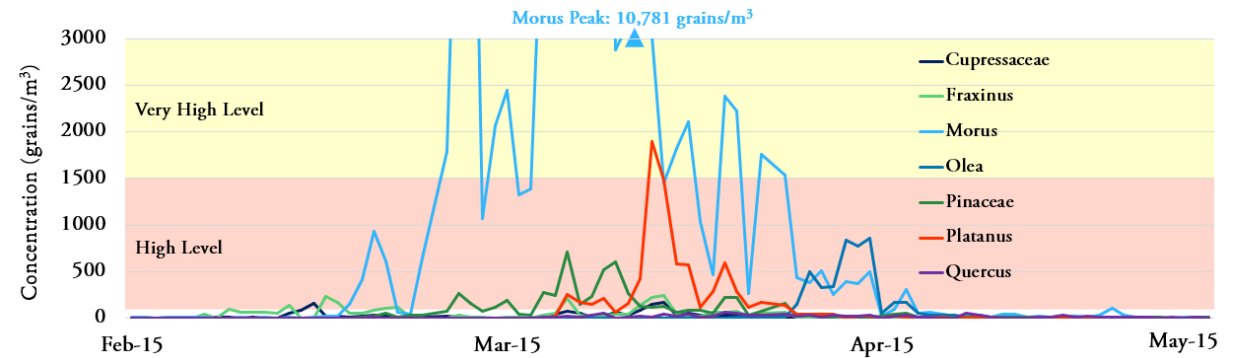
WHAT IS POLLEN?

- A mass of microspores in a seed plant appearing usually as a fine dust that is transported by various means
- Large in quantity
- Small in size
- Variation in pollination mode
 - Anemophilous – spread by the wind
 - Entomophilous – spread by insects
 - Amphiphilous – spread by wind & insects

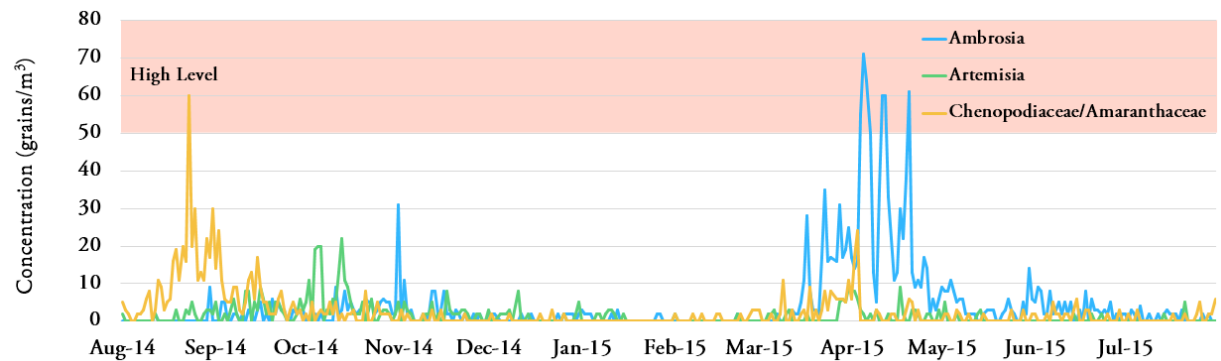


Pollen Seasons

Spring (tree)



Spring and fall
(weed)



Pollen Season and Allergies



What Are Allergies?

- A immune system reaction to a foreign substance
- Common symptoms for Pollen allergies include...
 - Coughing
 - Sneezing
 - Runny nose
 - Itchy eyes

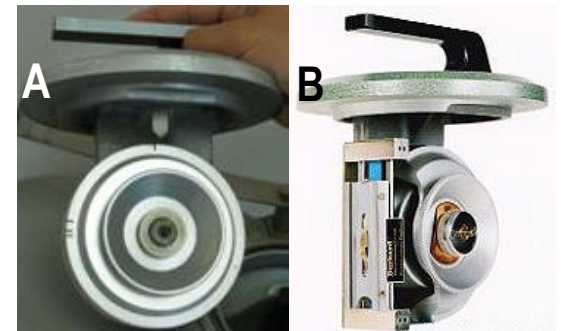
Pollen Monitoring Program

- Program Purpose
 - Prevention
 - Pollen forecast
 - Intervention
 - Avoid/reduce exposure
 - Allergy medicine
 - Education
- Purpose
 - How to collect pollen samples
 - How to identify pollen grains



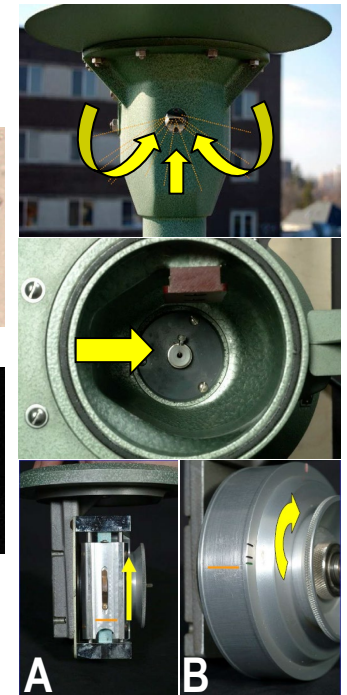
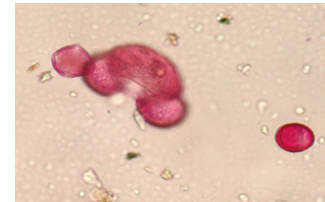
Air Samplers

- Burkard recording volumetric spore trap
 - Impaction sampler
 - Efficient for small spores (mold)
- Key features
 - Wind-oriented
 - Sealed chamber with one orifice
 - Air flow rate: 10 L/min
 - 7-day or 24-hour sampling head
 - Clock revolves drum (A) or slide carriage (B) at 2 mm/hour



Air Sampling

- Air drawn through orifice into chamber
- Impact on to a sample surface
 - 24-hour head: greased slide
 - 7-day head: greased tape
- Sample Staining
 - Glycerin Jelly mounting medium containing basic fuchsin
 - Swell pollen grains
 - Dye outer layer of pollen grain wall into pink



Pollen Collection Video



National Allergy Bureau

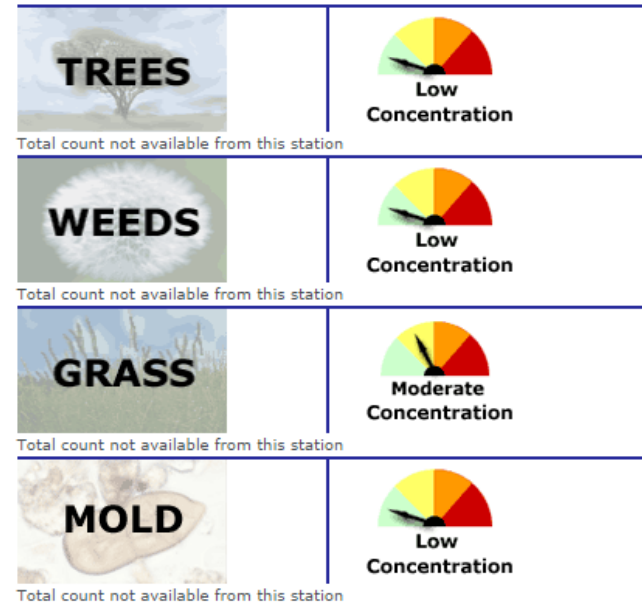
- Pollen
 - Category: tree, weed & grass
 - Various families and species
- Pollen of interest
 - Allergenic
 - Wind-borne
 - Large quantities
 - Sufficient buoyant (10-50 μm)
 - Widely and abundantly distributed and close to humans

National Allergy Bureau Pollen and Mold Report

Location: Las Vegas, NV

Date: September 21, 2014

NAB Station: [University of Nevada Las Vegas](#)

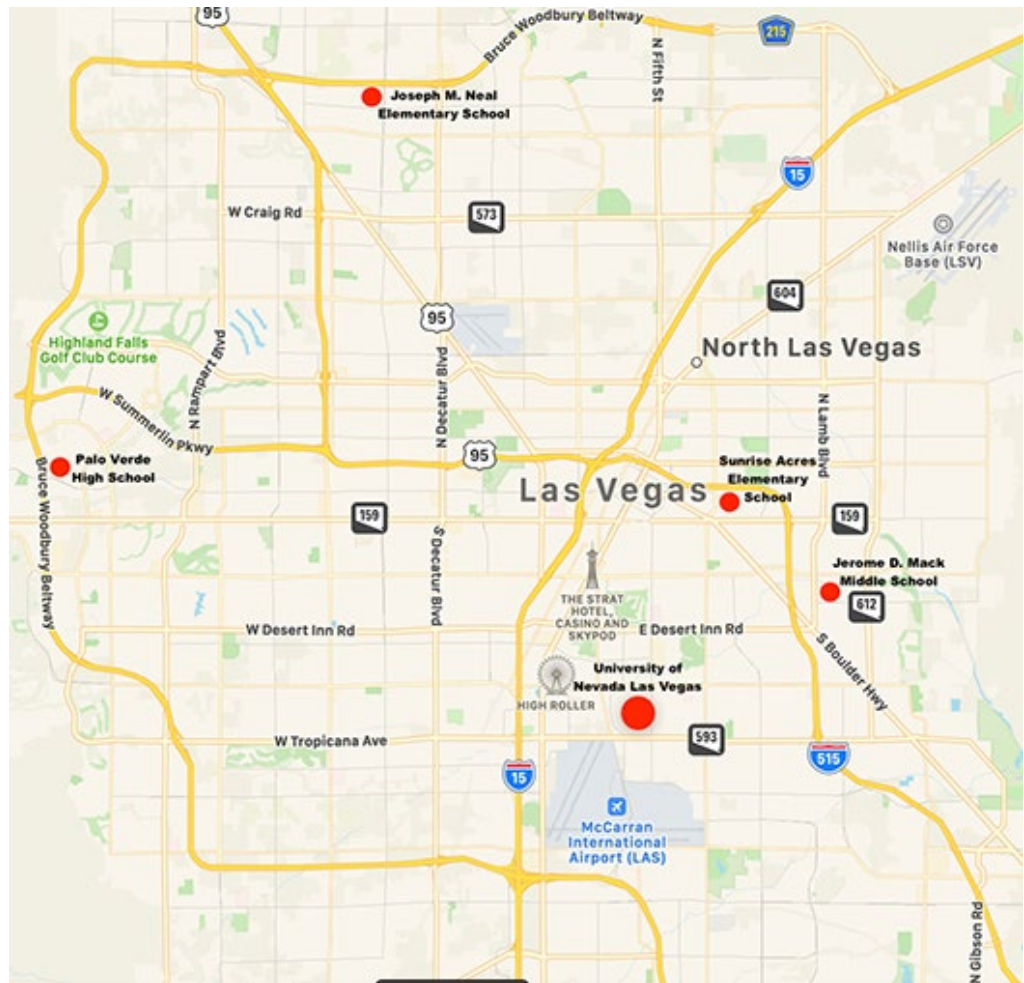


[Using the Levels](#)

Change Date of Report: 9 / 21 / 2014 Go

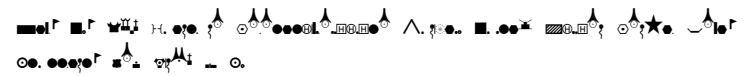
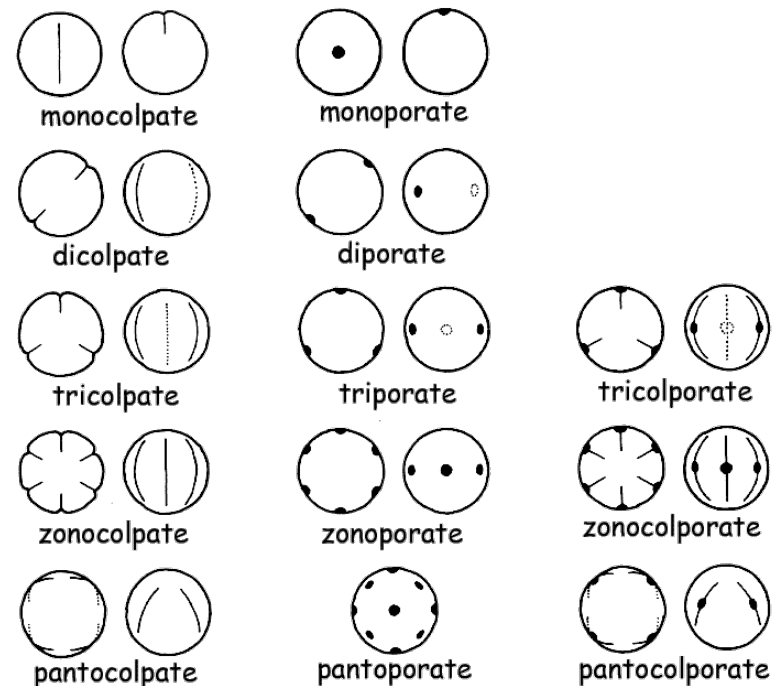
CCSD SITES

- Currently we have 4 Clark County School District sites. These school samples are collected weekly, 365 days a year.
- Jerome D. Mack Middle School
- Sunrise Acres Elementary School (Previous site - J.D. Smith MS)
- Joseph M. Neal Elementary School
- Palo Verde High School



Pollen Characteristics

- Size (in μm)
- Shape
 - eg. circular, triangular
- Apertures (thin or missing part of the surface)
 - Colpus (colpate)
 - Pore (porate)
 - Both (colporate)
- Ornamentation
 - eg. air-bladder, spike



5 common pollen in the Las Vegas valley

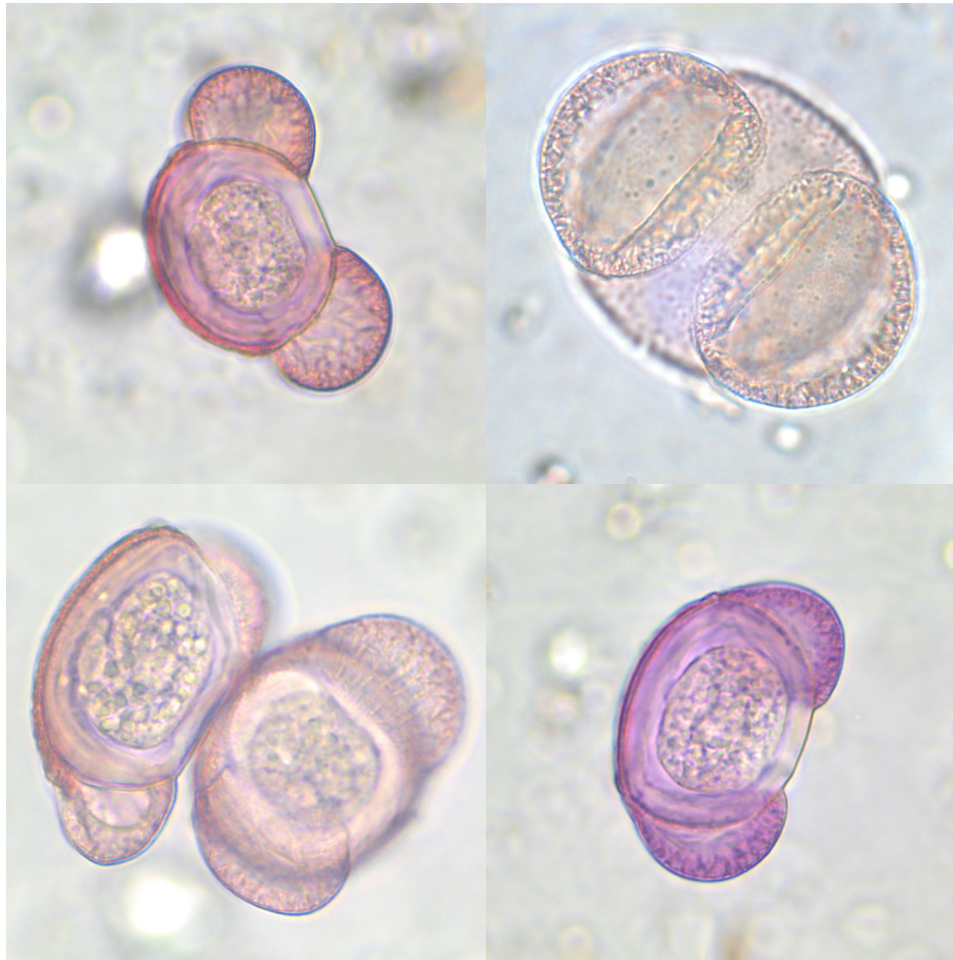
- **Pinus (Pine)**
- **Morus (Mulberry)**
- **Fraxinus (Ash)**
- **Gramineae (Grass)**
- **Ambrosia (weed)**

Tree - Pinus

- Common name:
 - Pine
- Pollination period:
 - Spring
- Size:
 - 50-150 μm
- Shape:
 - Bisaccate
 - “Mickey Mouse” head



Pinus, 40X

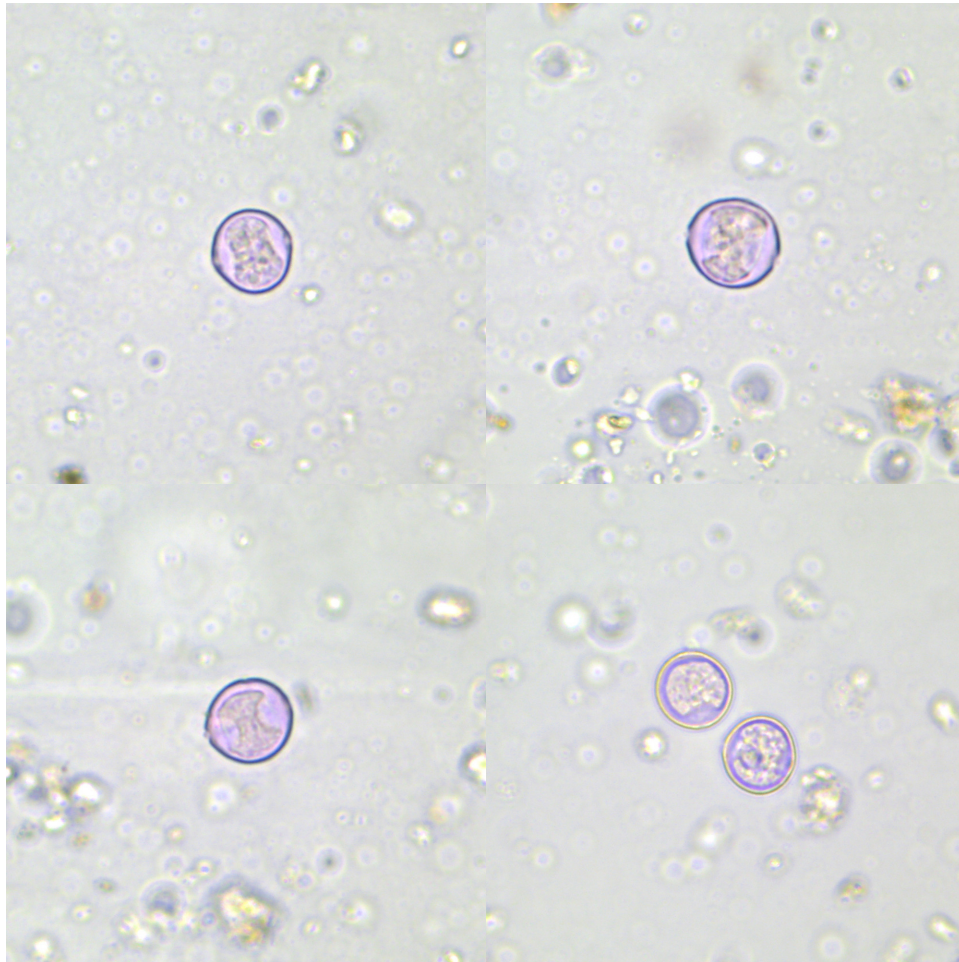


Tree - Morus

- Common name:
 - Mulberry
- Pollination period:
 - Spring
- Size:
 - 14-22 μm
- Shape:
 - Circular
 - Diporate

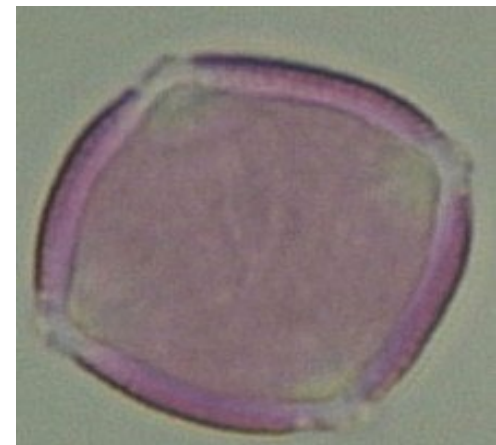


Morus, 40X



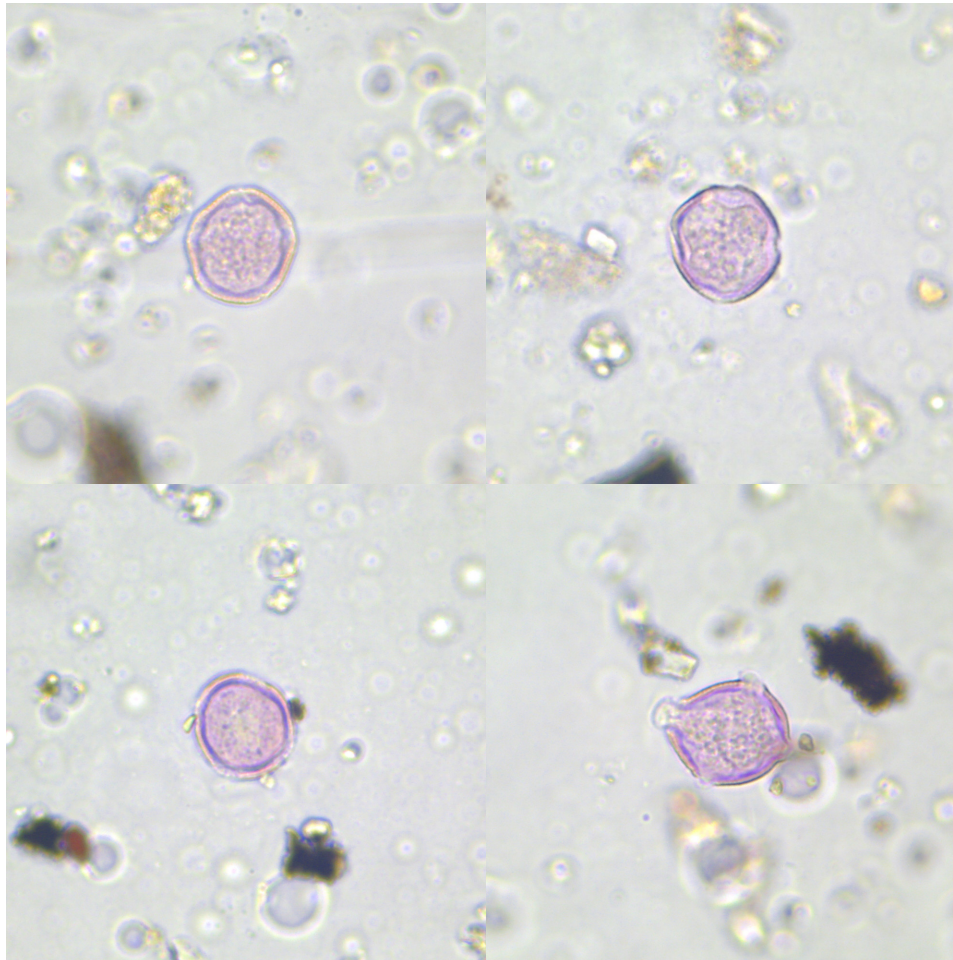
Tree - Fraxinus

- Common name:
 - Ash
- Pollination period:
 - Spring
- Size:
 - 19-33 μm
- Shape:
 - Square
 - Tetracolpate, occasionally pentacolpate (pentagon)



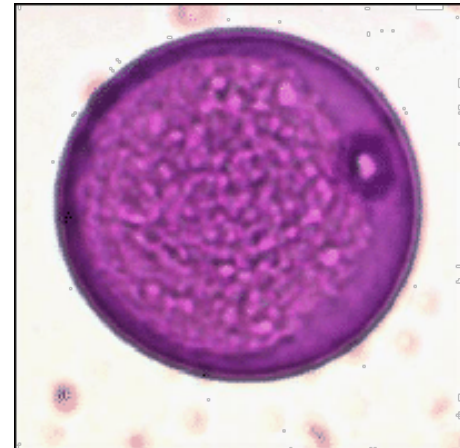
Fraxinus, 40X

pentacolpate

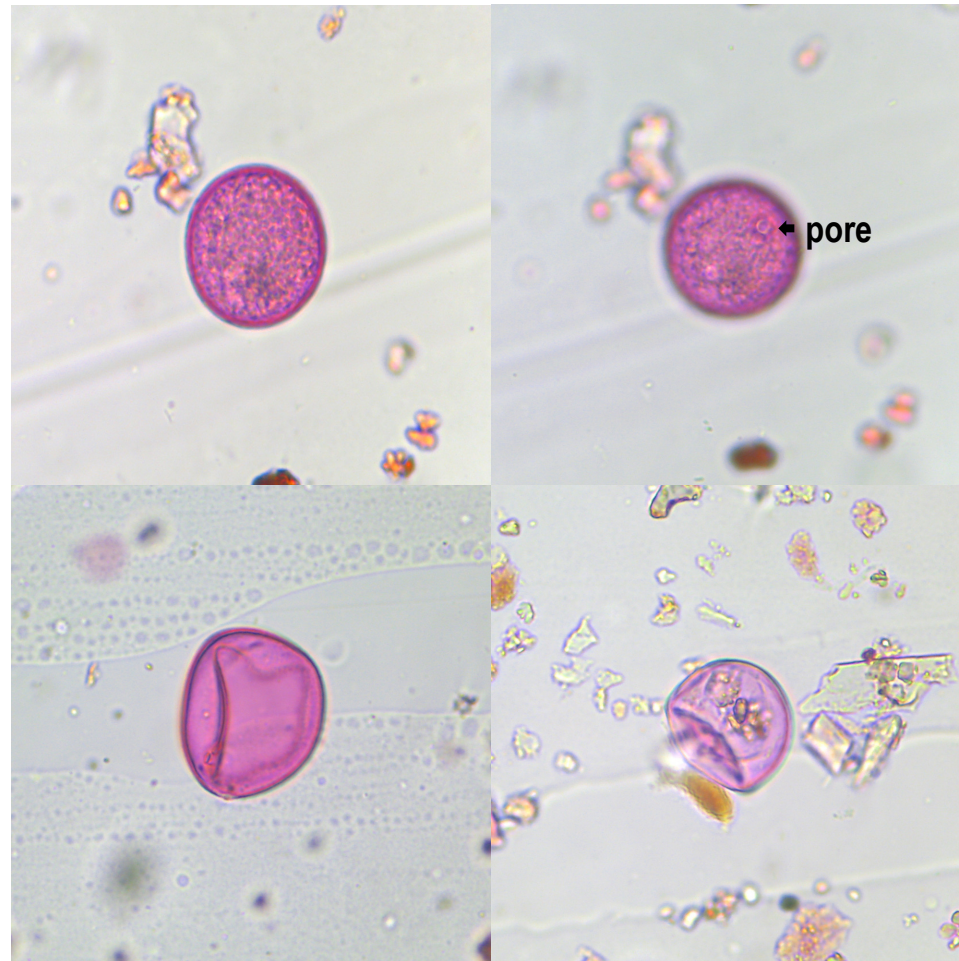


Grass - Graminae/Poaceae

- Common name:
 - True grass, fescue, rye
- Pollination period:
 - Spring to summer
- Size:
 - 30-66 μm
- Shape:
 - Spheroidal
 - Monoporate

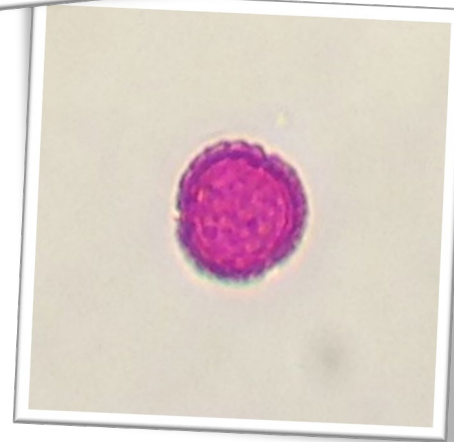


Graminae/Poaceae, 40X

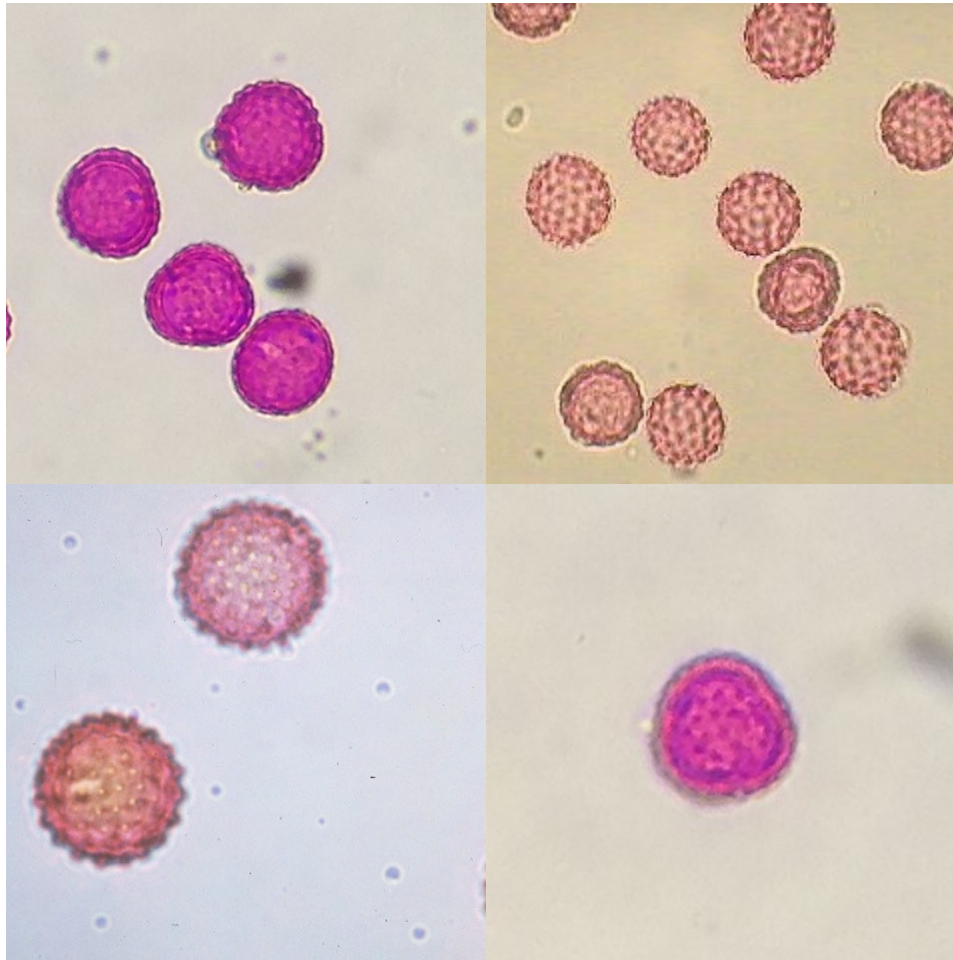


Weed - Ambrosia

- Common name:
 - Ragweed
- Pollination period:
 - Mid summer to fall
- Size:
 - 15-28 μm
- Shape:
 - Tricolporate
 - Prolate to spheroidal
 - Low spine composite



Ambrosia, 40X



Thank You

