

UNLV

School of
COMMUNITY
HEALTH SCIENCE

Introduction to Pollen Identification

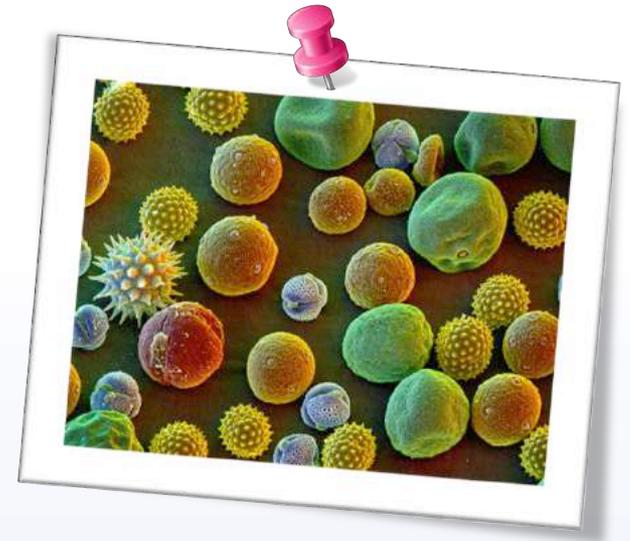
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Certified NAB Pollen & Mold Counter
CCSD/UNLV Pollen Monitoring Program

Program In charge:
Mark P. Buttner, Ph.D.



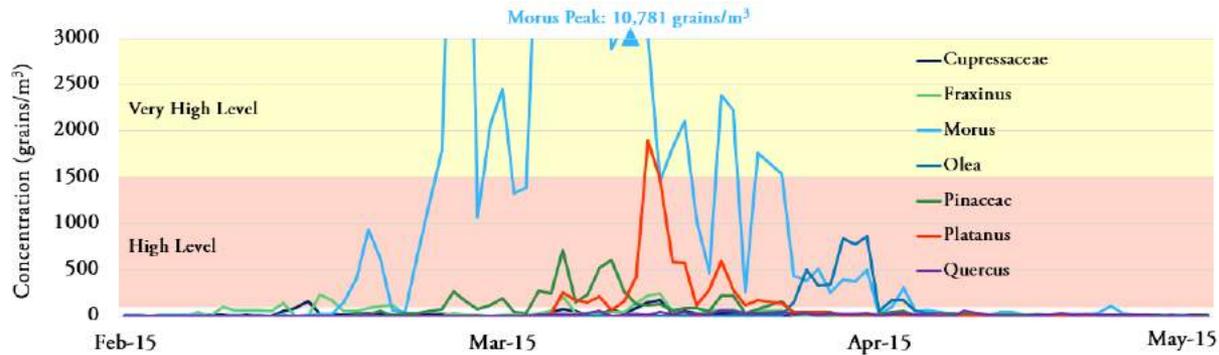
Pollen

- 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 - wind
 - Entomophilous - insects
 - Amphiphilous - wind & insects

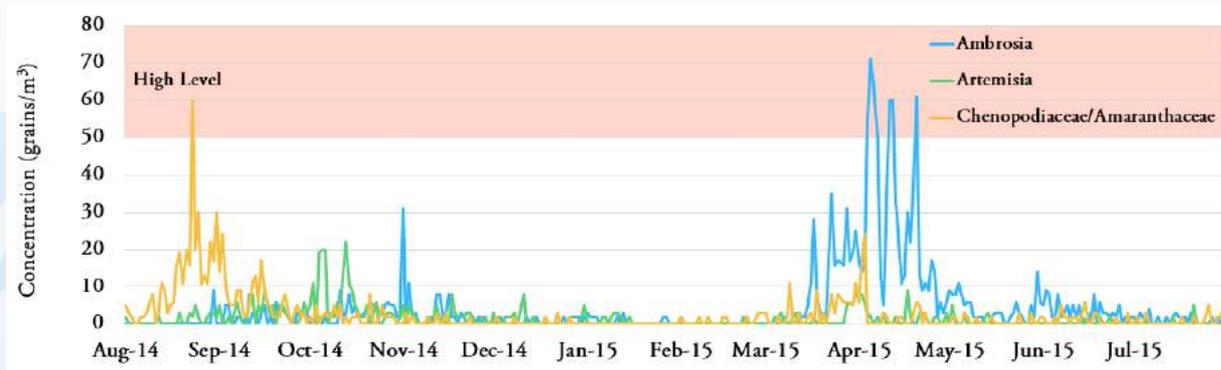


“Pollen Seasons”

- Spring (tree)



- Spring and fall (weed)



“Pollen Season”



Pollen Monitoring Program

- Prevention
 - Pollen forecast
- Intervention
 - Avoid/reduce exposure
 - Allergy medicine
- Education

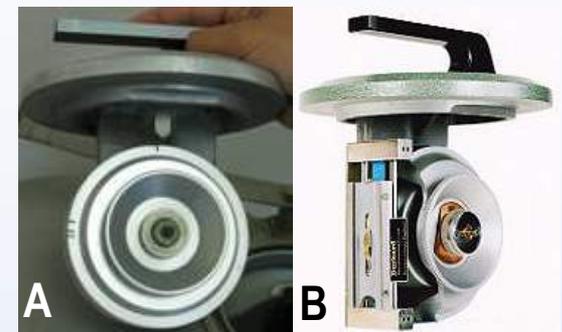
Purpose

- How to collect pollen samples
- How to identify pollen grains



Air Sampler

- 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

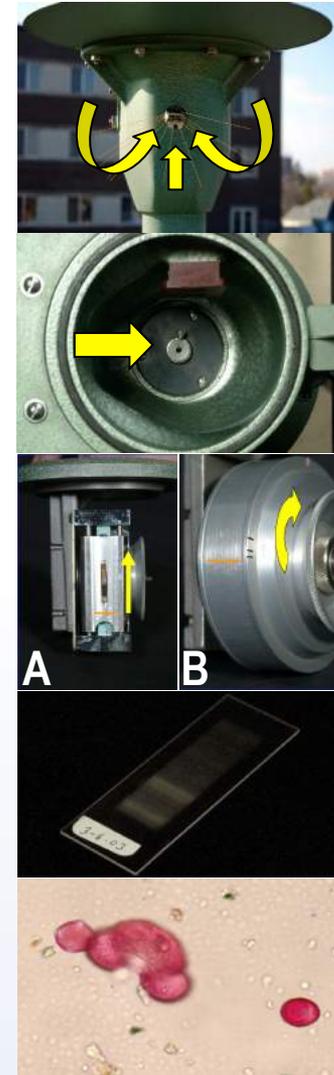


Air Sampling

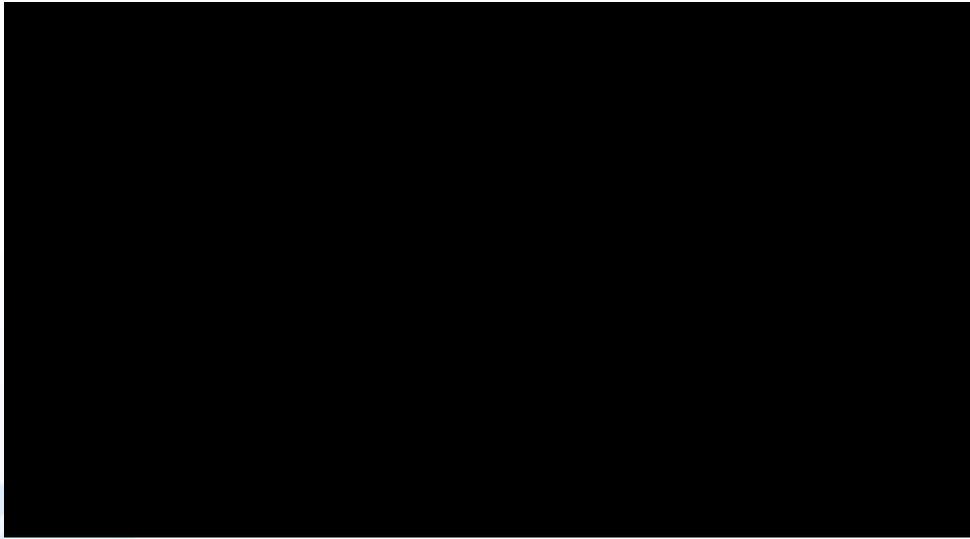
- Air drawn through orifice into chamber
- Impact on to a sample surface
 - A. 24-hour head: greased slide
 - B. 7-day head: greased tape

Sample Staining

- Glycerin Jelly mounting medium containing basic fuchsin
 - Swell pollen grains
 - Dye outer layer of pollen grain wall into pink



Pollen Collection

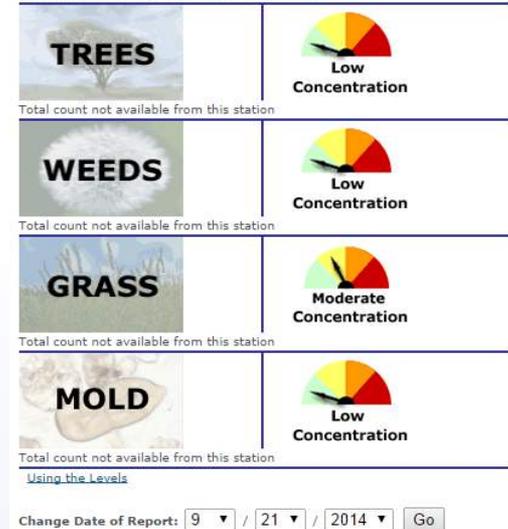


National Allergy Bureau

- 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](#)

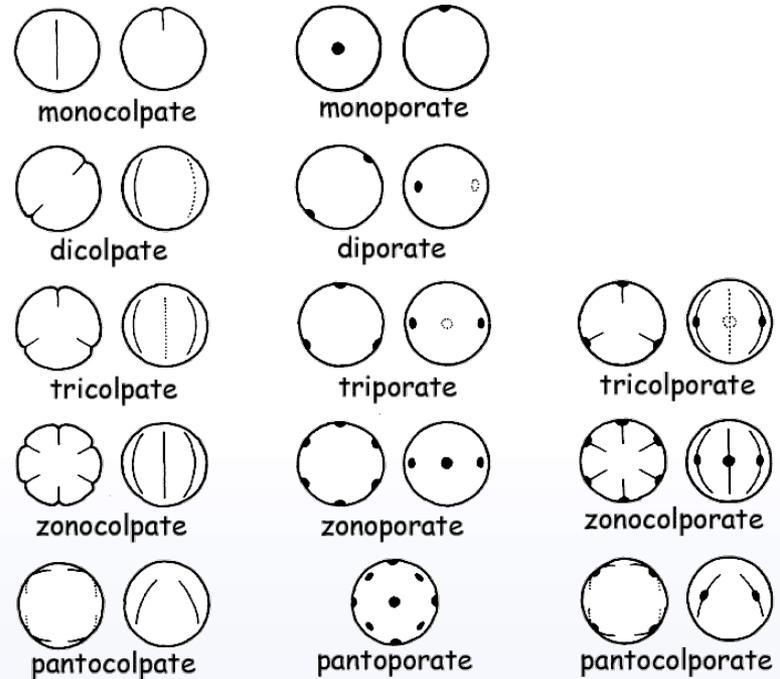


CCSD Sites

- 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

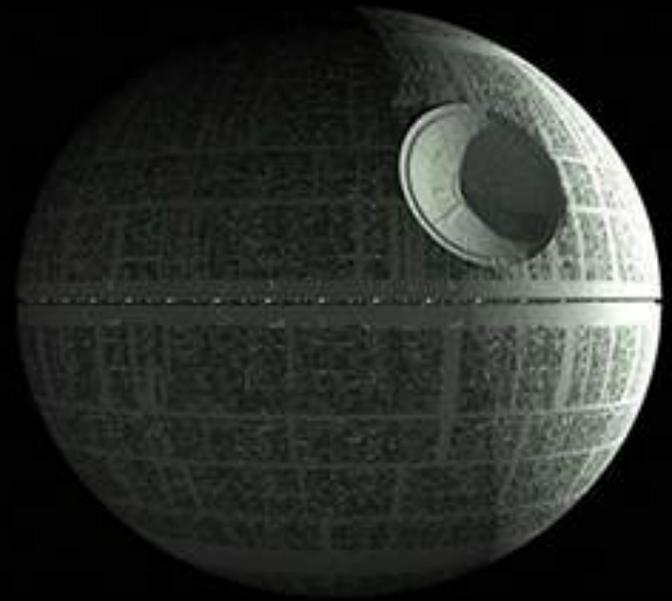


Lang, G., 1994: Quartäre Vegetationsgeschichte Europas. Gustav Fischer Verlag Jena, Stuttgart, New York: 462 S.

POLLEN



DEATH STAR



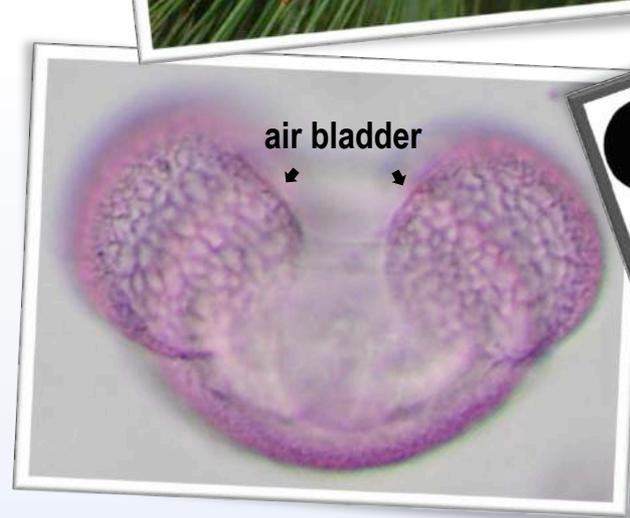
5 common pollen in the Las Vegas valley

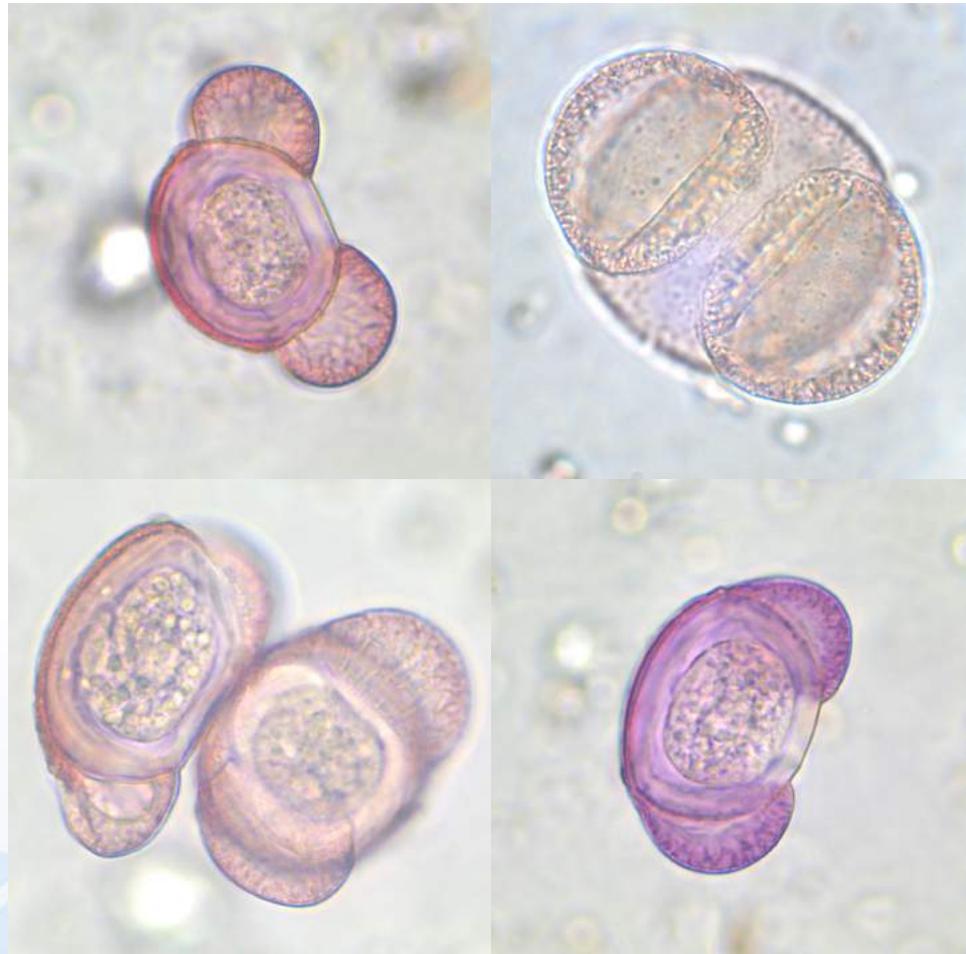
- Pinus (Pine)
- Morus (Mulberry)
- Fraxinus (Ash)
- Gramineae (Grass)
- Ambrosia (weed)



Tree - Pinus

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



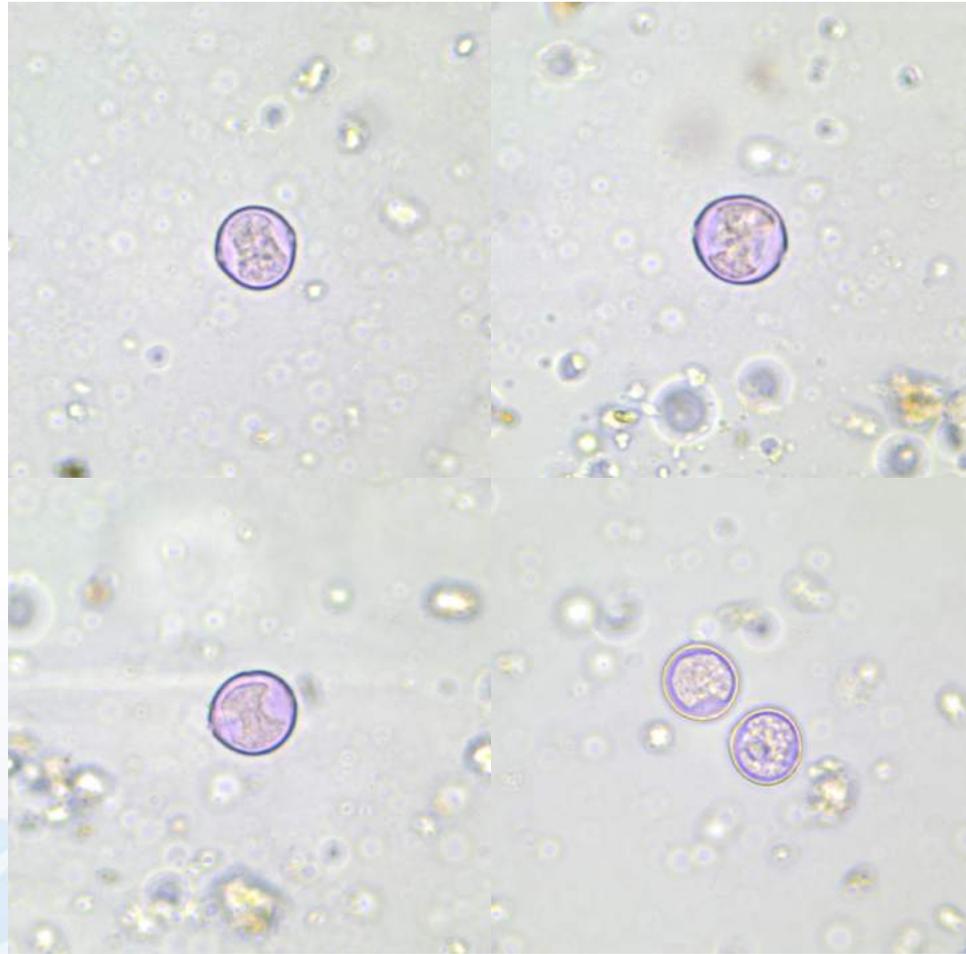


Pinus, 40X

Tree - Morus

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

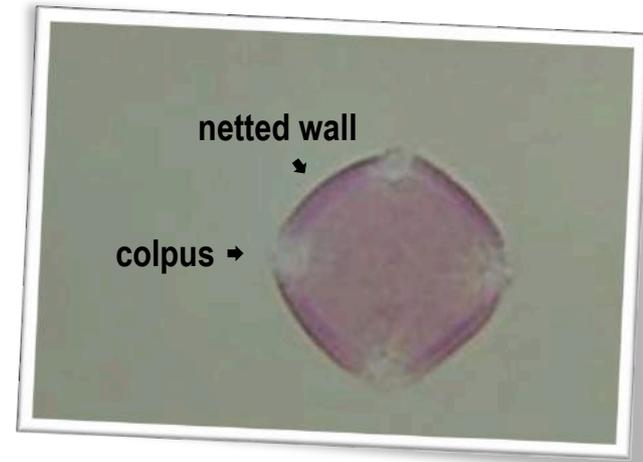


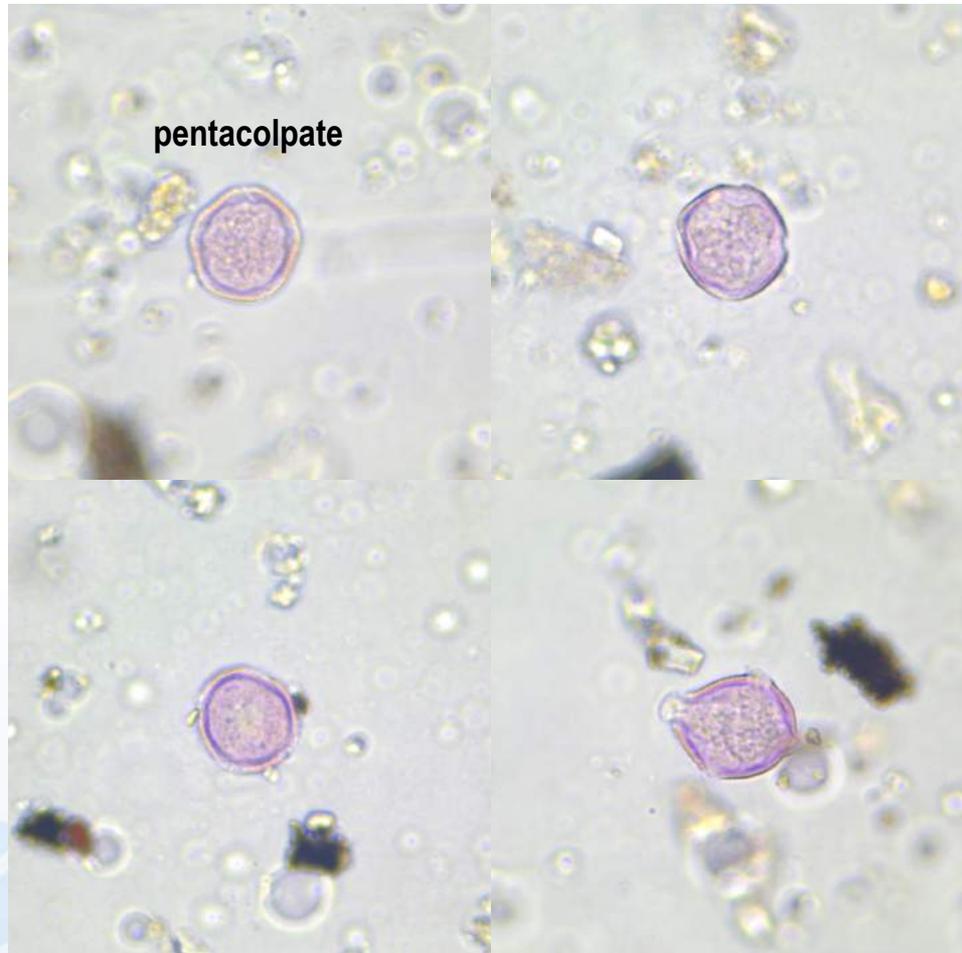


Morus, 40X

Tree - Fraxinus

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

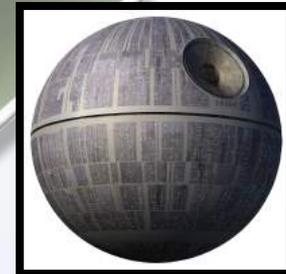
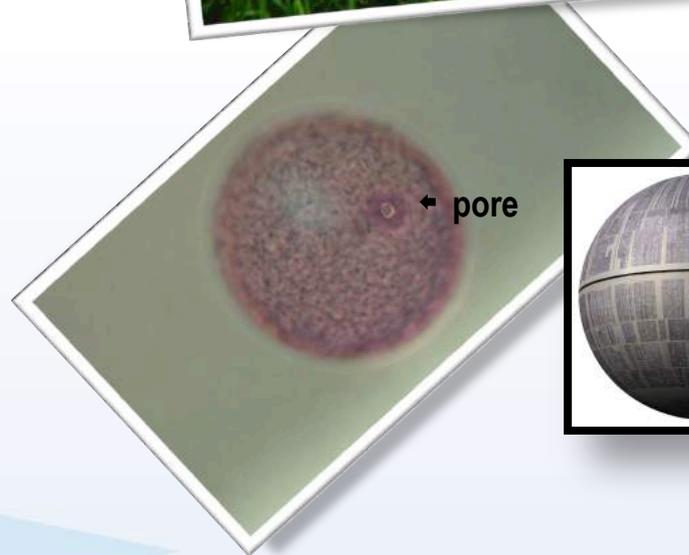


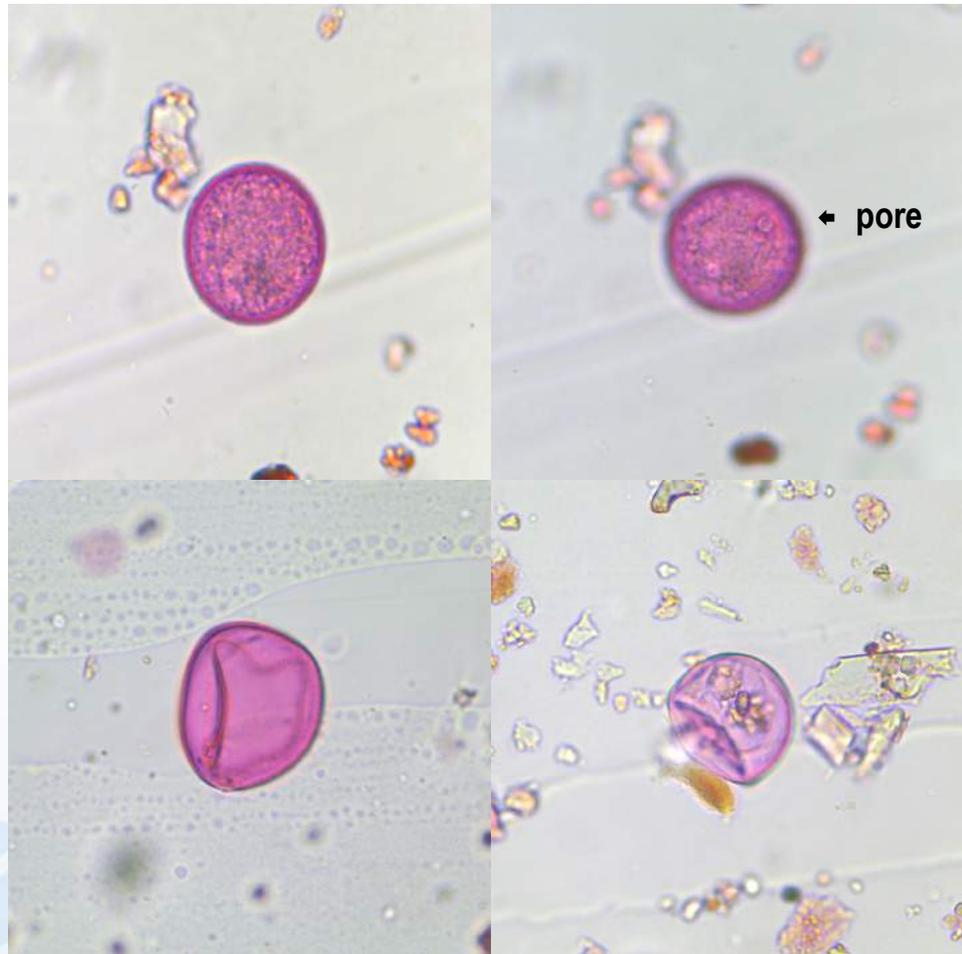


Fraxinus, 40X

Grass - Graminae/Poaceae

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



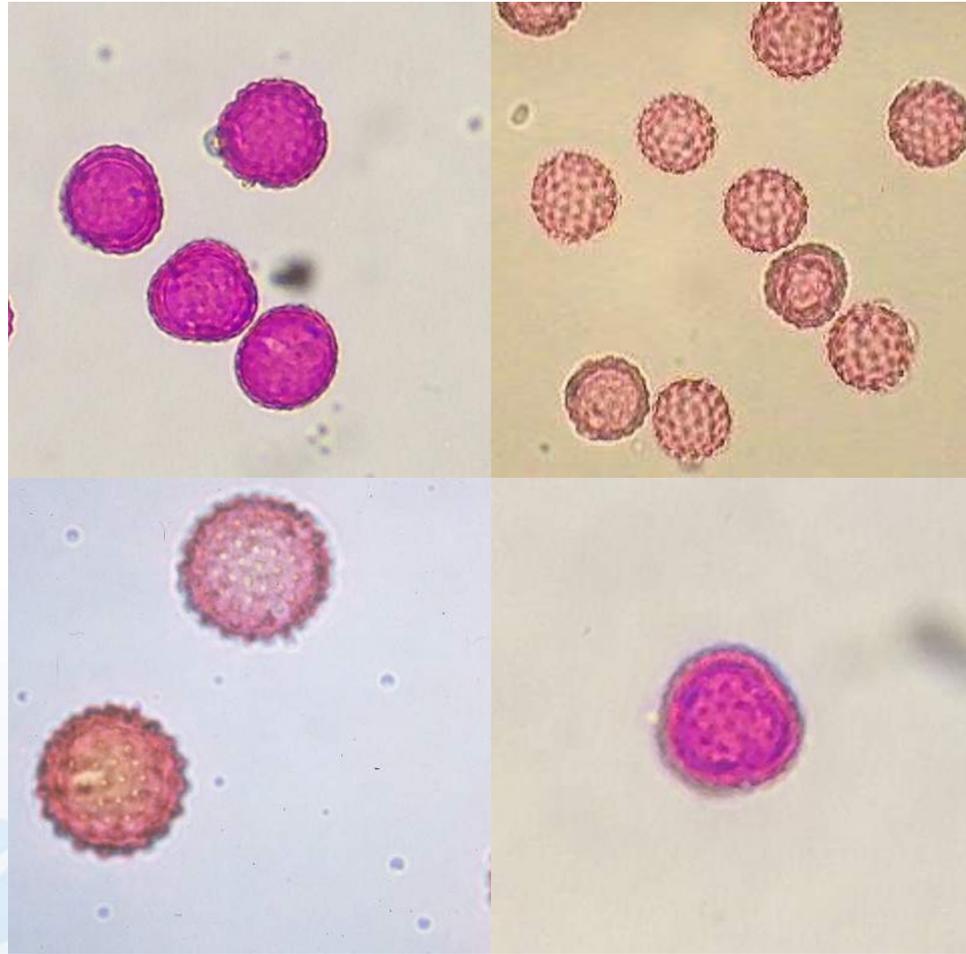


Graminae/Poaceae, 40X

Weed - Ambrosia

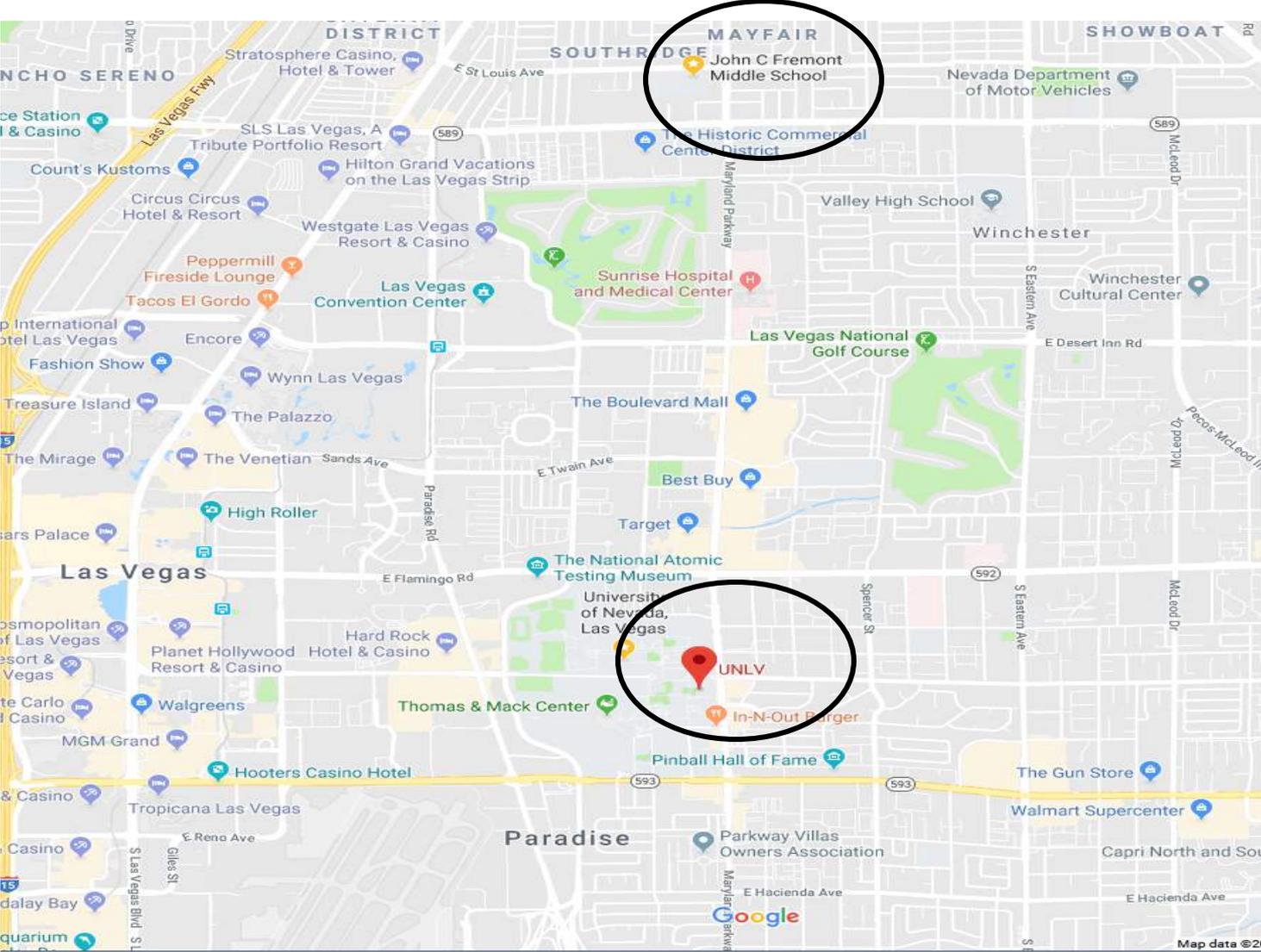
- Common name:
 - Ragweed
- Pollination period:
 - Mid summer to fall
- Size:
 - 15-28 μm
- Shape:
 - Tricolporate
 - Prolate to spheroidal
 - Low spine composite



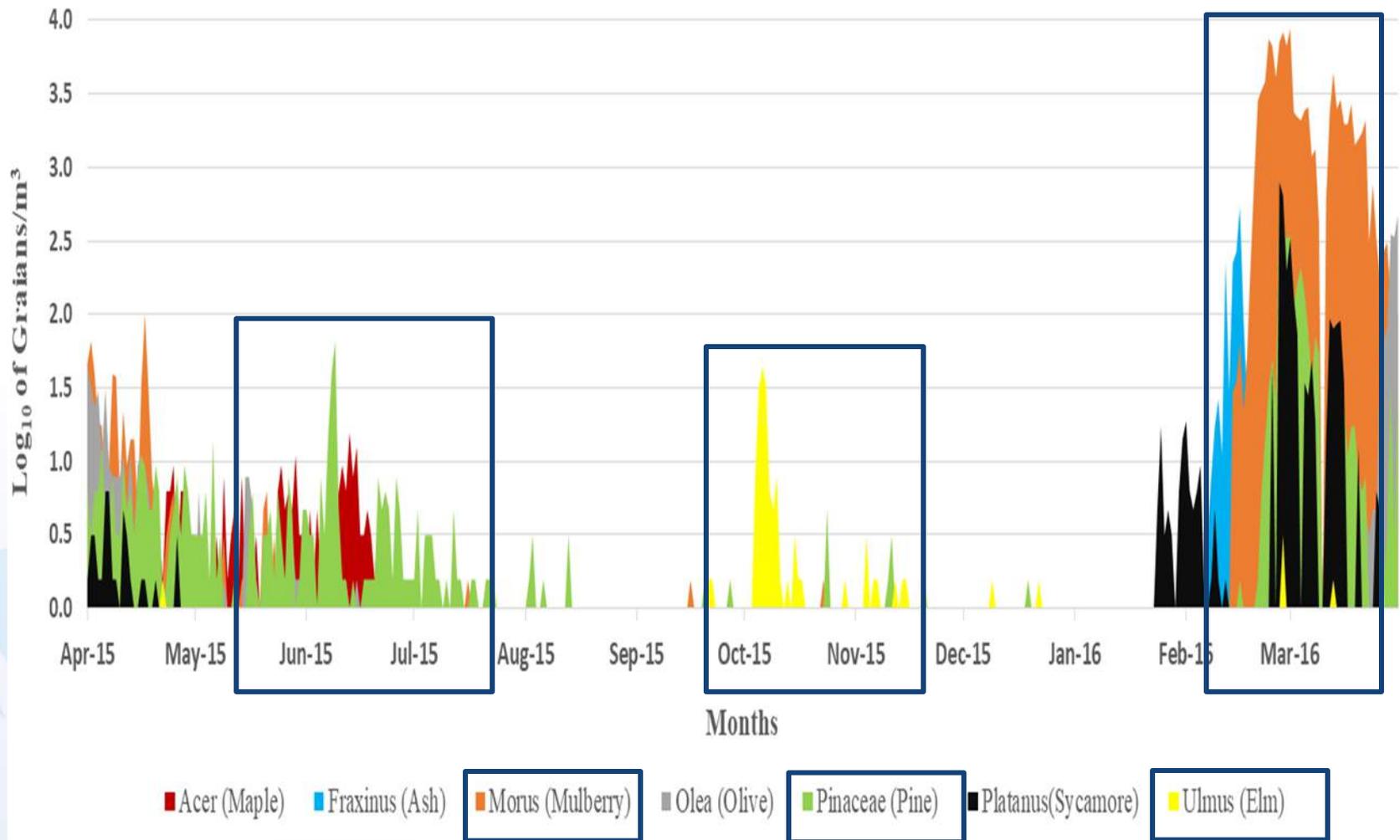


Ambrosia, 40X

Nearest sampler location



What is in your neighborhood?



Fix-it Tips

- Consult with your doctor about allergy medication (or an inhaler, since pollen is known to be an asthma trigger).
- Take allergy medication before you go to bed so that it's already in your body and working in the morning, when pollen levels tend to peak.
- When you enter your house, remove outdoor clothing and wash your hair to remove allergens.
- Keep your windows closed to keep pollen out.
- Use nasal spray or an air filtration machine. Be aware that some pollen grains may be too small for the machine to block.

Thank You

