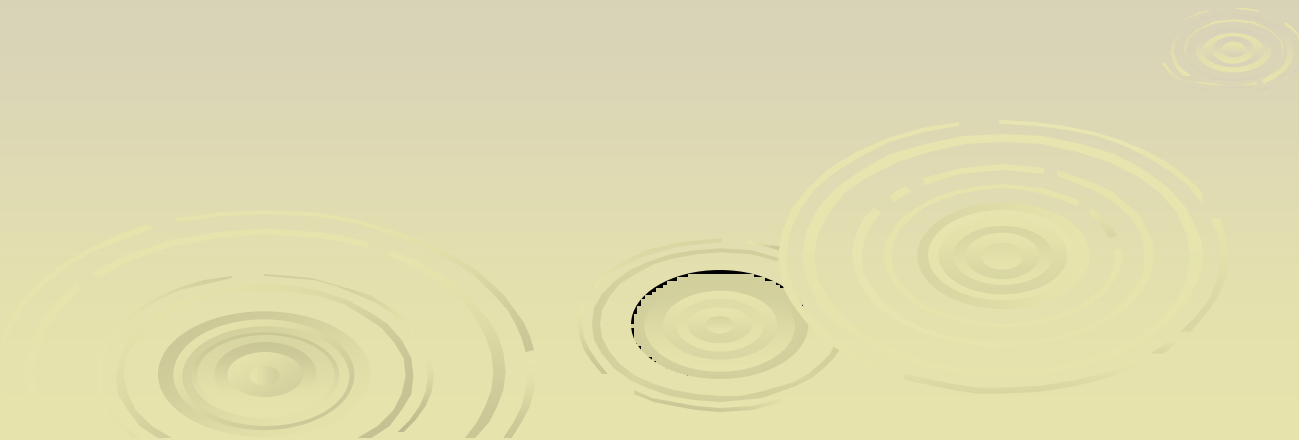# FRST 121 - Photogrammetry - taking measurements from photos...
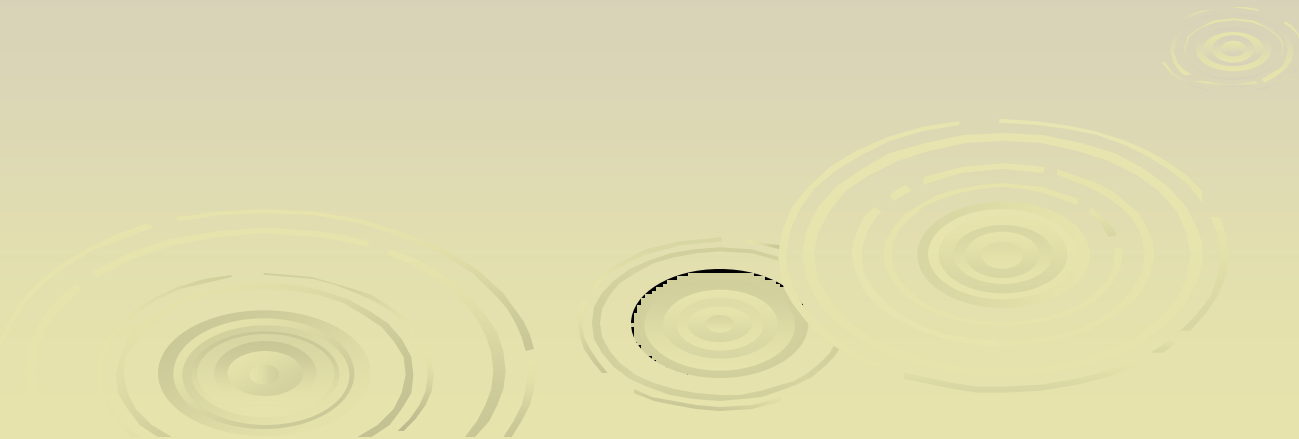
FRST 122 - Photo Interpretation

studying and gathering information to identify

cultural and natural features on photos

Basic Principles of Aerial Photo Interpretation

**http://airphotos.nrcan.gc.ca/photos101/photos101_info_e.php**

seven principles of aerial photo interpretation

1. Size - Absolute and Relative
2. Shape
3. Tone or Colour
4. Texture
5. Pattern
6. Shadow
7. Location, Association, and convergence of evidence

Size – Absolute and relative

- Relative - size of an unknown object in relation to a known object

- a measure of the object's surface area
  - apartments vs. houses
  - single lane road vs. multilane road
  - Railway vs. road
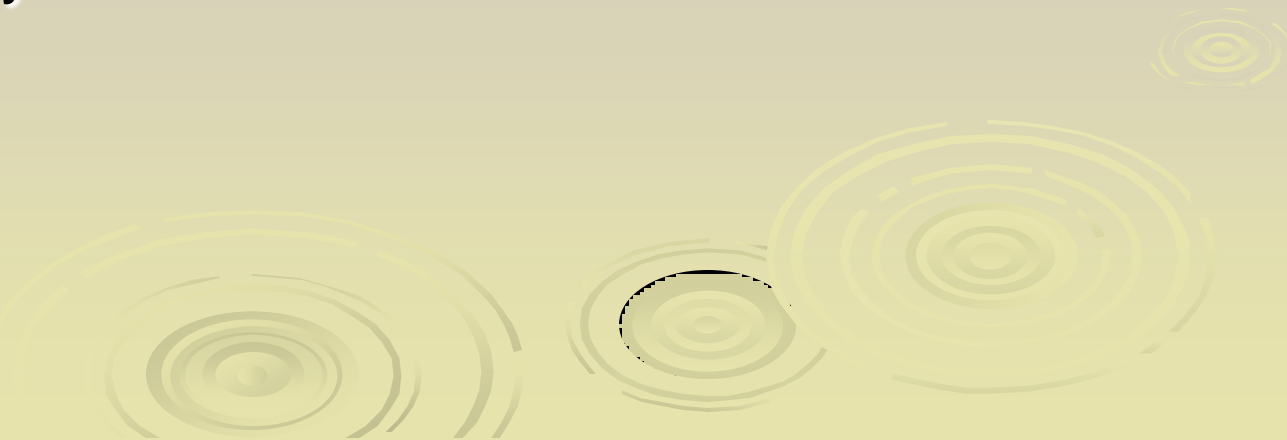
How do you know these aren't houses?

B

What is this????

Size: an object's surface area

single-lane vs. multi-lane highways

- Size
- Baseball and football field help us determine the size of other objects
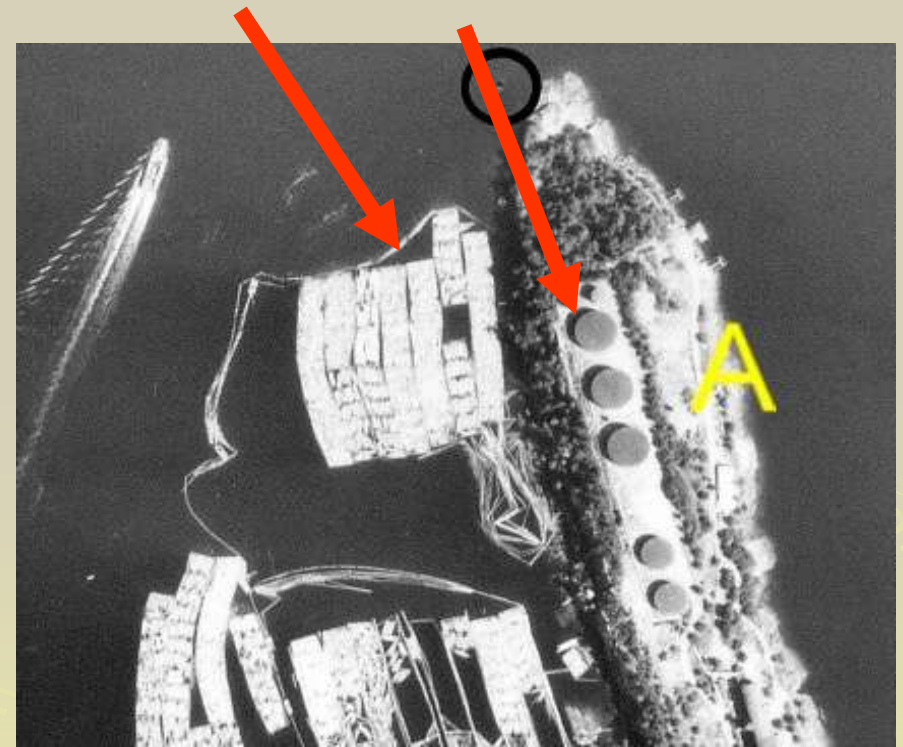- They are <u>relative measures</u>

- Size
- trailer park could be confused with a parking lot
- but the objects the objects in the trailer park are too large to be cars.

Shape - form of an object on an air photo helps to identify the object

Regular uniform shapes often indicate human involvement
cultural features – baseball fields, running tracks, **legal boundaries**

Shape

Shape: natural features – tree species, landforms

Hw vs. Bg

Oxbows

Tone/Colour: sand has a bright tone, while water usually has a dark tone

Color, or tone on black and white photos

Conifer   **Hardwood**

Soil moisture variation

tree species can be determined by the colour of their leaves

Texture

- the physical characteristics of an object will change the way they appear

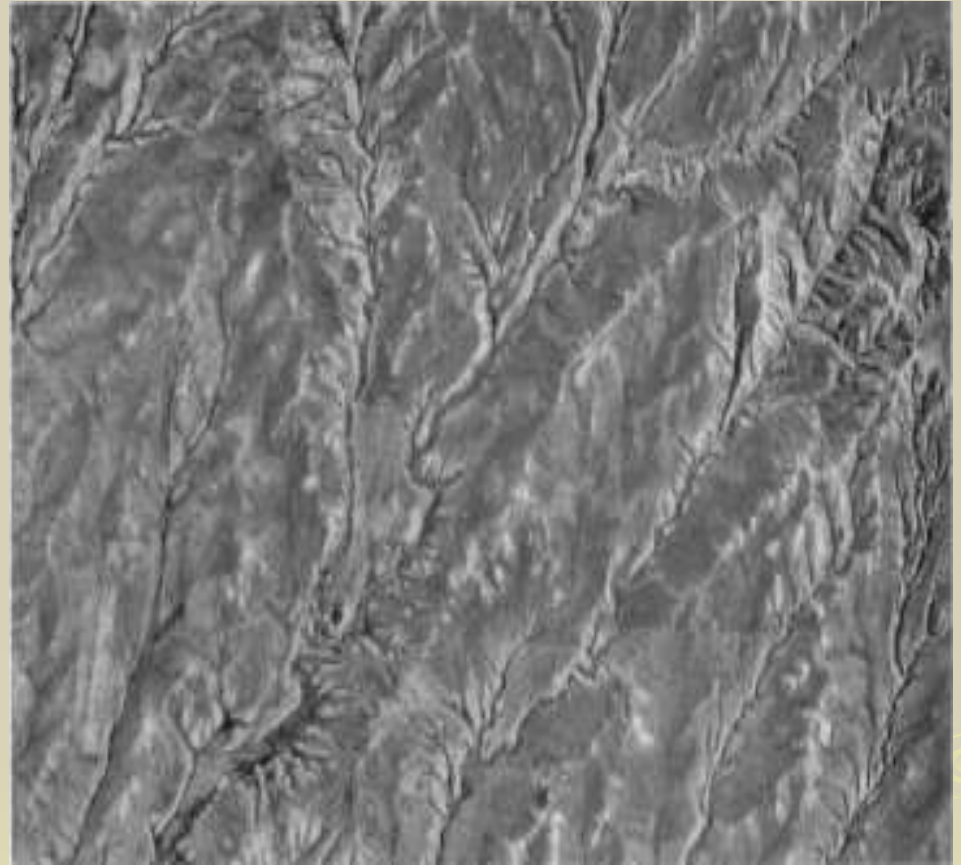- Smooth - pasture, bare fields, water, etc.

- Coarse - forest
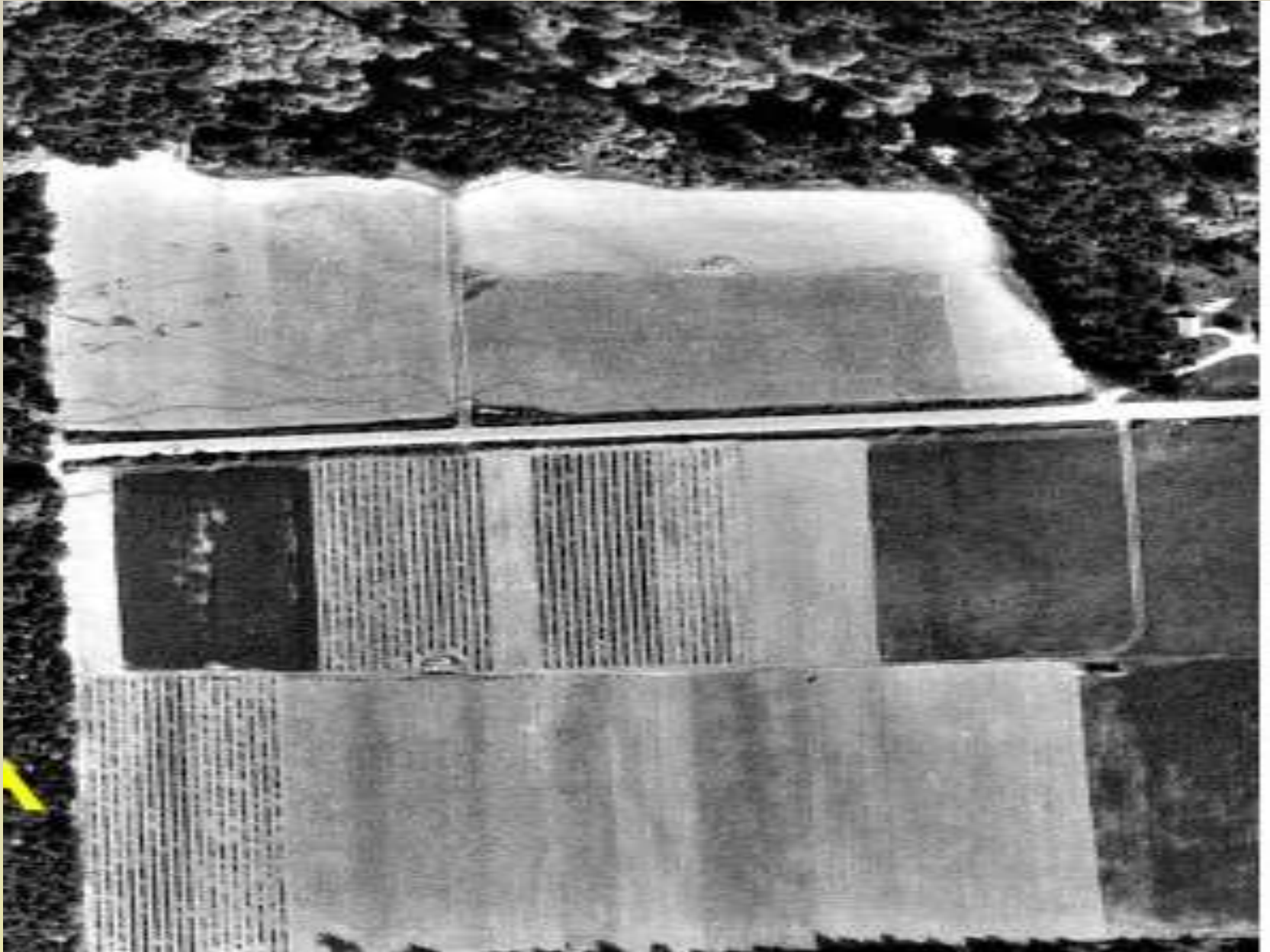
Pattern: the spatial arrangement of objects

Pattern

- overall spatial form of related features

- repeating patterns indicate cultural features

- random = natural

- drainage patterns can help determine bedrock types

Dendritic pattern

Pattern - row crops vs. pasture

Pattern - Orderly man-made patterns of fields, orchards, and roads
Random natural patterns of river and forest

Shadows

- shadows cast by some features can aid in their i.d.

- storage tanks, bridges can be identified in this way

Powerline transmission towers

Shadow: provides information about the object's height, shape, and orientation (e.g. tree species)

Species?

Shadow: tree species

Species?

Fotoğraf: George Steinmetz

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Dev Develer

National Geographic Türkiye, Şubat 2005

Association/Site: associating the presence of one object with another, or relating it to its environment, can help identify the object (e.g. industrial buildings often have access to railway sidings
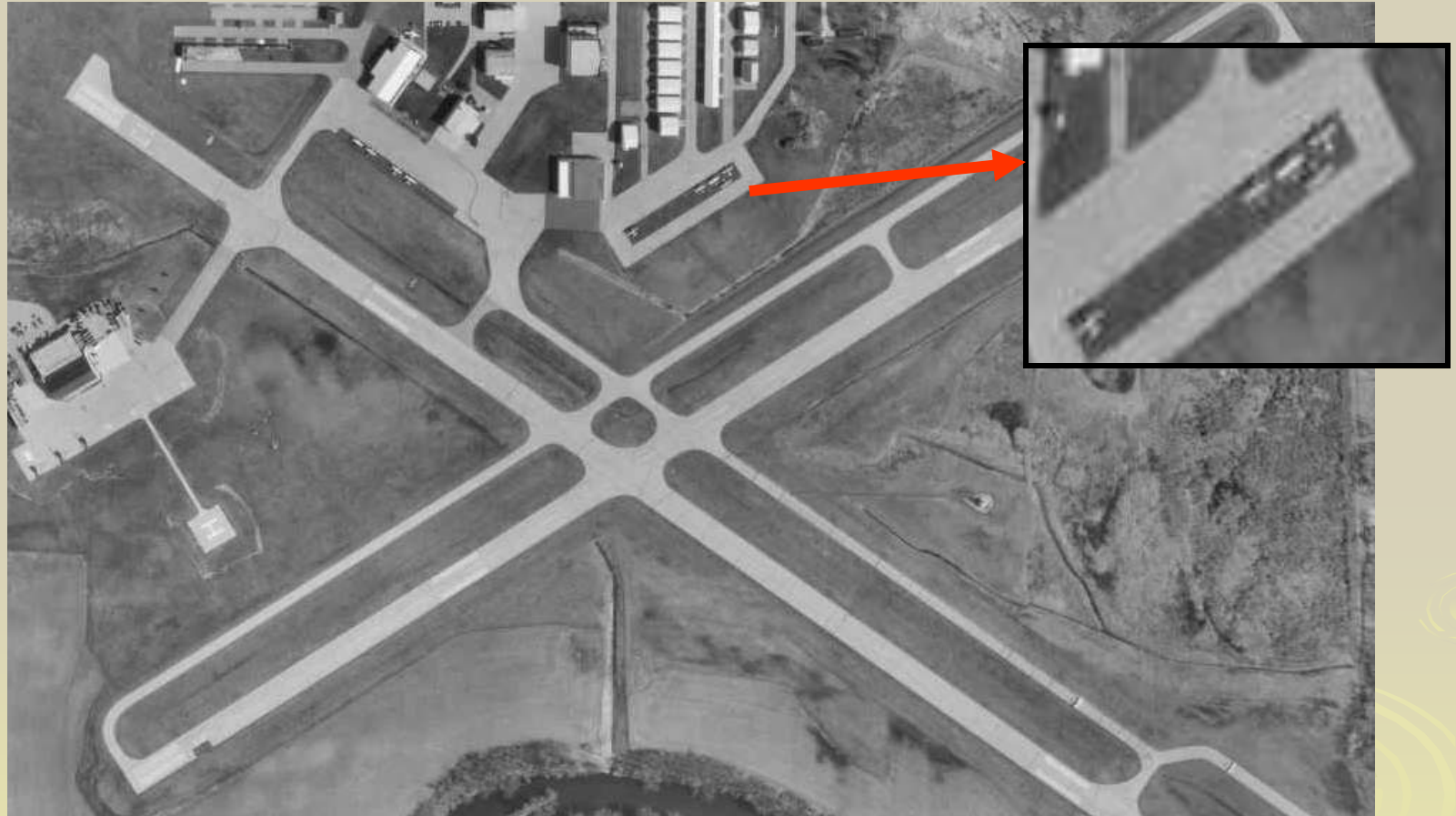

Dry-dock for ships

Railway access

Water

It's an airport because of its shape <u>and</u> because there are airplanes.
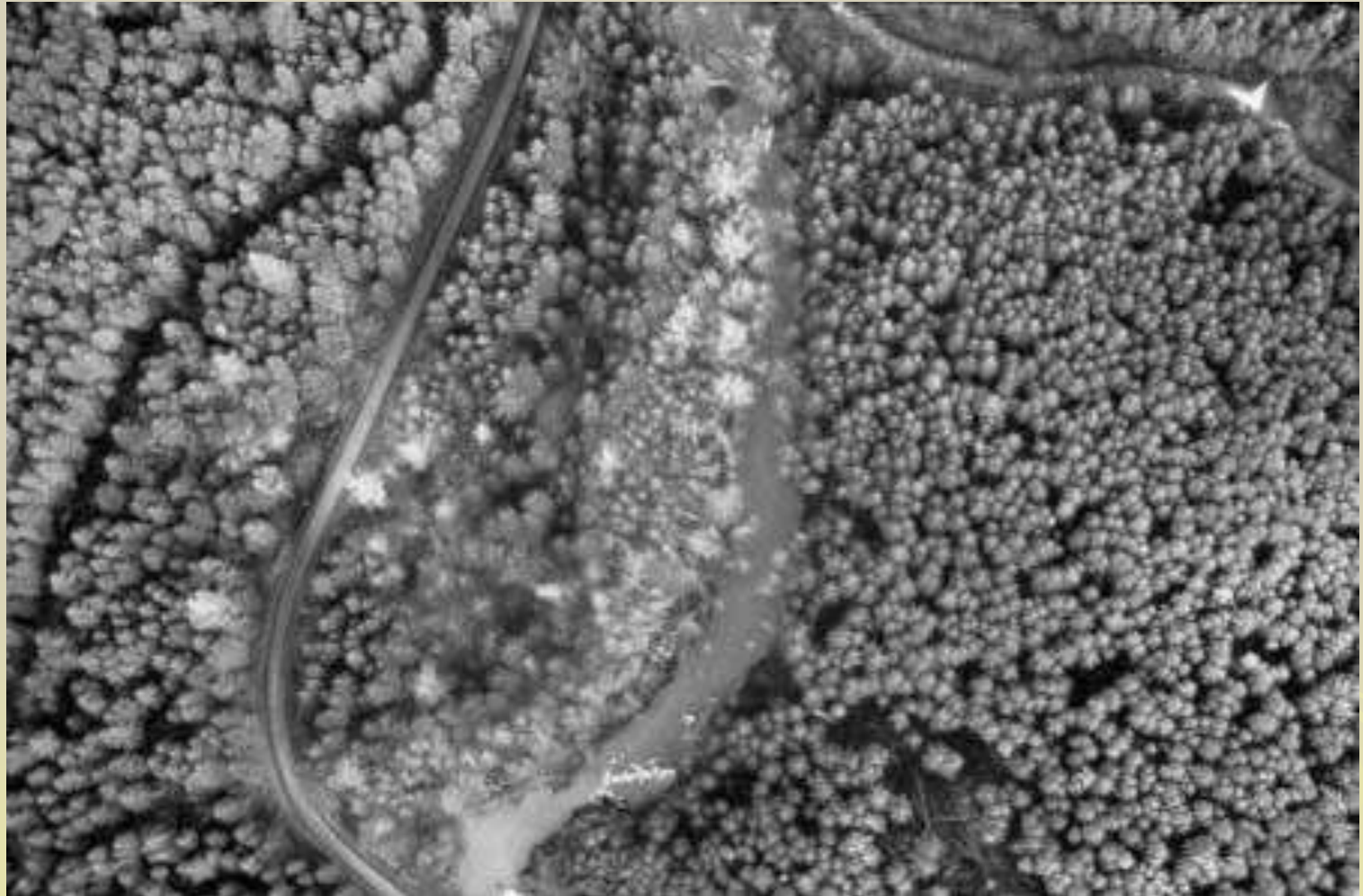
Location / Association – bring together a bunch of evidence

- relationship of a feature to its environment
- identifying one feature can help identify another
- cooling towers, Power lines, large water body

What is this Place???

Association very useful to identify trees eg. - alder near the stream

Applications: Soils

➢ Once bedrock geology and surface geology are known, a soil scientist can classify soil types based on soil tone, slope, etc.

Soil survey

Applications: Geology

San Andreas fault, Carrizo Plain, CA

> Geologic mapping
> - Different drainage patterns can reveal what type of geology is present
> - Folds and faults are sometimes more recognizable from the air

Applications: Forestry

➢ Forest Cover maps – age, height, species, stocking

➢ Appraisal of damage due to fire, insects, and disease

➢ Timber volume estimates

➢ Wildlife habitat management

...estimating populations...

Seven Principles:

1. Shape
2. Size
3. Tone or color
4. Texture
5. Pattern
6. Shadow
7. Association