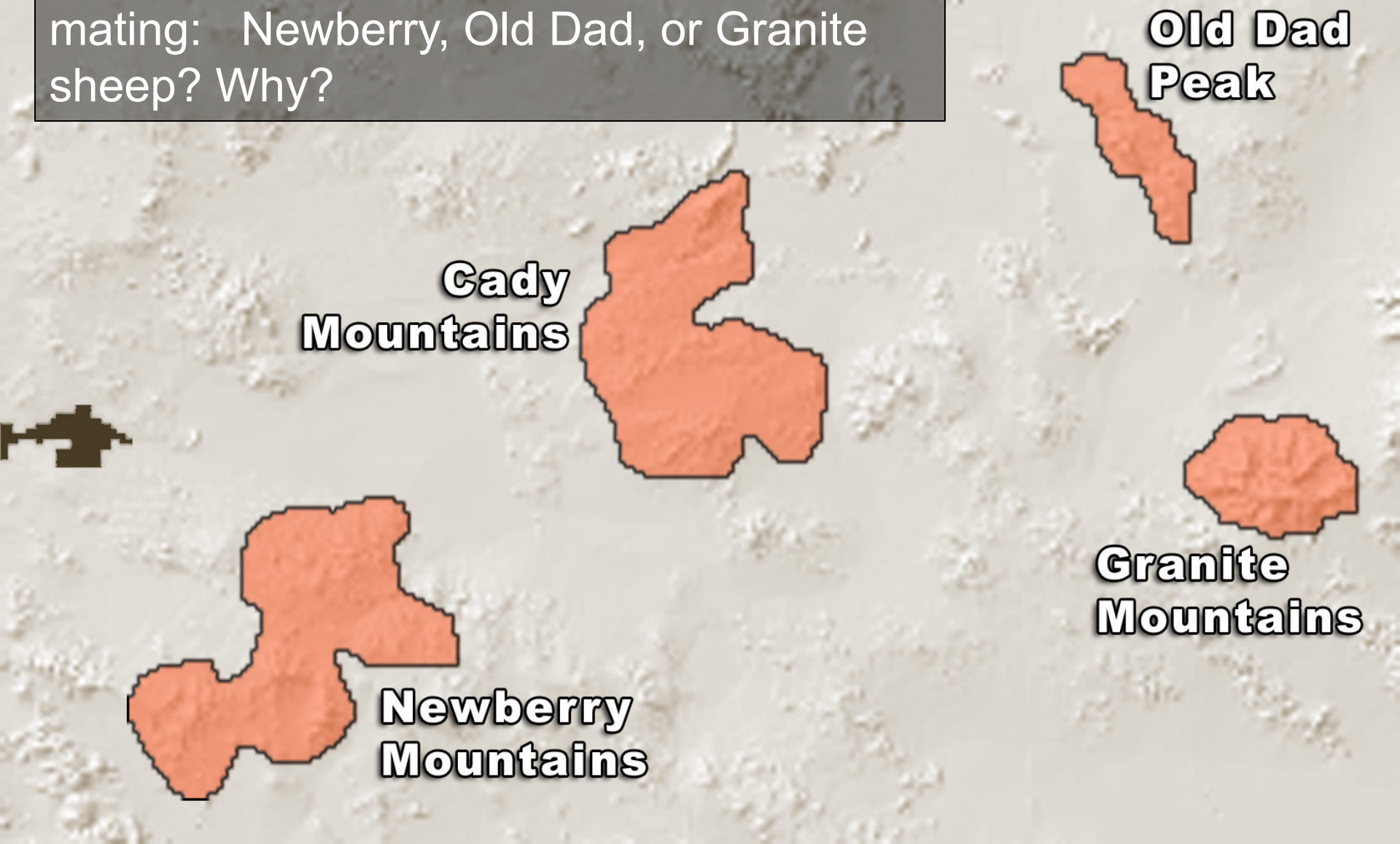
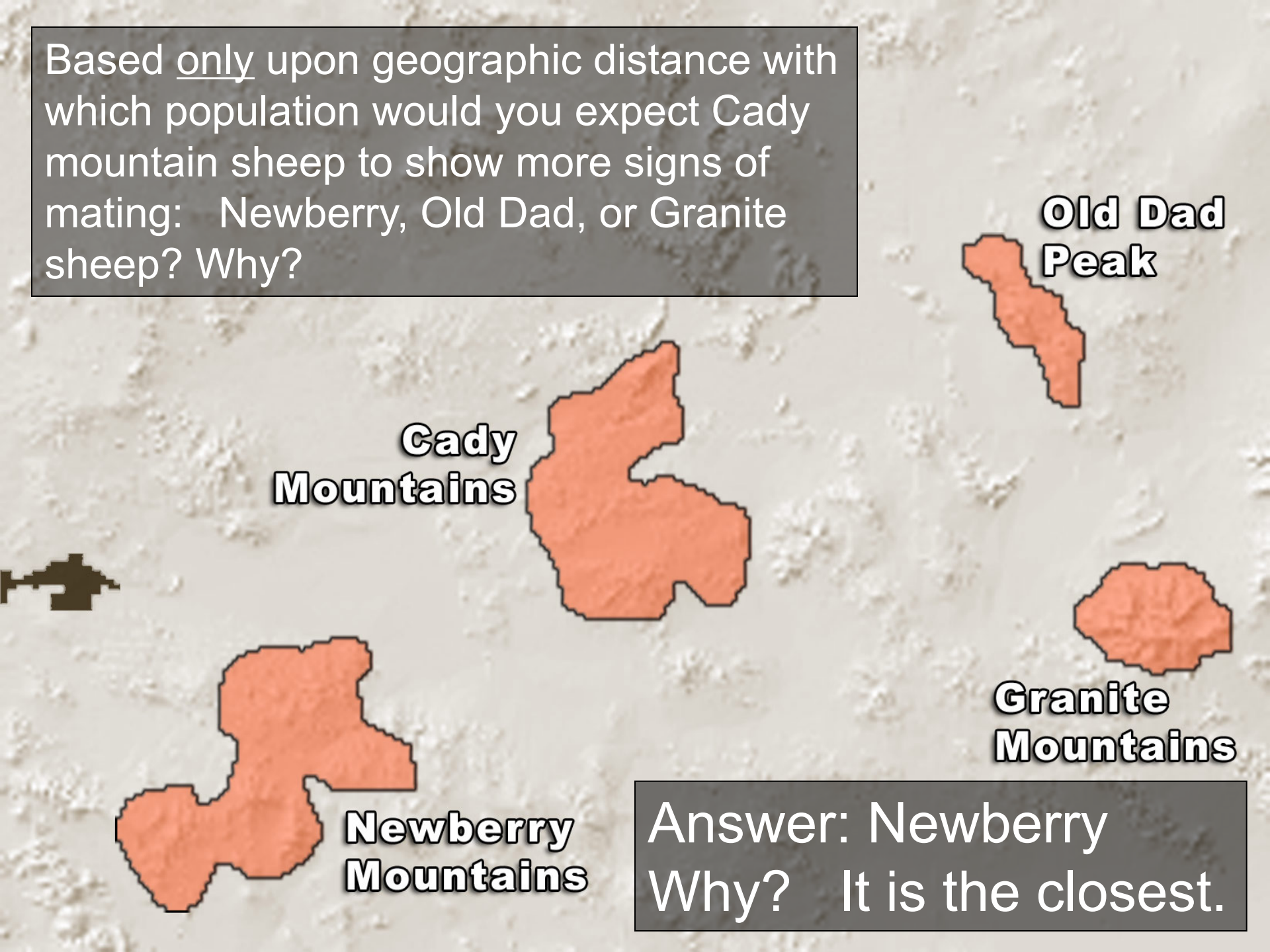
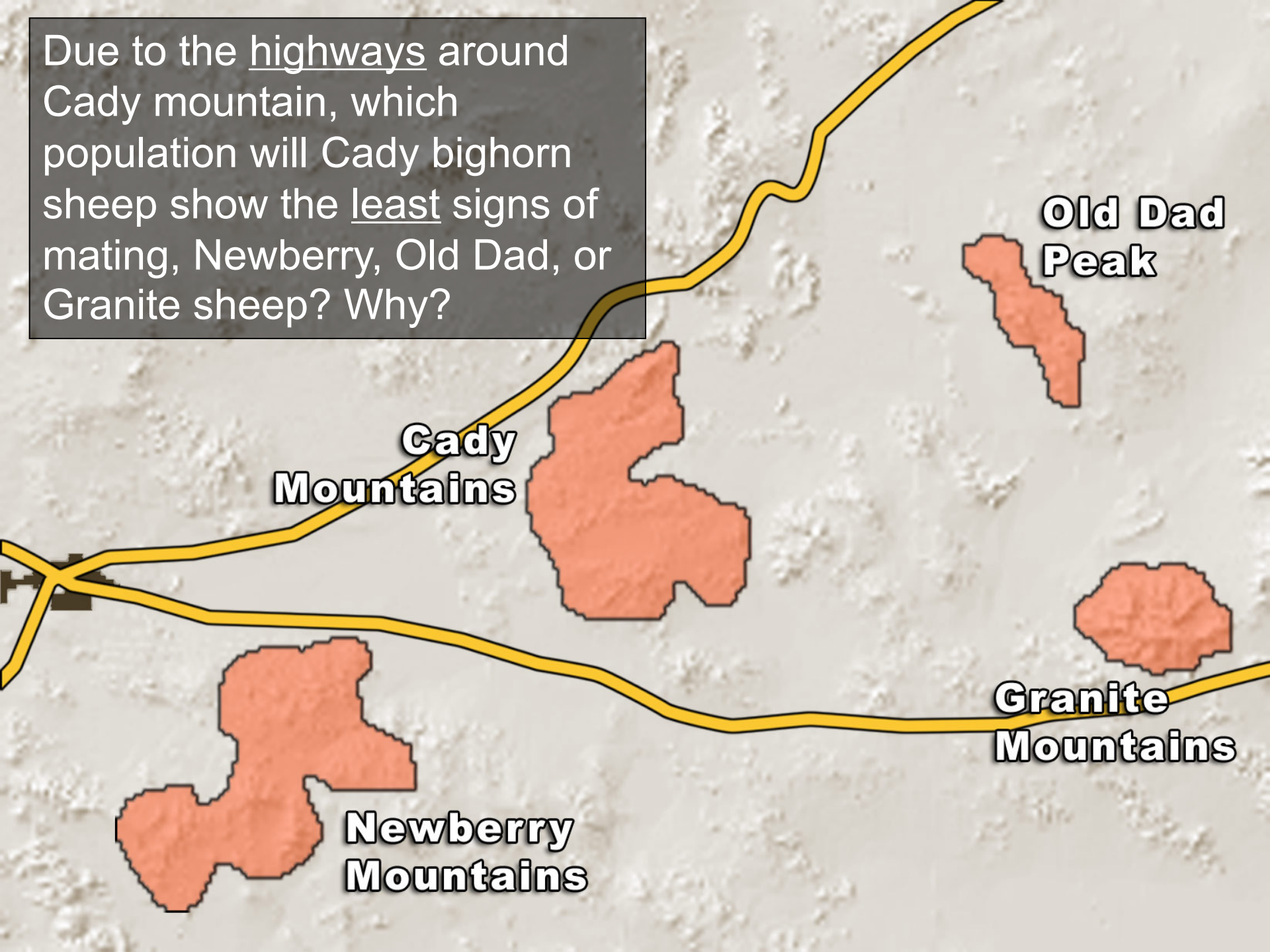

Examining the DNA for evidence of breeding between mountaintop sheep populations.
LAS VEGAS
Clark
Indian Spring
Piute Range
Wood
Old Dad
Hackberry
Cady
Providence
Granite
Clipper
Newberry
Marble
South Bristol
Cushenbury
San Gabriel
San Gorgonio
LOS ANGELES
Little San Bernardino
Eagle–Lost Plains
Eagle–Buzzard Spring
Orocopeia
KEY
BIGHORN SHEEP POPULATIONS
URBAN AREAS
ROADS

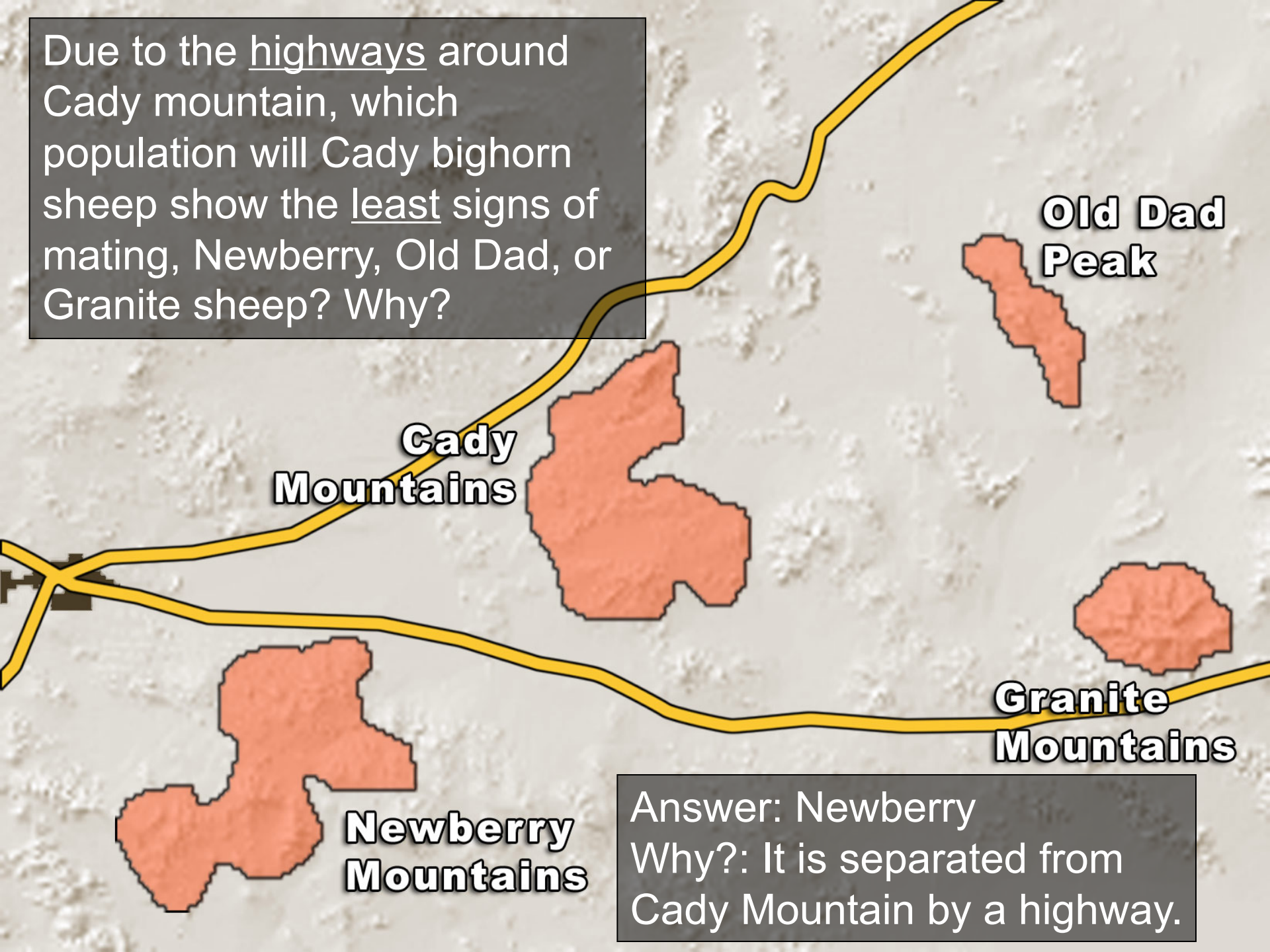

How would a highway running through two sheep populations affect their mating habits?
LAS VEGAS
Clark
Indian Spring
Piute Range
Wood
Old Dad
Hackberry
Cady
Providence
Granite
Clipper
Newberry
Marble
South Bristol
Cushenbury
San Gabriel
San Gorgonio
LOS ANGELES
Little San Bernardino
Eagle-Lost Plains
Eagle-Buzzard Spring
Orocopeia
KEY
BIGHORN SHEEP POPULATIONS
URBAN AREAS
ROADS

Based only upon geographic distance with which population would you expect Cady mountain sheep to show more signs of mating: Newberry, Old Dad, or Granite sheep? Why?




Based only upon geographic distance with which population would you expect Cady mountain sheep to show more signs of mating: Newberry, Old Dad, or Granite sheep? Why?
Old Dad Peak
Cady Mountains
Granite Mountains
Newberry Mountains
Answer: Newberry
Why? It is the closest.


Due to the highways around Cady mountain, which population will Cady bighorn sheep show the least signs of mating, Newberry, Old Dad, or Granite sheep? Why?
Old Dad Peak
Cady Mountains
Granite Mountains
Newberry Mountains


Due to the highways around Cady mountain, which population will Cady bighorn sheep show the least signs of mating, Newberry, Old Dad, or Granite sheep? Why?
Old Dad Peak
Cady Mountains
Granite Mountains
Newberry Mountains
Answer: Newberry
Why?: It is separated from Cady Mountain by a highway.

Instructions for Analysis

STEP 1:

a. Use a metric ruler to measure the minimum distance in millimeters between mountain tops.

b. Based on these measurements, predict which populations will have the highest level of inter-breeding.

STEP 2:

Then use the genetic data (arrows), draw double-headed arrows to connect populations to signify the documented level of breeding between populations. More arrows show more connection, i.e., more breeding; fewer arrows show less connection, i.e., less breeding.

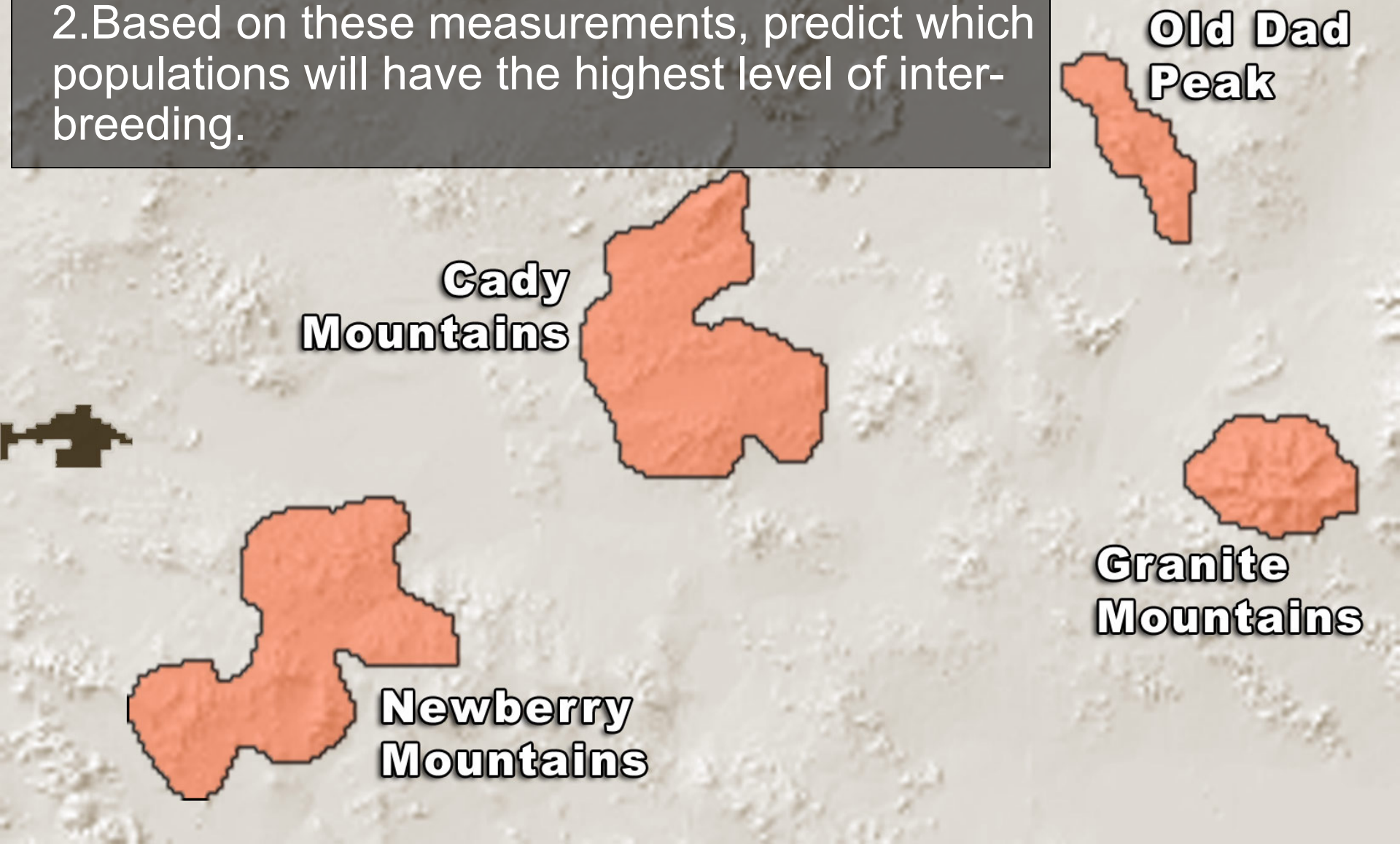
STEP 3:

a. Answer questions to compare your results from step 1 and step 2.

b. Predict highway location and draw it on map.

STEP 1:

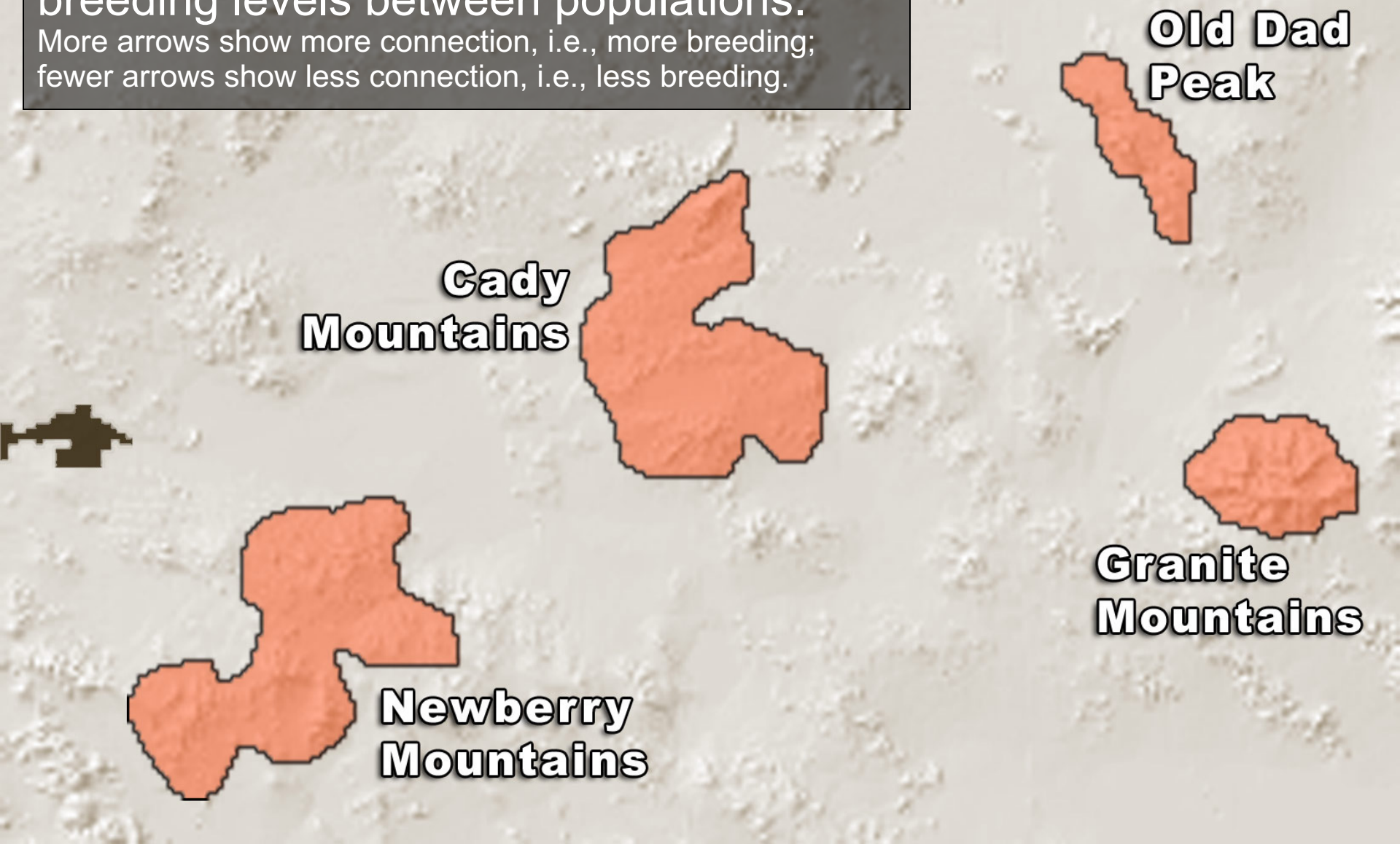
1. Use a metric ruler to measure the minimum distance in millimeters between mountain tops.
2. Based on these measurements, predict which populations will have the highest level of inter-breeding.



STEP 2: Using the genetic data (arrows), draw double-headed arrows to connect populations to signify the breeding levels between populations.

More arrows show more connection, i.e., more breeding; fewer arrows show less connection, i.e., less breeding.

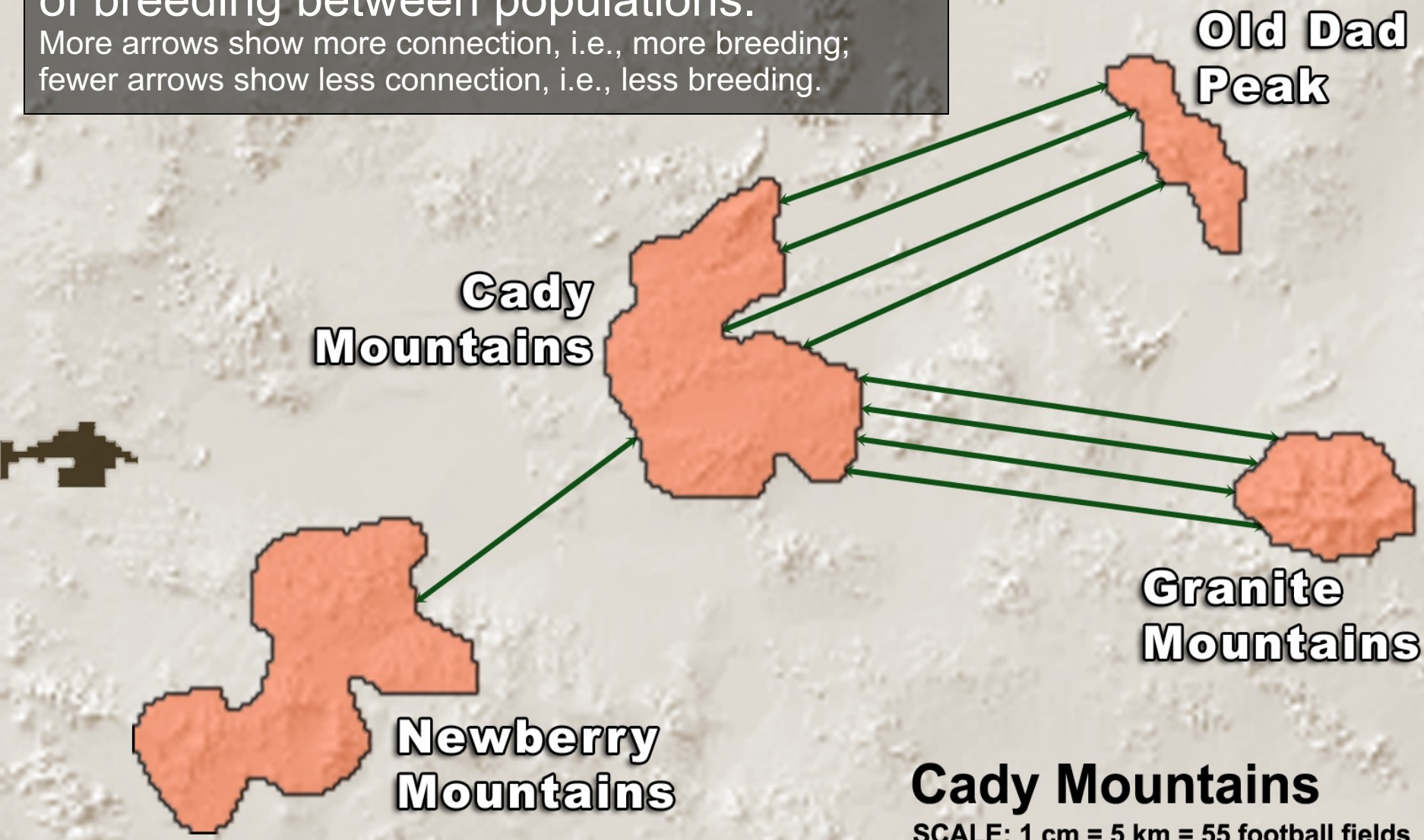
Breeding Evidence:	Cady sheep
Old Dad sheep	↕↕↕↕
Granite sheep	↕↕↕↕
Newberry sheep	↕



STEP 2: Using the genetic data (arrows), draw double-headed arrows to connect populations to signify the levels of breeding between populations.

More arrows show more connection, i.e., more breeding; fewer arrows show less connection, i.e., less breeding.

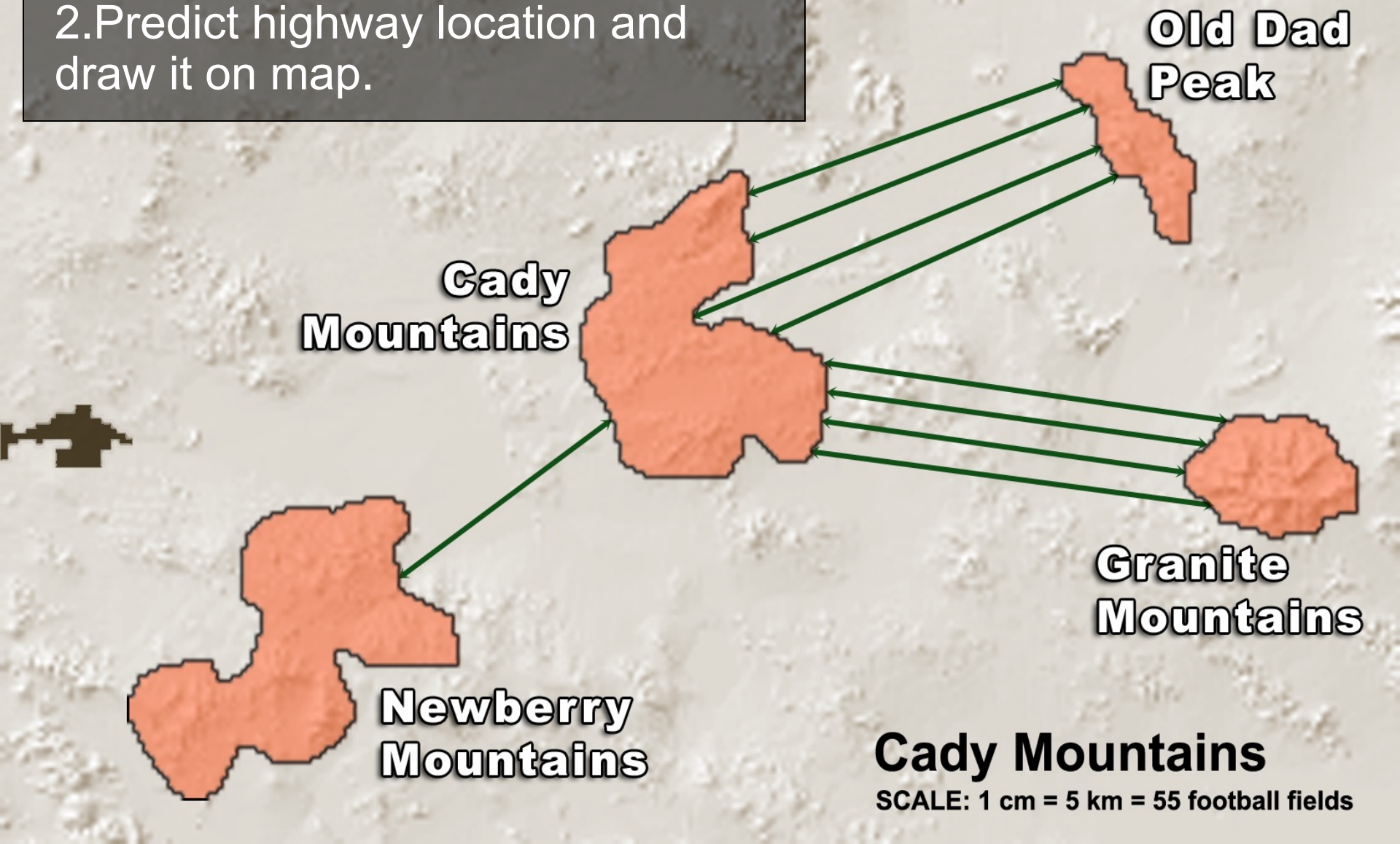
Breeding Evidence:	Cady sheep
Old Dad sheep	↕↕↕↕
Granite sheep	↕↕↕↕
Newberry sheep	↕



STEP 3:

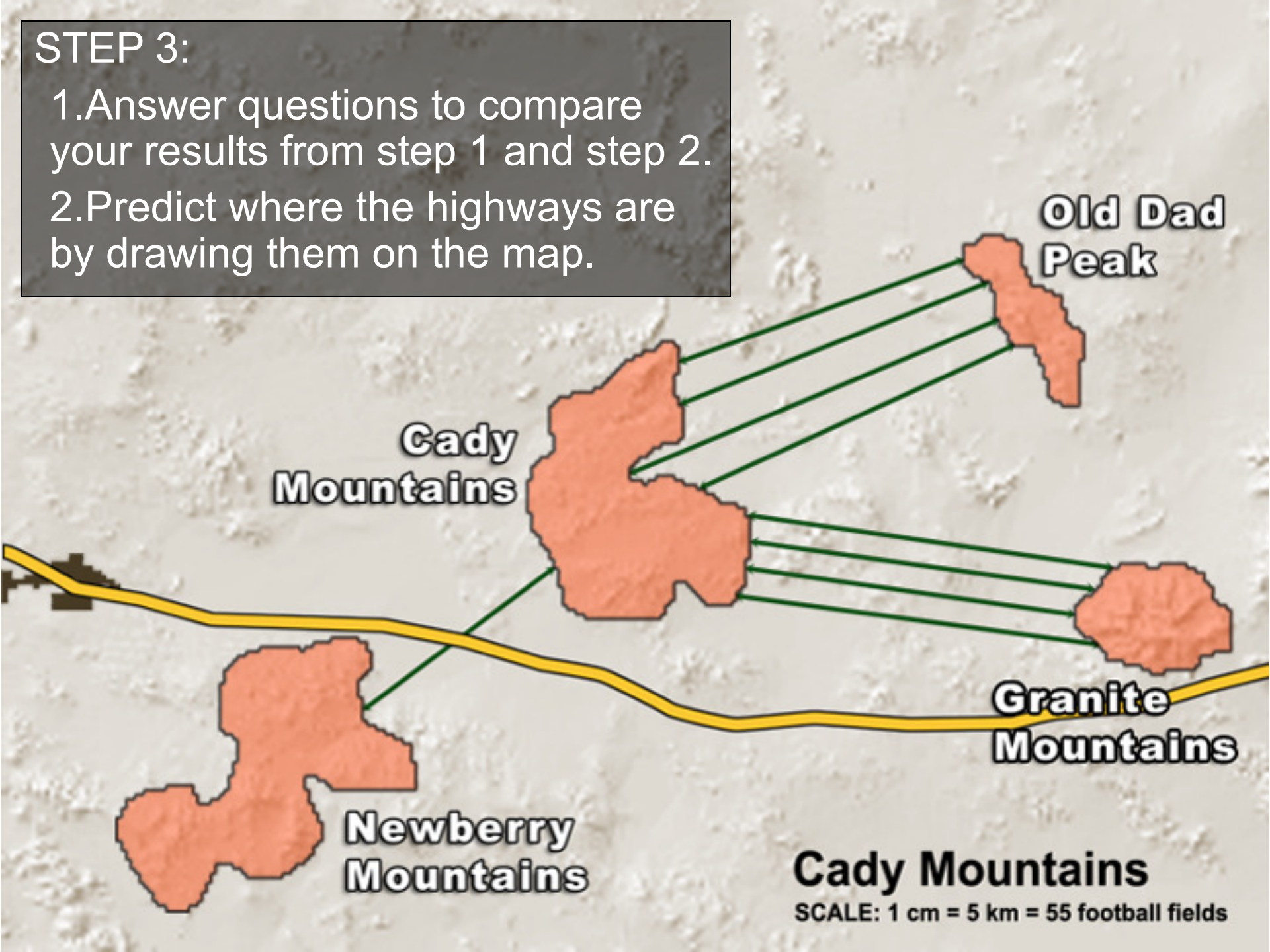
1. Answer questions to compare your results from step 1 and step 2.
2. Predict highway location and draw it on map.

Where would you put the highway?



STEP 3:

1. Answer questions to compare your results from step 1 and step 2.
2. Predict where the highways are by drawing them on the map.



After completing your analysis, transfer your data onto this overview map. Draw lines that signify the genetic data and draw highways based upon those line data.


LAS VEGAS
Highways
Clark
Indian Spring
Piute Range
Wood
Old Dad
Hackberry
Cady
Providence
Granite
Clipper
Newberry
Marble
South Bristol
Cushenbury
San Gabriel
San Gorgonio
LOS ANGELES
Little San Bernardino
Eagle-Lost Plains
Eagle-Buzzard Spring
Orocopeia
KEY
BIGHORN SHEEP POPULATIONS
URBAN AREAS
ROADS