4th Grade –Alcove for an Abode

Living things and their habitats

Class Description

On a ranger-guided walk students will explore the shrub and woodland life zone and investigate the similarities, differences, and interactions of organisms living along the Alcove Nature Trail.

Location: Alcove Nature Trail

Duration: 1 ½ hr., 1 mile roundtrip

Standards Addressed

Science 2.1 – *All living things share similar characteristics, but they also have differences that can be described and classified.*

Science 2.3 – *There is interaction and interdependence between and among living and nonliving components of ecosystems.*

Enduring Understandings/Essential Questions

Physical environments affect organisms in special ways.
Setting plays an important part in understanding organisms.
How are the life zones of Colorado defined by geography?
How does the physical environment affect organisms?

Vocabulary Addressed

Life zones
Alpine Tundra
Sub-Alpine forest
Montane Forest
Shrub and woodland
Grasslands
Semi-desert shrublands and desert canyonlands
Ecosystem
Habitat
Climate

Theme, etc.

Theme:

The semi-desert shrubland and desert canyonlands may be a harsh environment but the plants and animals that call this life zone home have unique adaptations that allow them to survive.

Objectives:

-Students will be able to list 3 adaptations of plants and 3 adaptations of animals living in the semi-desert shrublands and canyonlands
-Students will be able to describe the climate and physical characteristics of this ecosystem.

Major Concepts:

-Introduction to Colorado life zones
-Adaptations of plant s and animals living in the semi-desert shrublands/desert canyonlands
-Climate and physical characteristics of the semi-desert shrublands and desert canyonlands

Class Outline

Alcove Trail Hike *(1 hr. 15 minutes)*

Introduction: Alcove Nature trail, 0.5 miles, general welcome/arrowhead talk. . .

Stop 1 (Marker #1)
Theme: The life zone we are hiking in, what plants/animals need to survive, habitatt
Props: Food, water, shelter, air picture, crust photo
Tips: Have the students feel the sand below their feet. Ask the students where they think the sand came from? The sand is what is left when the rocks around us start to break down. Explain to the students that we are in the semi-desert shrubland on the mesa top of COLM. Ask the students if they think animals can survive up here. Could this be a habitat? Have a volunteer define habitat. If they do live up here, what sort of needs might they have? (Food, water, shelter, air) Using the picture, explain to the students where specific examples of each of these could be found at COLM. Show students soil crust & explain again how we can help protect it as we hike.

Transition: Have the students pick an animal that lives at COLM and as they continue hiking, have them think about where they would find food and shelter. *Alternative hand students in groups of 2 a picture of an animal that lives here in COLM. Encourage them to use clues in the pictures to help them figure out where it would find food and shelter.*

Stop 2 (Marker #10)
Theme: Pinyon mouse and the Utah Juniper tree
Props: Pinyon mouse, juniper titmouse photos, juniper seeds in magnifying box
Tips: Start by asking a few volunteers to share which animal they were and where they found food and shelter. Have the students take a closer look at the Utah juniper trees near where you stopped. Encourage them to touch the needles and make observations about it (shinny, spiky, round, flat etc). Ask the students if anyone knows what type of tree this is. Help lead the students to Utah juniper. One unique adaptation is that the Utah juniper can kill off a limb, if in need of water, to preserve the overall health of the tree. Its berries, when ripe, are brown in color and the seeds found inside are the favorite food of one of the animals we have living here at COLM. Have the students guess what animal you are talking about. It is the pinyon mouse. Not only does the juniper provide the mouse with food, but also his shelter. The pinyon mouse is an excellent climber and the juniper provides him with a protected place to live. Another animal that lives in the Juniper is the Juniper Titmouse (show photo).

Transition: Not only can we find pinyon mice on the mesa top, but also a variety of lizards. One of these lizards is the western whiptail lizard that makes small holes in the ground. (show photo of lizard digging) Have the students look for examples of these holes as they continue hiking.

Stop 3 (Marker #20)
Theme: Pinyon Jay and the Pinyon Pine
Props: Picture of the Pinyon jay, pine nuts in container, pine nuts to give to students to try (optional
Tips: Have the students take a closer look at the pinyon pine trees near where you stopped. Encourage them to touch the needles and make observations about it (shinny, spiky, round, flat etc). Ask the students if anyone knows what type of tree this is. Help lead the students to pinyon pine. Pick up a couple pine cones and see if you can see the pine nuts sticking out of any of them. Pass them around for the students to see. Ask the students if anyone knows what it is sticking out of the middle of the cone. Have the students turn to their neighbor and come up with a hypothesis about which animal would be the best at getting the nuts out of the cones. Bring the group back together and tell them about the pinyon jay. They have a long beak which helps them dig the nuts out. They are a rather noisy bird that will live in groups in the fall, all contributing to collecting nuts for the winter. If there are no nut allergies could give each student a pine nut to try opening to see if there is a good nut inside & taste it. Explain how the pinyon jay finds out if there is a good nut inside (weighs it in his beak, taps it to see if it sounds full or hollow).

Transition: Have the students brainstorm where else besides trees might make good homes for some of the animals living here at COLM. Encourage them to look for signs in the landscape as they continue hiking.

Stop 4 (Marker #27)
Theme: Unique ways to find shelter and the bushy-tailed woodrat
Props: Picture of a bushy-tailed woodrat
Tips: Allow a couple volunteers to share their shelter brainstorms. What makes a place good shelter? Have the students look around and see if they can find any more evidence of shelter. They should stumble upon the nest to the left above the alcoves. Ask the students who might be seeking shelter up there. The bushy-tailed woodrat is like a person that never wants to move or leave home. They will use the same nest over and over again.

Transition: Some animals will actually use their shelter to help them catch food. Have the students think about which animal you might be talking about as they continue hiking.

Stop 5 (Marker #29)
Theme: Ant lions and how they use their shelter to catch food
Props: Picture of ant lions
Tips: Show the students the sand piles under the alcove that are full of tiny holes. Explain to them that these holes are where larva ant lions catch their food. When ants get close enough to the holes, the ant lions will spray sand at them causing them to fall into the holes. This makes for an easy and quick meal for the ant lions.

Transition: Ask the students if the entire Monument looks just like it does here on the Alcove trail. Have them brainstorm what other areas of the Monument might look like and the animals that might live there. Do you think there are different types of habitats in the Monument? *(if time allows take them to overlook behind the visitor center to look down into canyon at the other canyon life zones)*

Game (in the open space by the stone house)
Theme: Life zones
Props: Life zone chart and animal pictures

Have the students gather up in a circle and show them the life zone chart. Talk briefly about how different animals and plants have unique adaptations that allow them to live in one or more of the zones.

Hand each student a picture of an animal that can be found here at COLM. Their task is to figure out which life zone their animal lives in. Once they think they have it figured out, they can turn their picture over and discover if they were right. Next, have the students quiz their neighbor on the left to see if they can come up with the same answer.

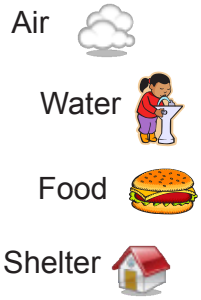
Have the students line up on one side of the open space and choose an object for them to run to on the other. As you call out a life zone, students with an animal found there will run to the object and back again. Once they have come back, stop them in a line and have them say the name of their animal one more time to the group.

Once the students feel comfortable, you could get creative and call out different adaptations that the students will have to decide whether their animal has.

Conclusion
Bring the students back together and have them sit in a circle. Ask them again the 4 things that plants and animals need to survive. What would happen if they could no longer find food, water, shelter, or air? This is why COLM is so important because not only does it protect the beautiful rocks and scenery, but it helps protect plants and animals and their habitats as well. All of the life zones here at COLM are important because different animals may only be able to live in certain ones.

If the students are staying for additional programs, transition them into what they will be doing next.

4th Grade - Alcove for an Abode Props & Stops



Stop #1
(marker #1)

Pinyon Mouse

Stop #2
(marker #10)

Pinyon Jay

Stop #3
(marker #20)

Stop #4
(marker #27)

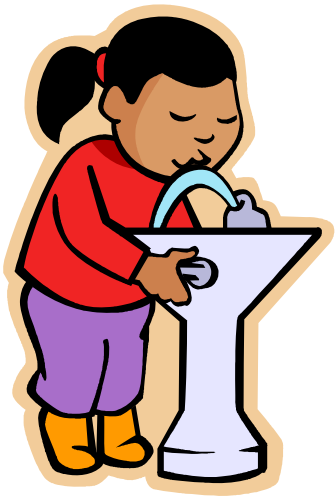
Stop #4
(marker #29)

4th Grade Alcove for an Abode Props

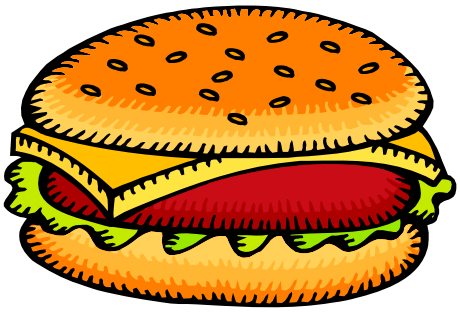
(This is just an assortment of photos helpful for the hike, rangers should choose which ones they want based on what they plan on covering)

Air

Water



Food



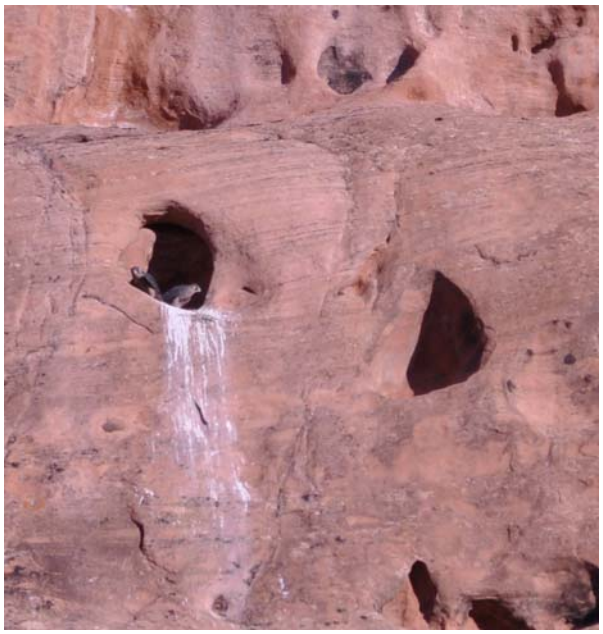
Shelter

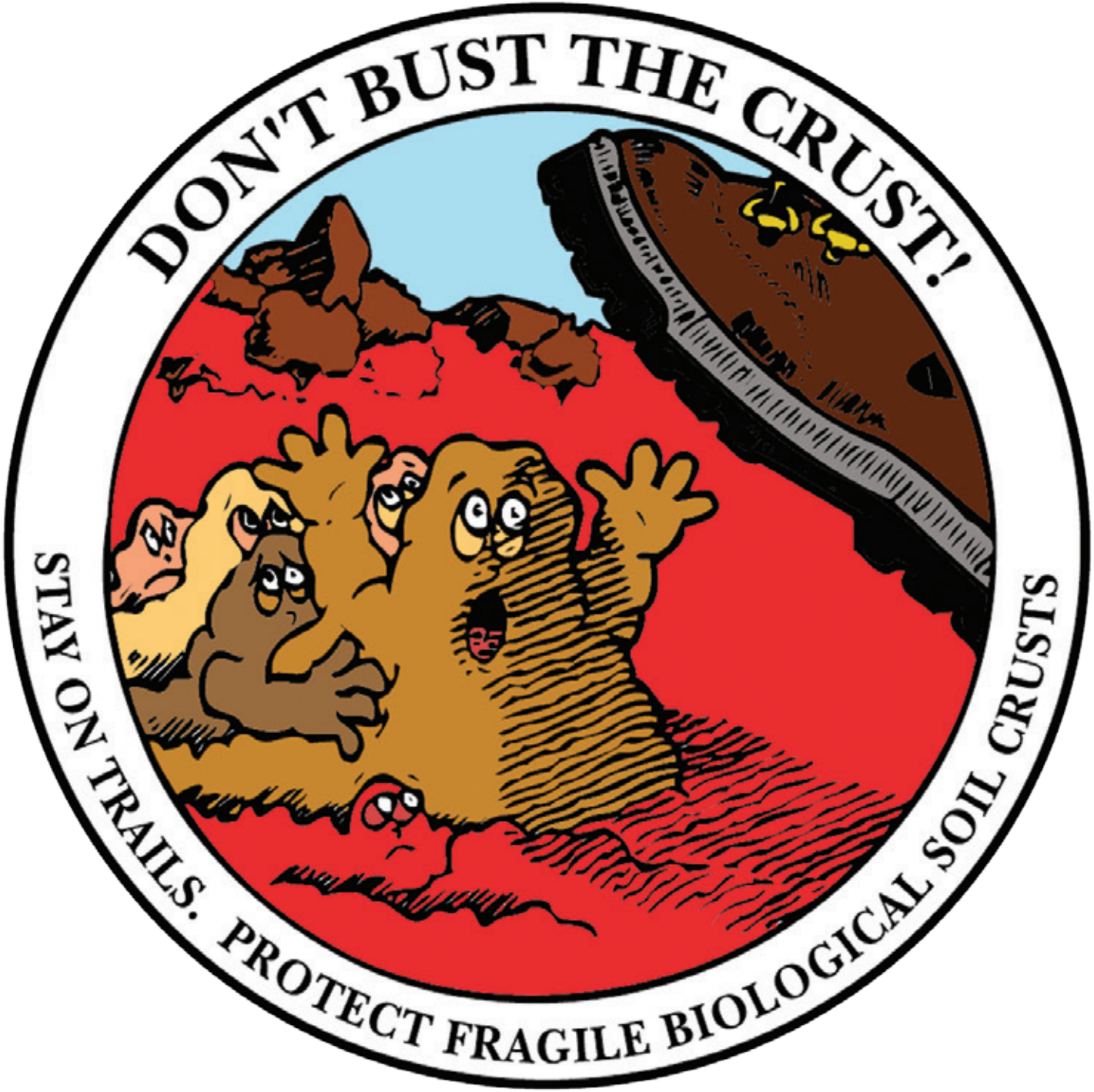
Air

Water

Food

Shelter




DON'T BUST THE CRUST!
STAY ON TRAILS. PROTECT FRAGILE BIOLOGICAL SOIL CRUSTS

Pinyon Mouse

Juniper Titmouse

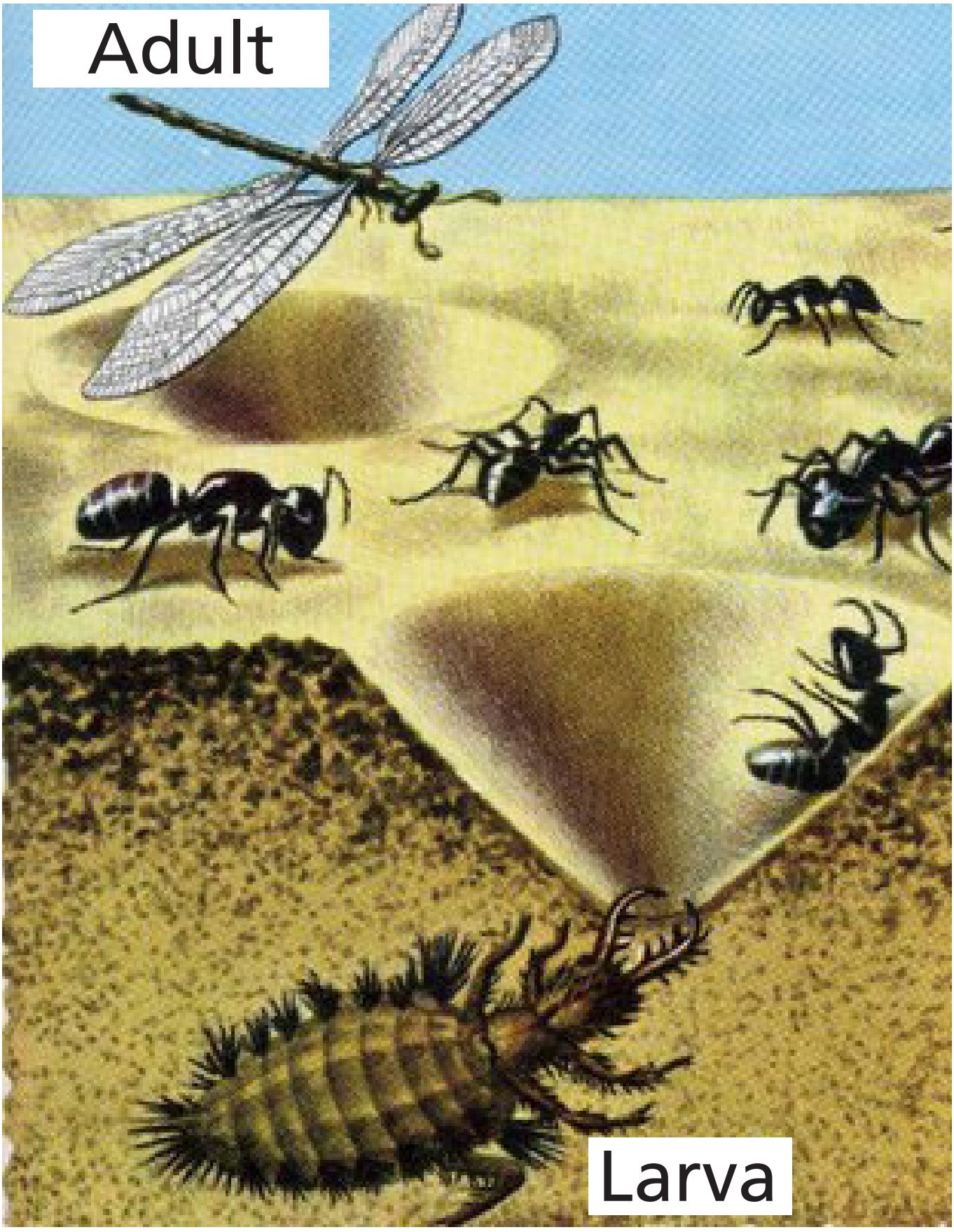
Woodrat

Pinyon Jay

Collared Lizard

Whiptail Lizard

Ant Lion

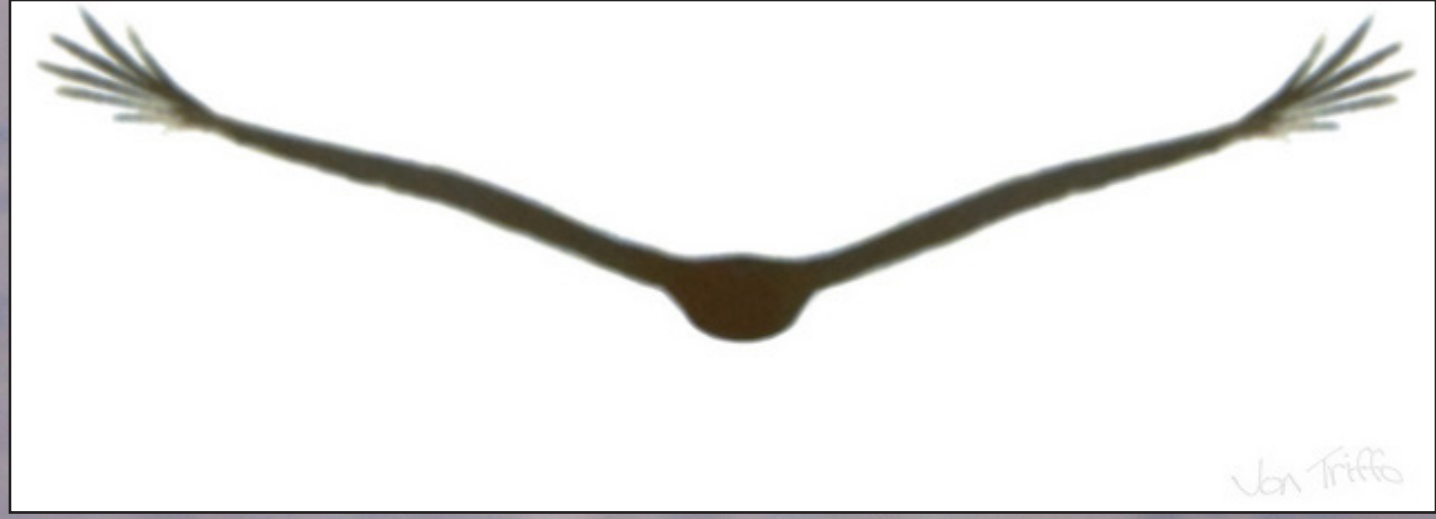

Adult
Larva

Yucca Moth

Ringtail

Giant Desert Hairy Scorpion

Raven



Turkey Vulture

Desert Bighorn Sheep

Ewe and Lamb