Redstone Canyon 2020 Flower Project

Andy Goris
Fort Collins Digital Camera Club

Objective:

Photograph and identify *every* flowering species on our property.

#1: Spring Beauty
April 11, 2020

. . .

#177: Broom Groundsel
September 27, 2020

First, a quick look at the final result.

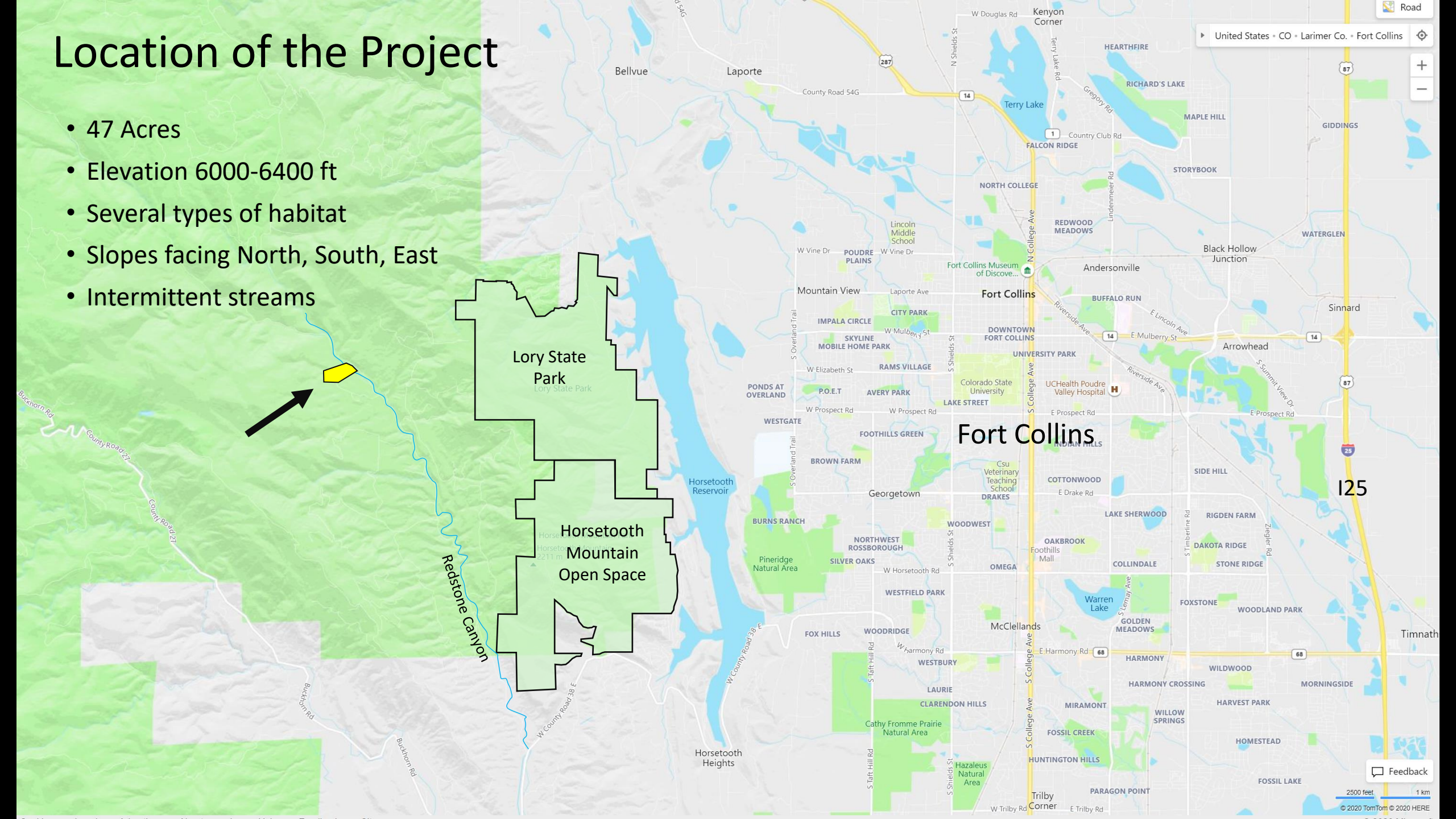Then, the story and techniques of how I got there.

Location of the Project

- 47 Acres

- Elevation 6000-6400 ft

- Several types of habitat

- Slopes facing North, South, East

- Intermittent streams
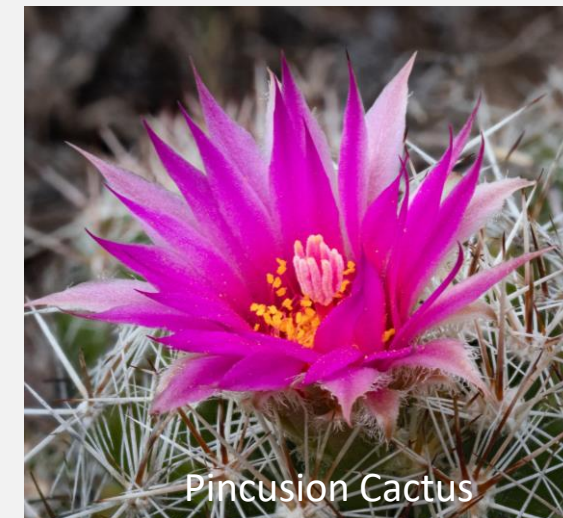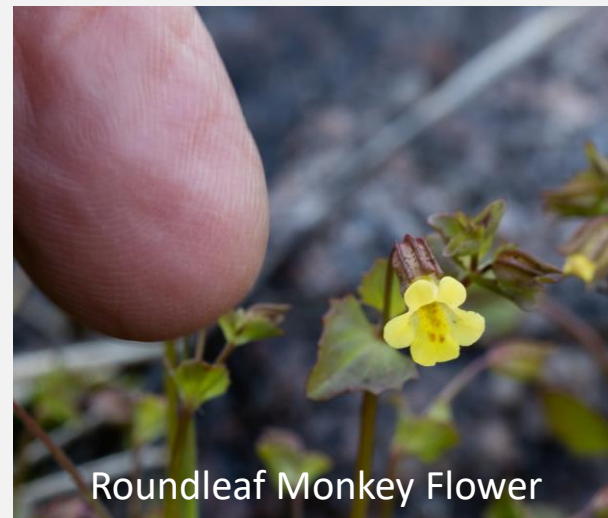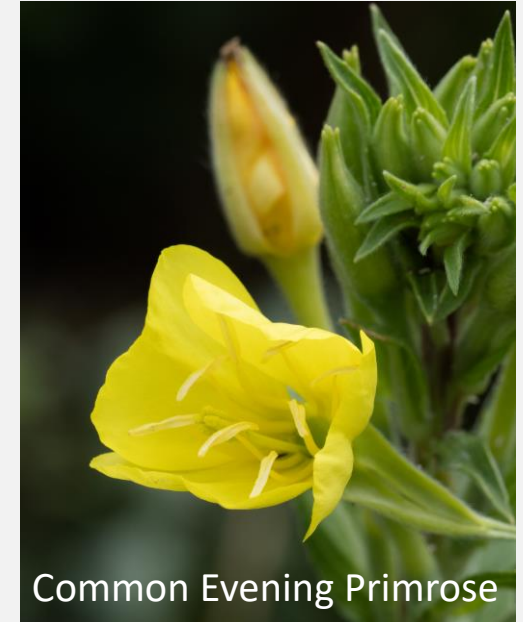
Objectives for the Project

1. This is a photography project *and* a flower project.

2. Focus on photographing the flower as opposed to the entire plant or groupings of plants.

3. Shoot for the highest quality natural photos.

4. All pictures taken in the plant's natural habitat, with its natural background.

5. Plants must be naturally occurring (no landscaping plants)

6. Include all flowering species, including weeds, invasive species, shrubs and trees.

7. OK to use light reflectors, diffusers, flash, and OK to trim grass and sticks around flower for composition.

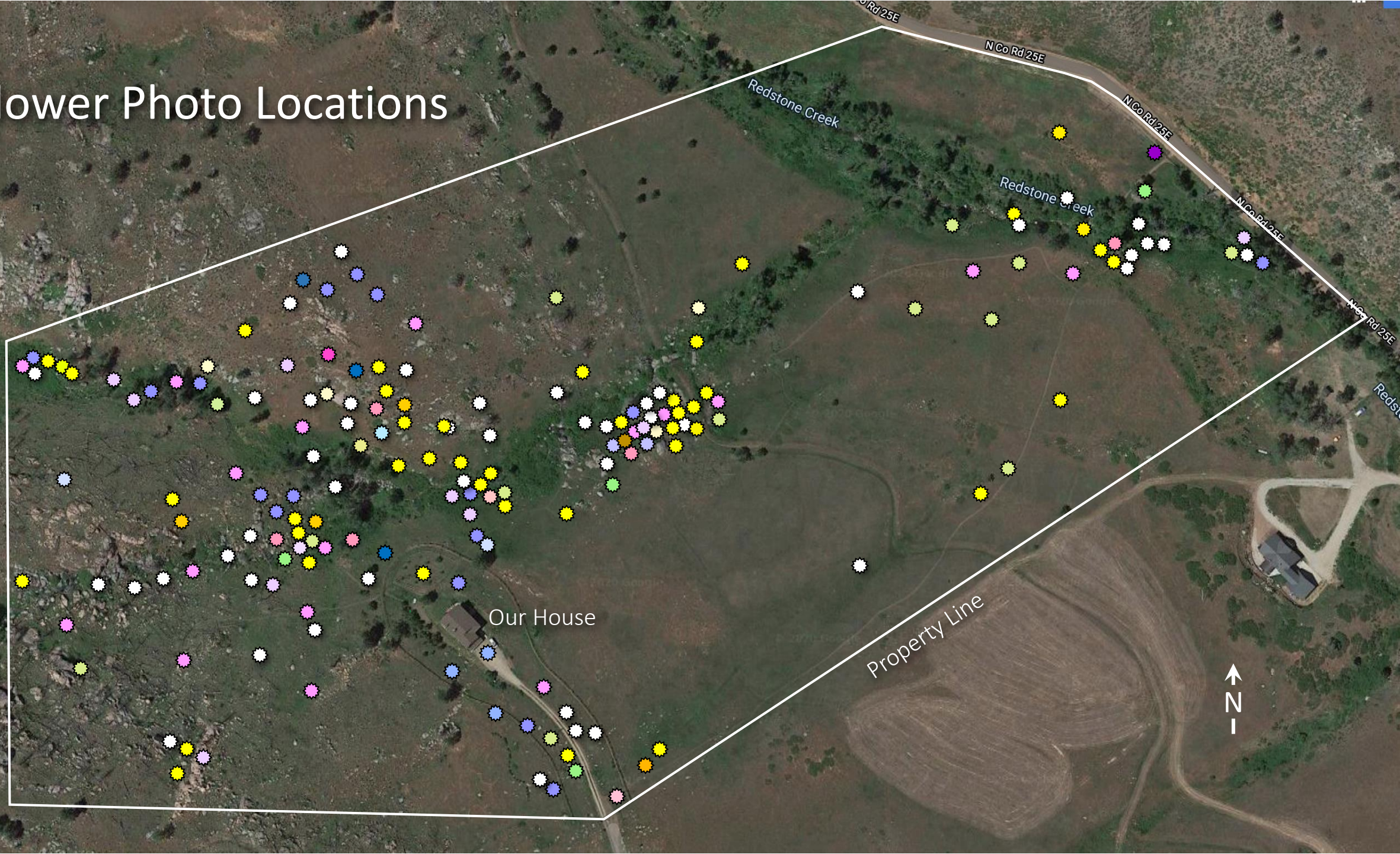8. Flower has to be alive when I'm done.

Common Teasel, *Dipsacus fullonum*

Finding Flowers

1. I went out almost every day.

2. Go out different times of day.

   - Some flowers bloom at night and need to be photographed at sunset or sunrise

   - Some flowers bloom for only one day, and others for just a few hours.

3. Go with other people.

4. Get down low to the ground.

5. Search in dense vegetation.

6. If you see an interesting flower, photograph it right then.

   - Insects, deer, and elk ate some blooms within hours of being spotted.

   - A few times I went back and couldn't find a flower I had seen before.

Eaten-up Prickly Rose

Common Evening Primrose

Roundleaf Monkey Flower

Pincusion Cactus

Flower Photo Locations

Identifying Flowers

1 Start with a picture-based book or app
- Organized by color
- Tells where found and time of year

2 When you get into less common flowers or species that look similar, you will need more resources (next slide).

3 The ultimate way to ID plants is to *key* them.

Keying is a specialized skill.
- A keying guide uses text, not pictures
- *Use Flora of Colorado,* by Jennifer Ackerfield.
- Also get a terminology book, as there are thousands of terms.

Guess what this is:

Plants 1.5-8 dm; leaves glabrous or sometimes pilose; sepals 25-50 x 8-23 mm, white, blue, or sometimes pink; spurs 28-70 mm long, white, blue, or sometimes pink, parallel or divergent, evenly tapered from the base; petals white, 13-28 x 5-15mm; follicles 20-30mm long, the beak 8-12mm long.

Resources

Books

Web Sites: www.easterncoloradowildflowers.com
www.fredswildflowers.com

Facebook Groups: Colorado Native Plant Society
Colorado Wildflowers
Fred's Wildflowers

Class: Larimer County Native Plants

App: Colorado Wildflowers

People: Fred Johnson and others on Facebook, for help
identifying flowers.
Ed Ogle – Info on focus stacking, macro photography,
and identifying flowers.
Janice Goris – finding flowers, proofreading these slides.
Lynn Rubright – Tutorial & demo on focus stacking.
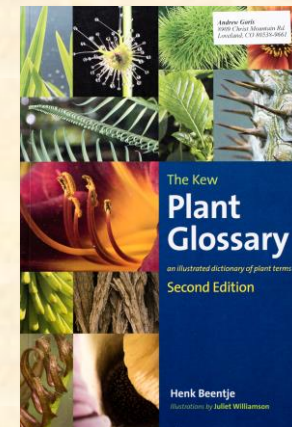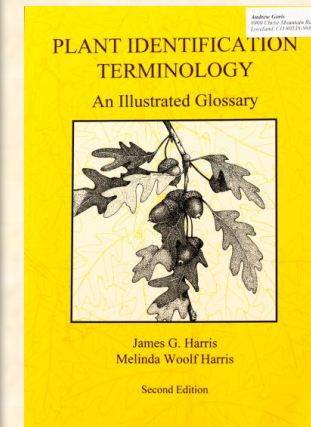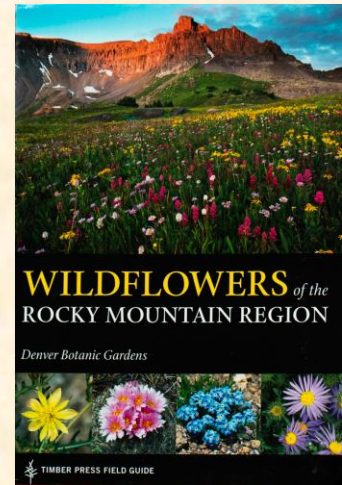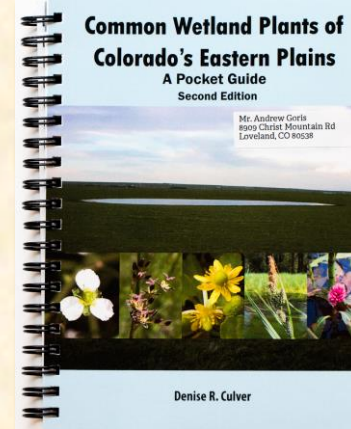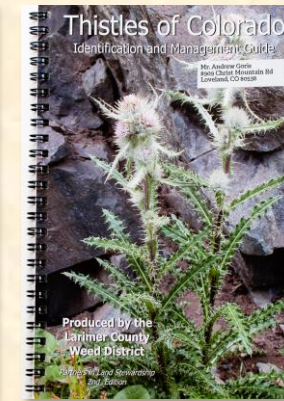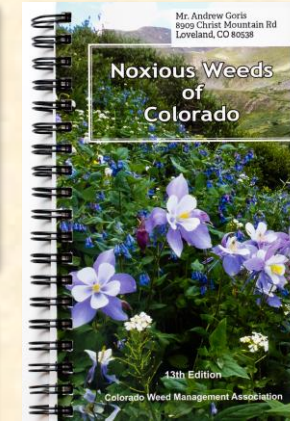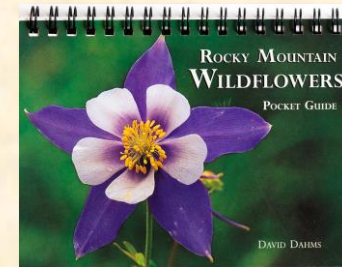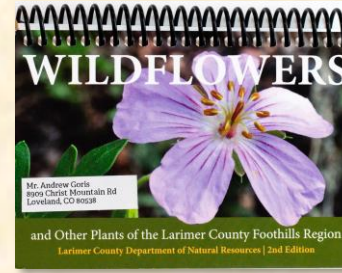
EXAMPLE: Three Species of Goldenrod

Soft Goldenrod or Velvety Goldenrod
Solidago mullis

Giant Goldenrod
Solidago gigantia

Missouri Goldenrod
Solidago missouriensis

In this case, the leaves help distinguish between species.

Here is half of what you need to know about leaves

From *Plant Identification Terminology,* by James G. Harrid & Melinda Woolf Harris

PLANT IDENTIFICATION TERMINOLOGY
An Illustrated Glossary

James G. Harris
Melinda Woolf Harris

Second Edition

Leaf Shapes

ACEROSE · AWL-SHAPED · GLADIATE · HASTATE · CORDATE · DELTOID · LANCEOLATE · LINEAR · ELLIPTIC · ENSIFORM · LYRATE · OBCORDATE · FALCATE · FLABELLATE · OBDELTOID · OBELLIPTIC

OBLANCEOLATE · OBLONG · PERFOLIATE · QUADRATE · OBOVATE · ORBICULAR · RENIFORM · RHOMBIC · PANDURATE · PELTATE · SPATULATE · SUBULATE · OVAL · OVATE · ROTUND · SAGITTATE

Leaf Bases

AEQUILATERAL · ATTENUATE · AURICULATE · CORDATE · CUNEATE · HASTATE · OBLIQUE · ROUNDED · SAGITTATE · TRUNCATE

Leaf Tips

ACUMINATE · ACUTE · EMARGINATE · MUCRONATE · CIRROSE · CUSPIDATE · APICULATE · ARISTATE · MUCRONULATE · MUTICOUS · ARISTULATE · CAUDATE · OBCORDATE · OBTUSE · SUBACUTE · TRUNCATE · RETUSE · ROUNDED
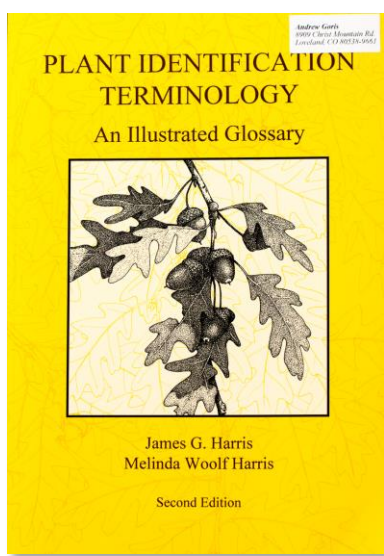
Leaf Margins

BIDENTATE · BIFID · DENTATE · DENTICULATE · BIPINNATIFID · BISERRATE · DIGITATE · DISSECTED · CLEFT · CRENATE · DIVIDED · ENTIRE · CRENULATE · CRISPED · EROSE · INCISED · SERRULATE · SINUATE

PALMATISECT · PARTED · RUNCINATE · SERRATE · INVOLUTE · LACERATE · PEDATE · PINNATIFID · LACINIATE · LOBED · PINNATILOBATE · PINNATISECT · LOBULATE · PALMATIFID · REPAND · REVOLUTE · TRIDENTATE · TRIFID · TRIPARTITE · TRIPINNATIFID

Leaf Arrangement

BIPINNATE · BITERNATE · EVEN-PINNATE · ODD-PINNATE · PALMATE · SIMPLE · TENDRIL-PINNATE · TERNATE · TRIPINNATE · TRITERNATE

Gear I Used

100-400mm lens

65mm 5:1 macro lens

100mm macro lens

Canon 5DS R

Spare battery

Remote shutter release

Mindshift photo pack

Sheet of paper to use as a reflector

Wireless flashes

Wireless flash controller

Snake gaiters

Knee pads

Hiking gaiters to keep cheat-grass out of socks

6-ft. diameter studio umbrella diffuses sunlight and blocks wind. I could have used an even bigger one.

10X Viewing Loupe

Ground Cloth

Lens blower

Pack cover doubles as viewing hood

Hoodman screen viewer

CamRanger focus stack controller

Tripod that can go to ground level

Kirk Focusing Rail

Large foam core reflector

Pruning shears

Long spike tripod feet

Wimberley Plamps and stakes for holding flowers & reflectors. I added 1/4x20 bolts to the stakes for attaching flashes.

Lens wipes

Heading Out for the day

Most-used Camera Settings

Start here

Aperture Preferred Mode →
| Av |
| ISO 200 |
| Ev -1 |
| f/11 |

← *Low noise*

Avoids clipping bright colors →

→ *Decent depth-of-field, but requires clear space behind flower*

Darker Flower

| Av |
| ISO 200 |
| Ev 0 |
| f/11 |

Need more depth-of-field

| Av |
| ISO 200 |
| Ev -1 |
| f/13 |

Windy

| Av |
| ISO 400 |
| Ev -1 |
| f/8 |

Using Flash

| M |
| ISO 200 |
| 1/200 sec |
| Ev -1 |
| f/8 - f/11 |

← *Manual Mode*

Focus Stacking

| Av or M |
| ISO 200 |
| Ev -1 |
| f/5.6 - f/8 |

Process In the Field

1. Find an interesting flower
2. Look around for the best example of that flower with the best composition.
   - Not eaten nor covered by bugs, spiderwebs; ideally almost at peak bloom.
     TIP: an easy way to remove bugs is by flicking the stem of the flower with your fingernail.
   - Look at the nearby parts of the plant and the background.
   - Check sun angle (never directly behind you)
3. Set up camera on tripod, adjust height and framing, connect remote shutter release
4. Remove sticks and grass comingled with plant. Remove grass and plants for 5-12 inches behind plant.
   - Cutting weeds with pruning sheers or scissors works better than pulling.
     (Never pull or cut weeds/grass in public parks or open spaces.)
5. If windy, stabilize flower.
   - Wimberly Plamp ($43) with stake ($19) is great. **TIP:** Don't attach Plamp to your tripod
   - Free, and works well: find two small sticks with a forks in them and support the flower from 2 directions.
6. Check lighting.
   - If the sunlight is harsh, wait for a cloud. The best effect is a partial cloud, which provides diffuse light with some directionality. Or use a studio umbrella.
   - **TIP**: A sheet of paper makes an excellent reflector to fill in shadows or lighten a flower.
   - Ideally, objects behind the flower should be a little darker than the flower.
     This can be achieved by adding light to the flower with a reflector, or by shading the area behind the flower.
7. Check camera settings, focus, and take pictures.

Things to look for in composition
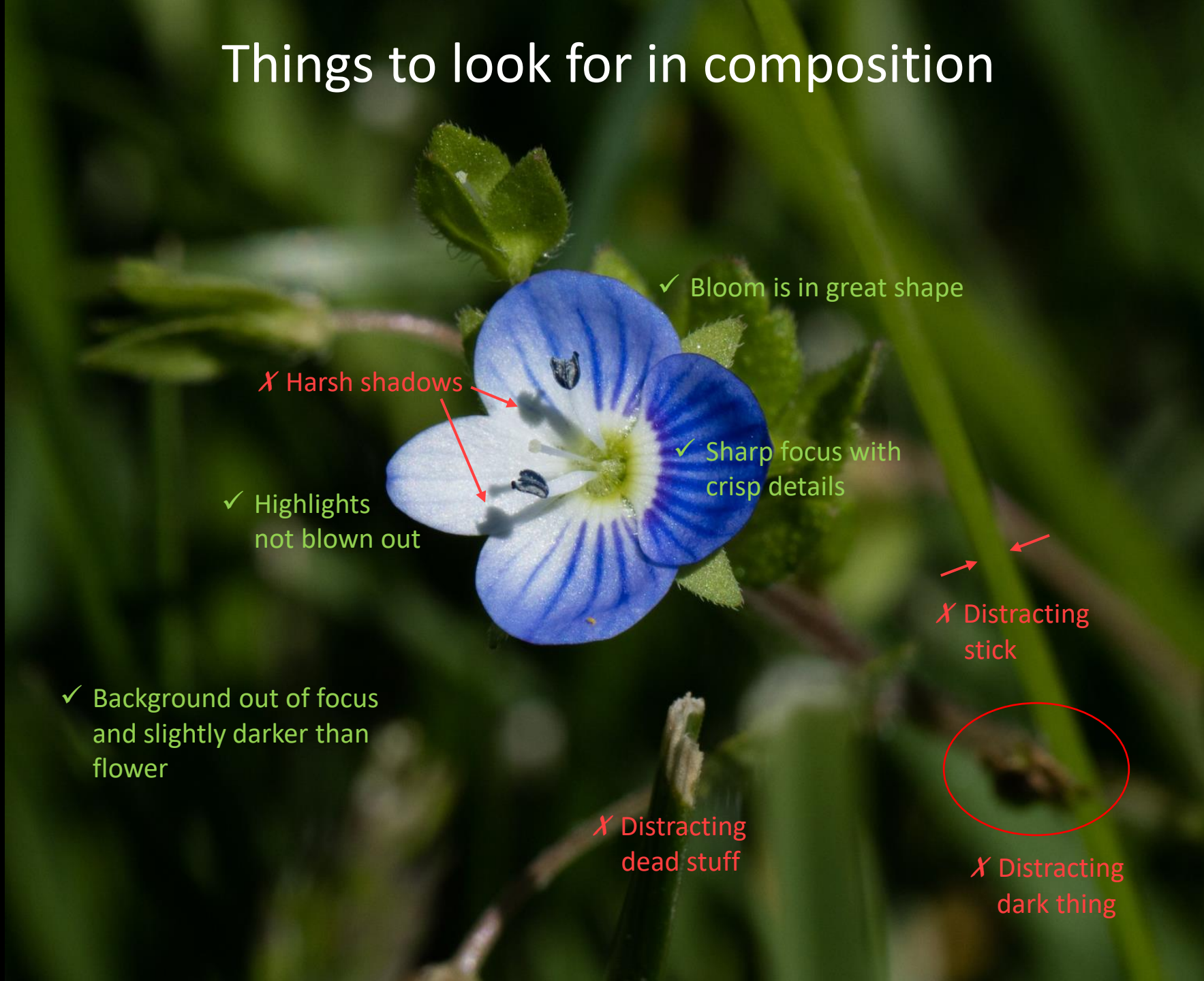
✓ Bloom is in great shape

✗ Harsh shadows

✓ Sharp focus with crisp details

✓ Highlights not blown out

✗ Distracting stick
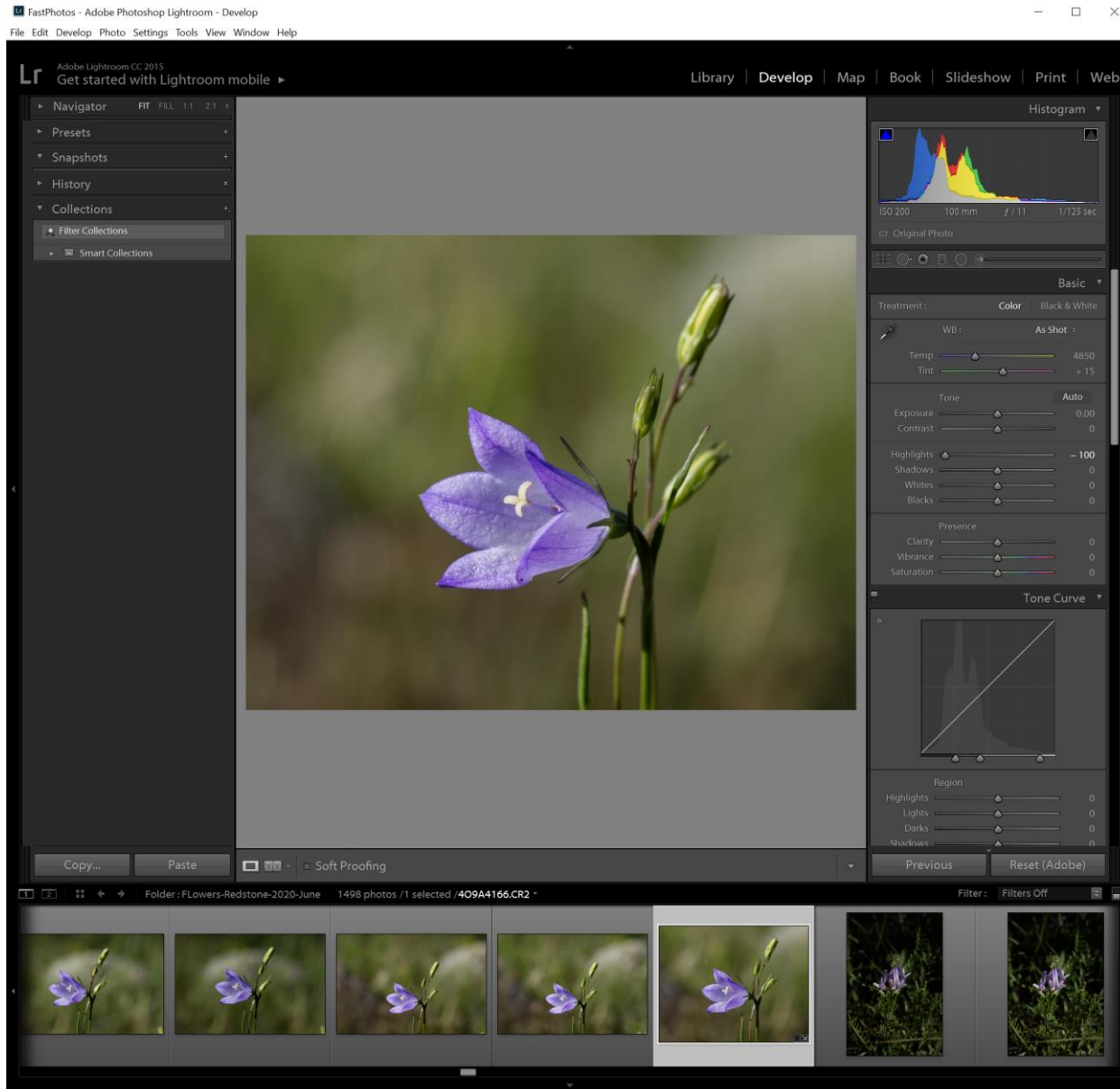
✓ Background out of focus and slightly darker than flower

✗ Distracting dead stuff

✗ Distracting dark thing

EDITING TOOLS: Adobe Lightroom CC

- Used Lightroom for organizing and editing photos.

- Goal was natural looking pictures.

  □ Liberal use of White Balance, Tone, and Detail control panels.

  □ I usually left the Tone Curve setting on Linear, but used Medium Contrast on a few pictures. Medium Contrast has more pop, but can look less natural.

  □ Avoided the Presence tools – Clarity, Vibrance, Saturation. Also avoided the Split Toning tools.

  □ If you can get lighting and background blur correct in the field, the flower will look more natural than adjusting it in Lightroom.

  □ Did not use Photoshop

EDITING TOOLS: Topaz Sharpen AI

- $79 (good choice), or Utility Bundle with other Topaz products for $249 (what I have).
- When it works well, which is about half the time, results were magical.
- Two common failures were strange texture and strange edge artifacts.
- I applied Sharpen AI before doing any other editing.
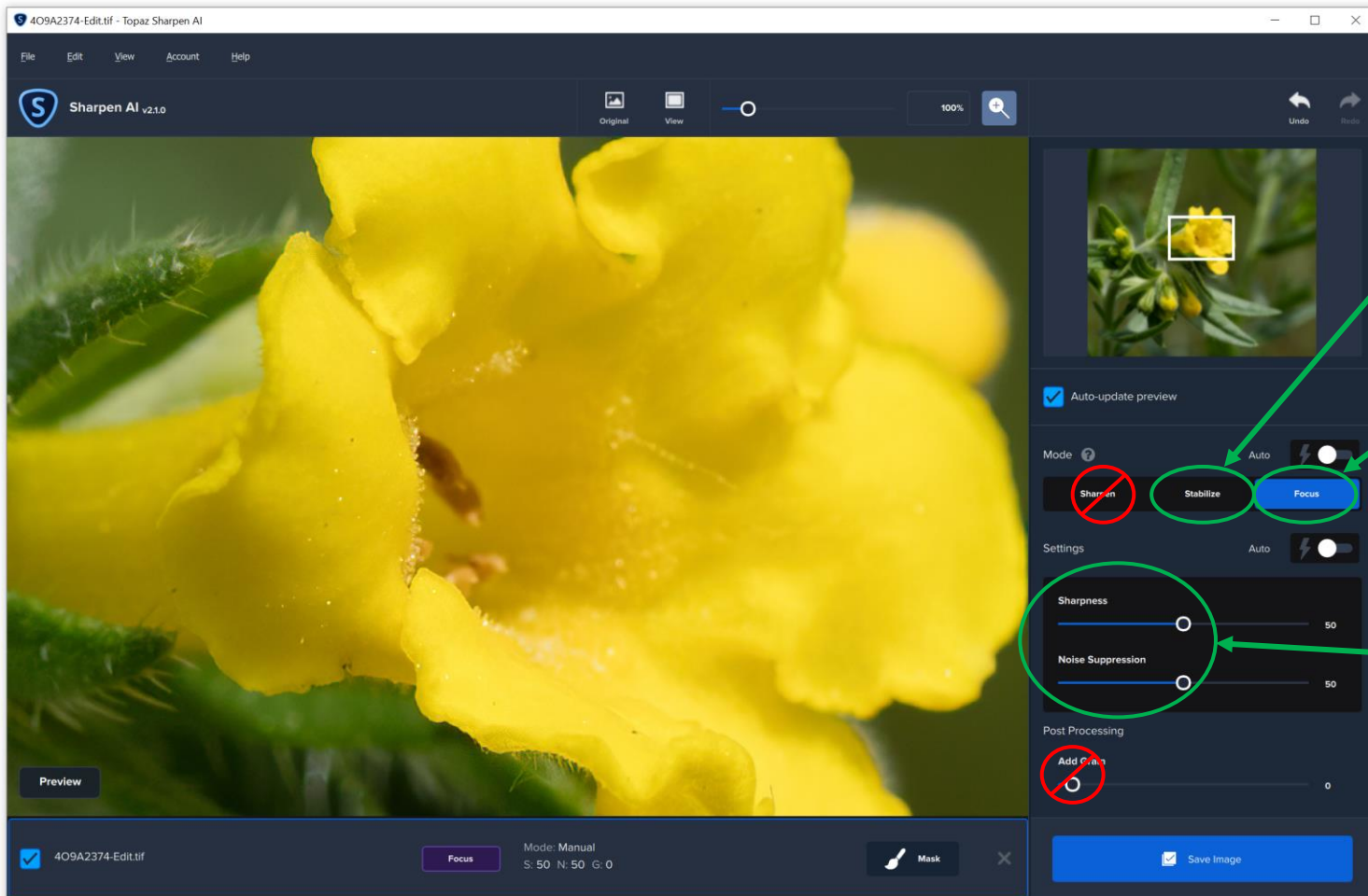
Stabilize Mode often did amazing things on flowers with a little motion blur or soft focus.

Focus Mode often improved soft focus.

I got the best results leaving Sharpness and Noise at the default settings.

EDITING TOOLS: Zerene Stacker

- $89 personal version (I have), $189 prosumer version (I recommend).
- Had best luck with Pmax setting.
- When Zerene worked well, I kept the result. If not, I didn't try to fix it.
- The most common artifact was halos.
- Works best if the pictures are ordered from closest to furthest distance.
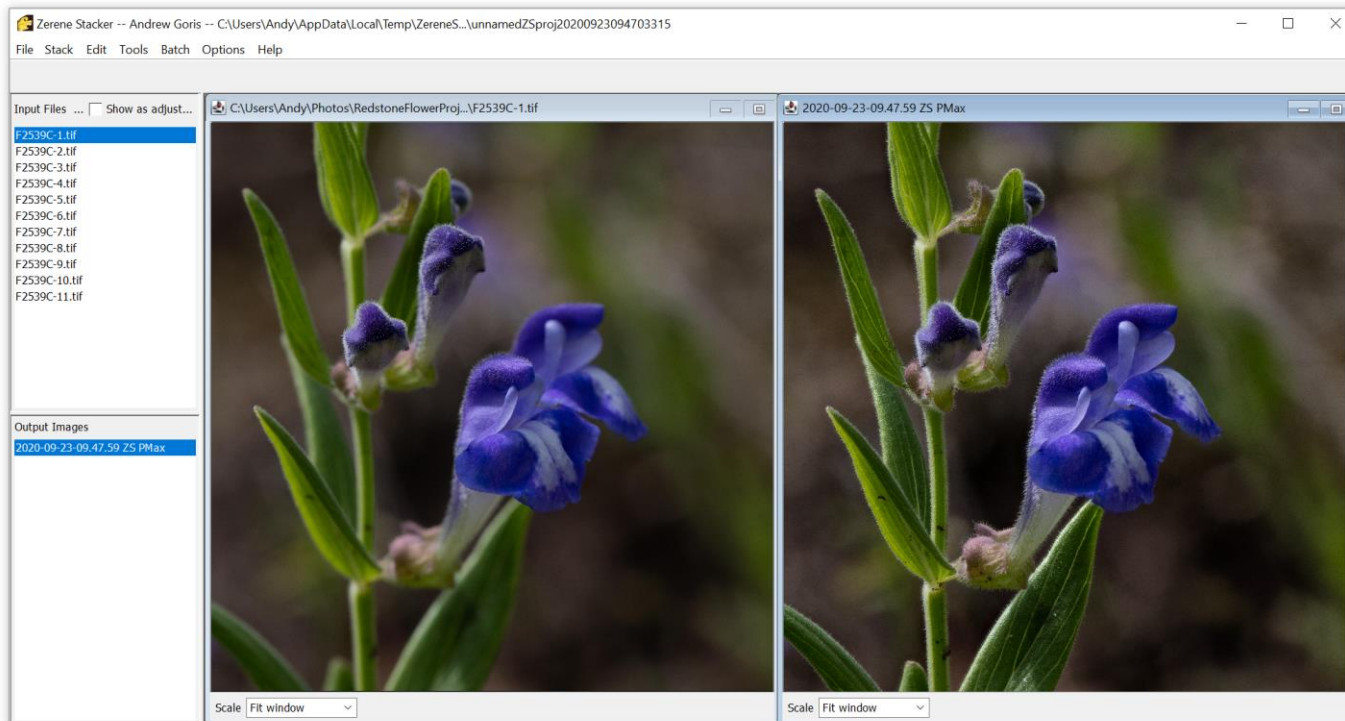
Process

1. In Field: Manual focusing (used the most), or CamRanger 2 (slow, accurate), or manual focusing rail.
2. LR: Import RAW photos from camera into Lightroom.
3. LR: Approximate crop first photo and apply crop to all.
4. LR: Export as 16-bit TIFF, with sequential file names.
5. Zerene: Add files to Zerene.
6. Zerene: Stack using Pmax.
7. Zerene: Export result as 16-bit TIFF.
8. LR: Import result back in to Lightroom.
9. LR: Select final crop and make other adjustments.

Bookkeeping

	Flower List for 8909 Christ Mountain Rd				Native	Photo	Seen
	Common name	Common Family	Scientific Family	Scientific Genus & Species	Native	Photo	Seen
1	Alfalfa	Pea	Fabaceae	Medicago sativa	I	x	many
2	American Willowherb	Evening Primrose	Onagraceae	Epilobium ciliatum	N	x	*many*
3	Bastard Toadflax	Sandalwood	Santalaceae	Comandra umbellata	N	x	many
4	Beautiful Cinquefoil	Rose	Rosaceae	Potentilla pulcherrima	N	x	many
5	Bee Balm, Horsemint	Mint	Lamiaceae	Monarda fistulosa	N	x	many
6	Biennial Wormwood	Sunflower	Asteraceae	Artemisia biennis	I	x	many
7	Big flower Cinquefoil	Rose	Rosaceae	Drymocallis fissa	N	x	many
8	Bigroot Prickly Pear Cactus	Cactus	Cactaceae	Opuntia polyacantha	N	x	many
9	Black Bindweed, Climbing buckwheat	Buckwheat	Polygonaceae	Fallopia Convolvulus	N	x	many
10	Black Medic	Pea	Fabaceae	Medicago lupulina	I	x	many
11	Black-eyed Susan	Sunflower	Asteraceae	Rudbeckia hirta	N	x	2
12	Bladder Campion, Maiden's Tears	Pink	Caryophyllaceae	Silene vulgaris	I	x	few
13	Blanket Flower	Sunflower	Asteraceae	Gaillardia aristata	N	x	many
14	Boulder Raspberry	Rose	Rosaceae	Oreobatus deliciosus	N	x	many
15	Bouncing Bet	Pink	Caryophyllaceae	Saponaria officinalis	INW	x	many
16	Bracted Alumroot	Saxifrage	Saxifragaceae	Heuchera bracteata	N	x	few
17	Broadleaf Cattail	Cattail	Typhaceae	Typha latifolia	N	S	few
18	Brownplume Wire Lettuce	Sunflower	Asteraceae	Stephanomeria pauciflora	N	x	*many*
19	Bull Thistle	Sunflower	Asteraceae	Cirsium vulgare	INW	x	*few*
20	Bunny in the grass, Lanceleaf Figwort	Figwort	Scrophulariaceae	Scrophularia lanceolata	N	x	few
...	. . .	. . .	. . .	. . .			

177 Flowering Species:

   78% Native (140 species)

    16% Introduced (29 species)

     6% Invasive Noxious Weed (10 species)

7 species where I only saw 1 plant of the species.

9 species where I only saw 2 plants of the species.

Approximate time on the project: 250 hours

   ☐ 50% in field hiking and photographing

   ☐ 30% editing photos

   ☐ 20% researching flowers
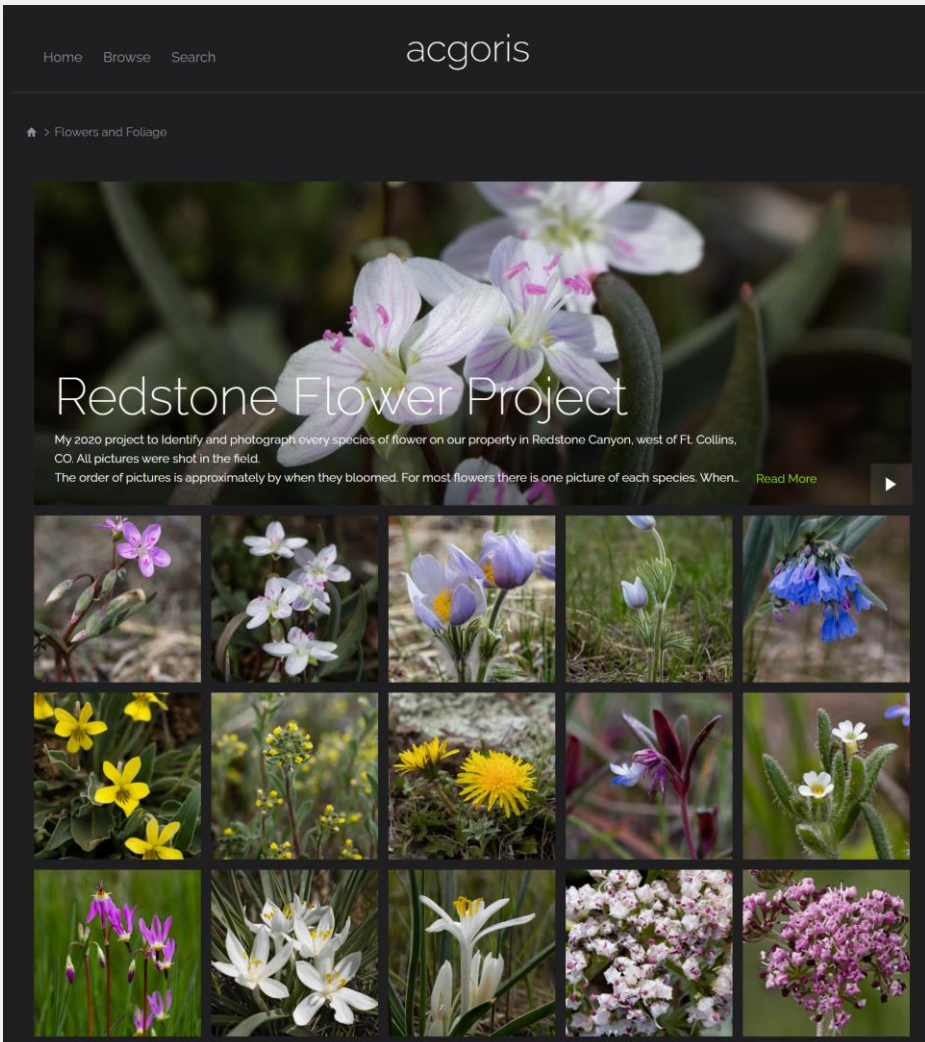
Number of pictures taken: 24,630

Storage of final project: 230 GBytes

Publishing to the Web:

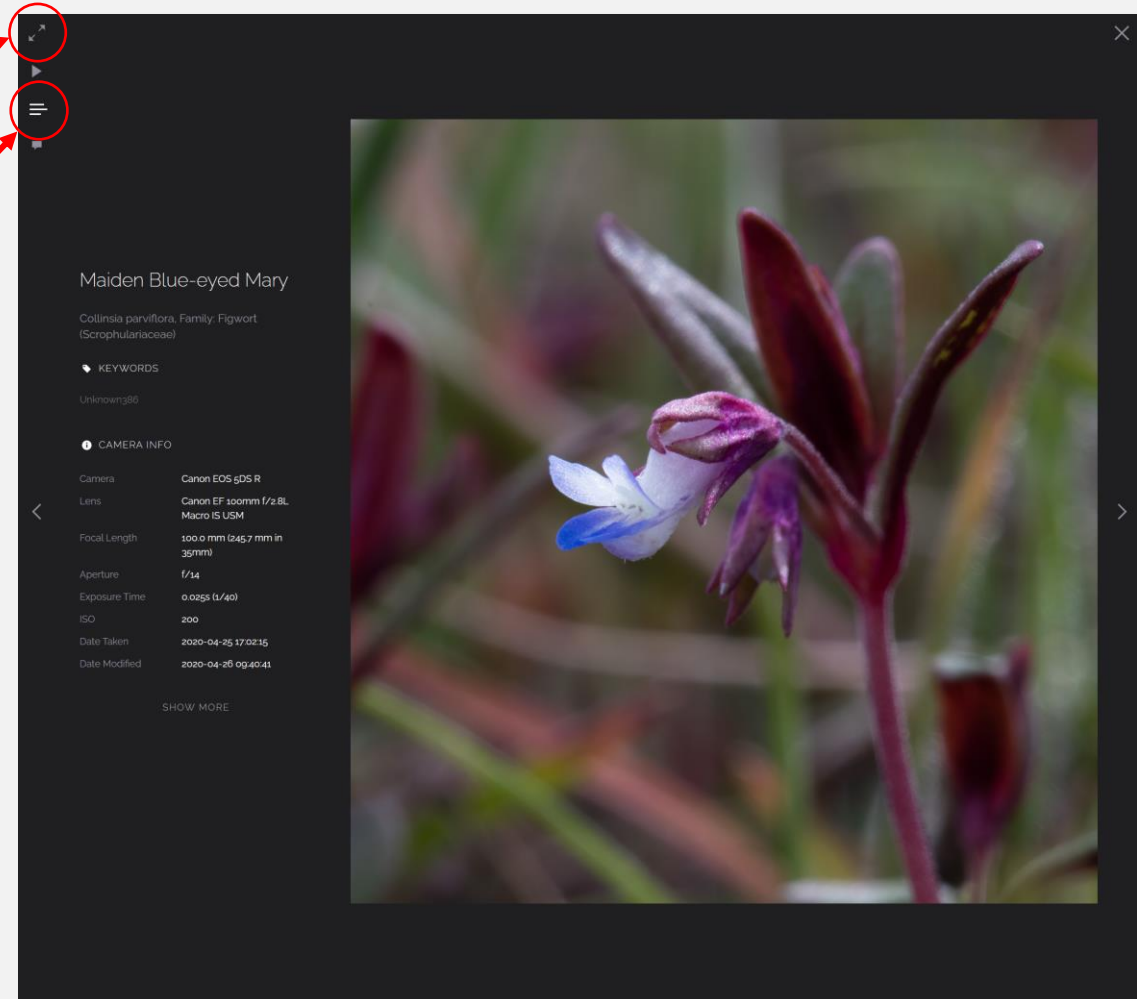acgoris.smugmug.com/Flowers-and-Foliage/Spring-2020-in-our-pasture/

My style:
- ✓ Publish full resolution
- ✓ Highest quality compression
- ✓ No watermark or signature over photo
- ✓ Include camera settings in metadata

Click here for full screen

Click here for camera settings

Click thumbnail for large view

Red Clover is a common plant you probably walk by all the time.

If you get close, you'll see detail you probably never noticed.

On my photo site, click on the flower to magnify it and you will see....

Red Clover

It looks like a little bouquet.

There are over 25 individual flowers on this clover.

Similar to the Red Clover, getting close to common plants like this Chokecherry can reveal a new level of beauty.

Chokecherry
Padus virginiana, Family: Rose (Rosaceae)

Spreading Dogbane
Apocynum androsaemifolium, Family: Dogbane (Apocynaceae)

My best pictures of each species were often the first plants to bloom.

Early plants seemed to have brighter colors and more simultaneous fresh blooms.

Rocky Mountain blue-eyed grass
Sisyrinchium montanum var. montanum), Family: Iris (Iridaceae)

I was walking home and thought I was done for the day when I spotted this Rocky Mountain blue-eyed grass hidden deep in the grass.

This was the only RMBEG plant I found.

It looks like it is deep in a forest, but it's actually 5-6 inches deep in native grasses in late afternoon light.

Fringed Puccoon, Narrowleaf Stoneseed, Narrowleaf Puccoon
Lithospermum incisum, Family: Borage (Boraginaceae)

There were 3 times when pictures I took previous years were better than pictures I took this year.

For the web site, I used the best pictures.

This is one of those pictures.

Scarlet Gaura, Scarlet Bee blossom
Gaura coccinea, Family: Evening Primrose (Onagraceae). As the flowers age, they turn pink.

Scarlet Guara flowers change from white to scarlet as they age.

Copper Mallow
Sphaeralcea coccinea, Family: Mallow (Malvaceae)

This Copper Mallow was photographed in windy conditions with a studio umbrella covering the flower and camera.

In addition to blocking the wind, the umbrella helped diffuse the light.

Fendler's meadow-rue
Thalictrum fendeleri, Family: Buttercup (Ranunculaceae)

This picture had several challenges.

First, it was a tall plant that shook with the slightest wind. I used a Plamp and 2 stakes, but the dangling flowers still shimmered from ground vibration if I moved at all.

Second, the lighting was constantly changing since it was lit through a small opening in some cottonwood trees, and clouds were coming and going.

After everything was set up, it took about 15 minutes to get the right combination wind and light.

The Clasping Venus' Looking-Glass is *monoecious*, which means it has separate male and female flowers on the same plant.

The flowers of some plant species have both male parts (stamen) and female parts (pistil) on the same flower. This is called a *perfect* flower.

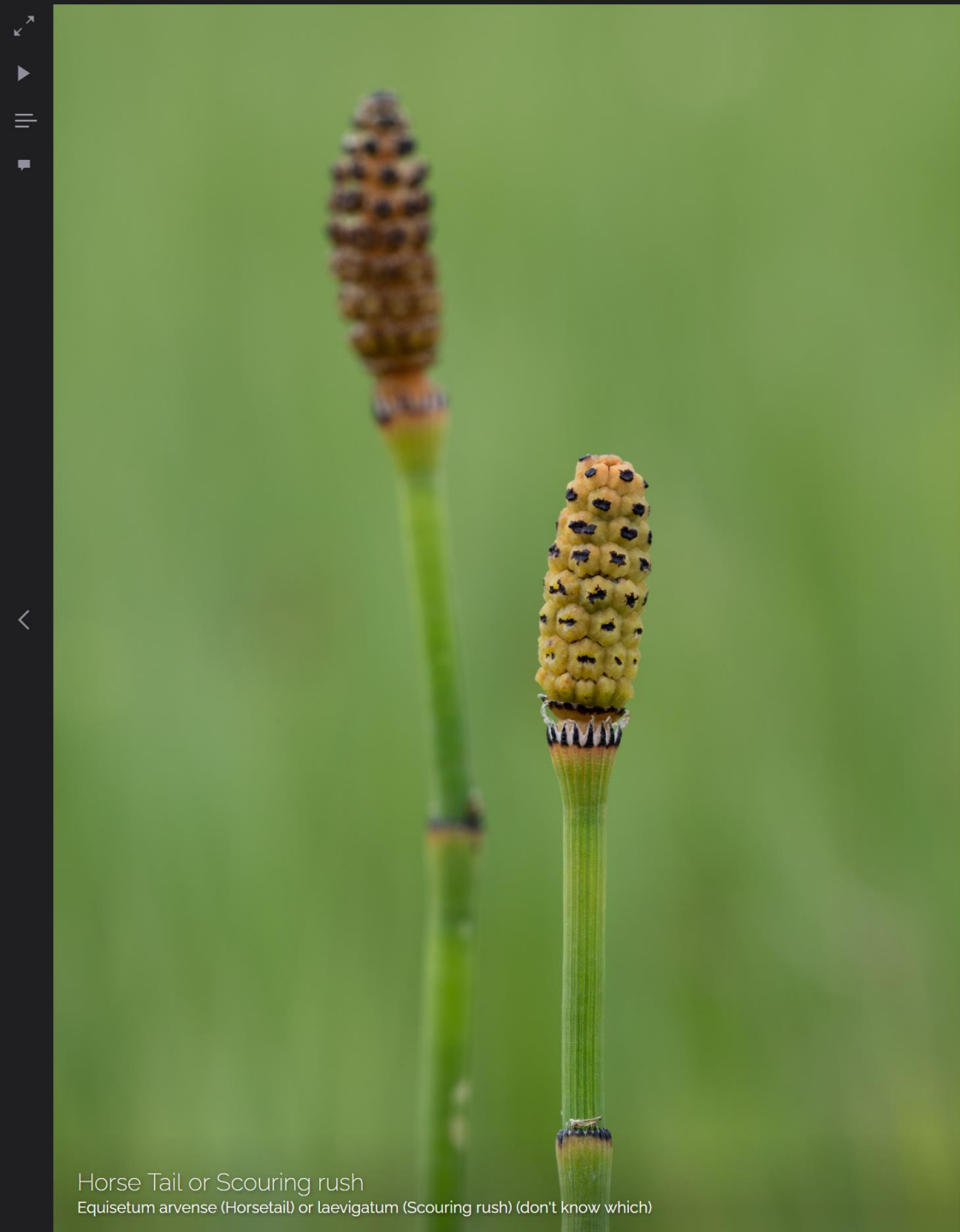Some species have separate male and female plants, which is called *dioecious*.

Clasping Venus' Looking-Glass
Triodanis perfoliata, Family: Bellflower (Campanulaceae)

Purple Prairie Clover
Dalea purpurea, Family: Pea (Fabaceae)

Lanceleaf figwort, Bunny-in-the-grass
Scrophularia lanceolata, Family: Figwort (Scrophulariaceae)

Horse Tail or Scouring rush
Equisetum arvense (Horsetail) or laevigatum (Scouring rush) (don't know which)

Gayfeather, Dotted Blazing Star
Liatris punctata, Family: Sunflower (Asteraceae)

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