

Salt Spring Island

Butterfly Identification & Counting

Linda Gilkeson



This presentation was created on the unceded territories of the Hul'qumi'num and SENĆOŦEN speaking peoples where I am extremely grateful to be living and working.

Why count butterflies?

- Native butterfly populations can be a measure of ecosystem health because they depend on native plants for survival
- Over time, with long-running records, we can detect changes in populations that reflect what might be happening with other insects we can't easily count
- Interest in butterflies is a way to engage the public in other habitat conservation issues

Lepidoptera: Butterflies & Moths

Large wings covered with scales



Photo: E. Cronin

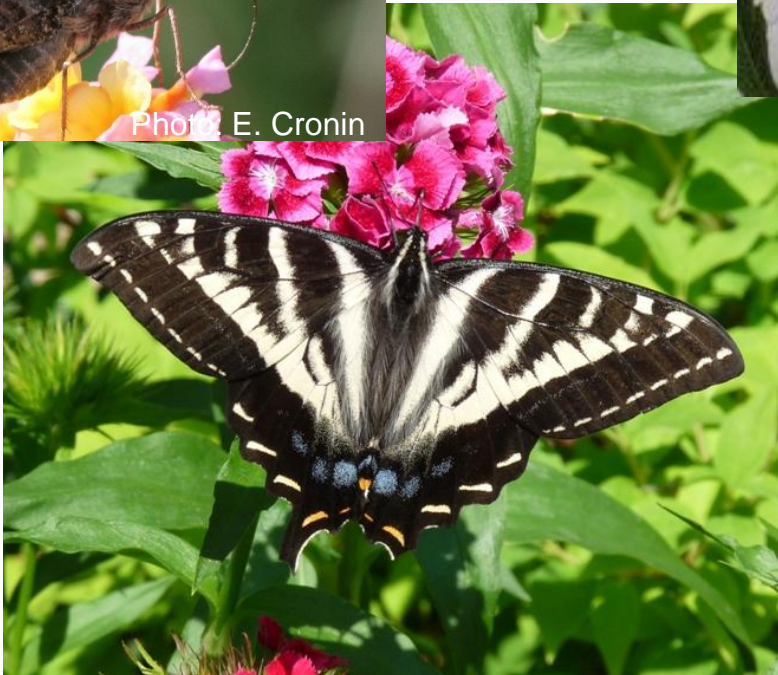


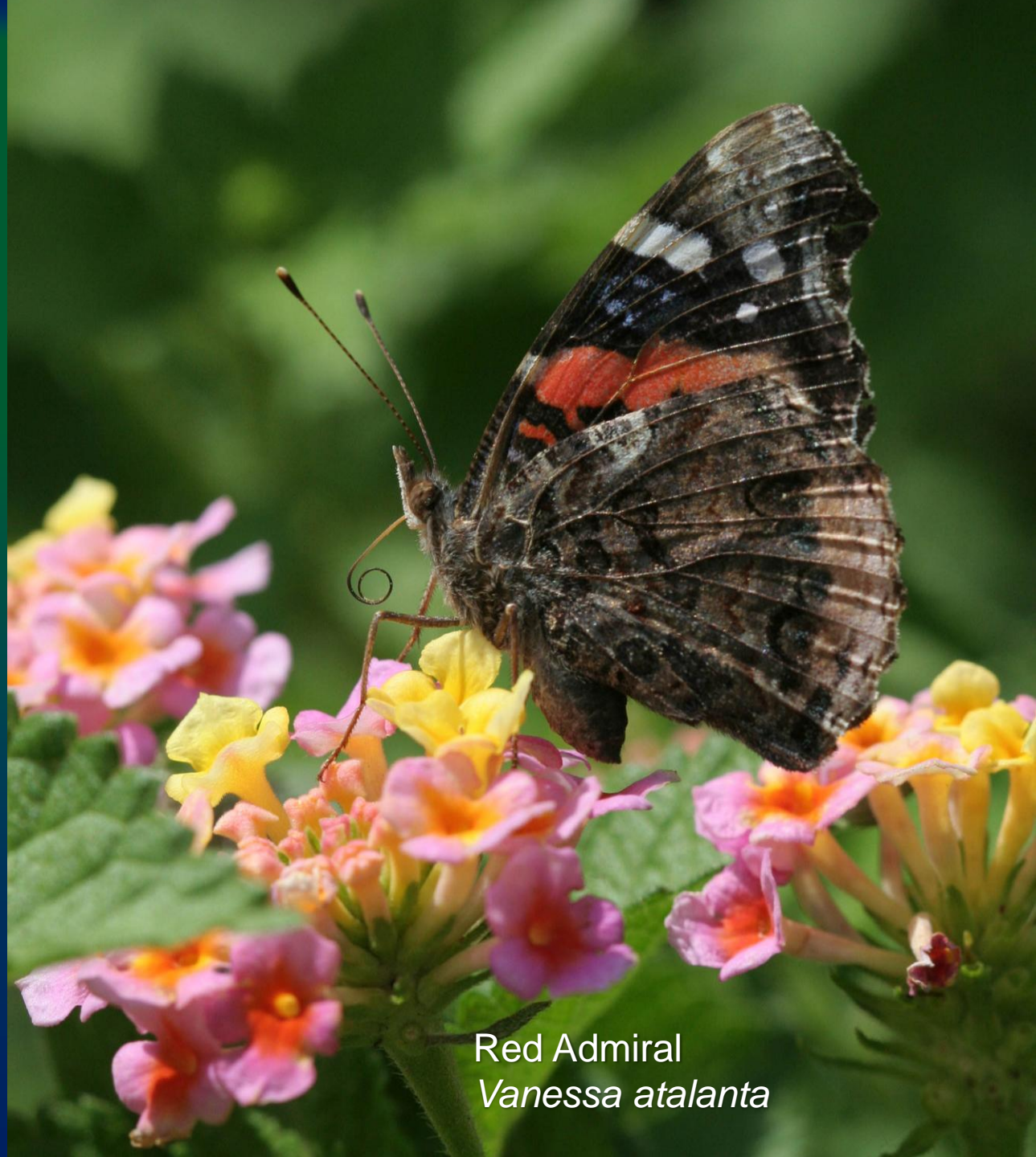
Photo: P. Minvielle

Lepidoptera

Adults: Siphoning
mouthparts for a
nectar diet

Larvae (caterpillars):
Chewing mouthparts
for a plant diet

Photo: E. Cronin



Red Admiral
Vanessa atalanta

Moths

- Feathery antennae
- Stout, furry body
- Most fly at dusk or night



Photo: P. Minvielle

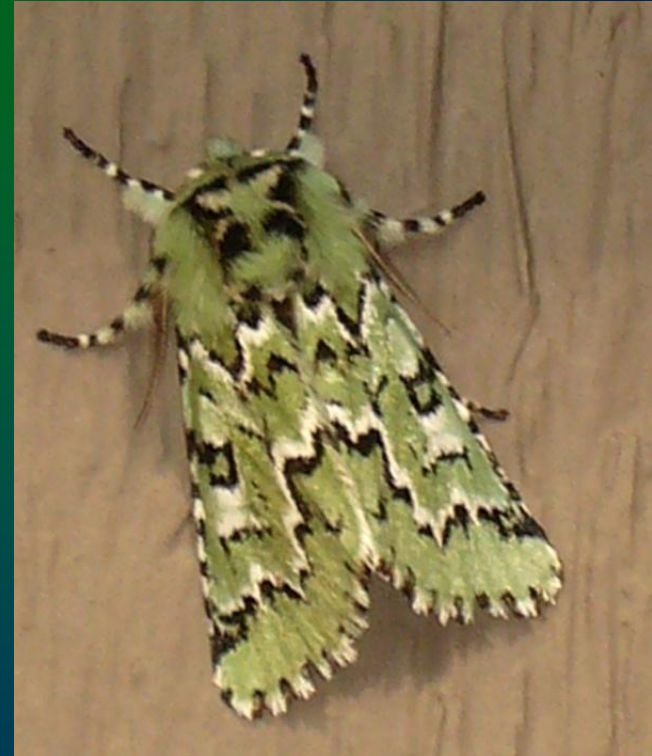
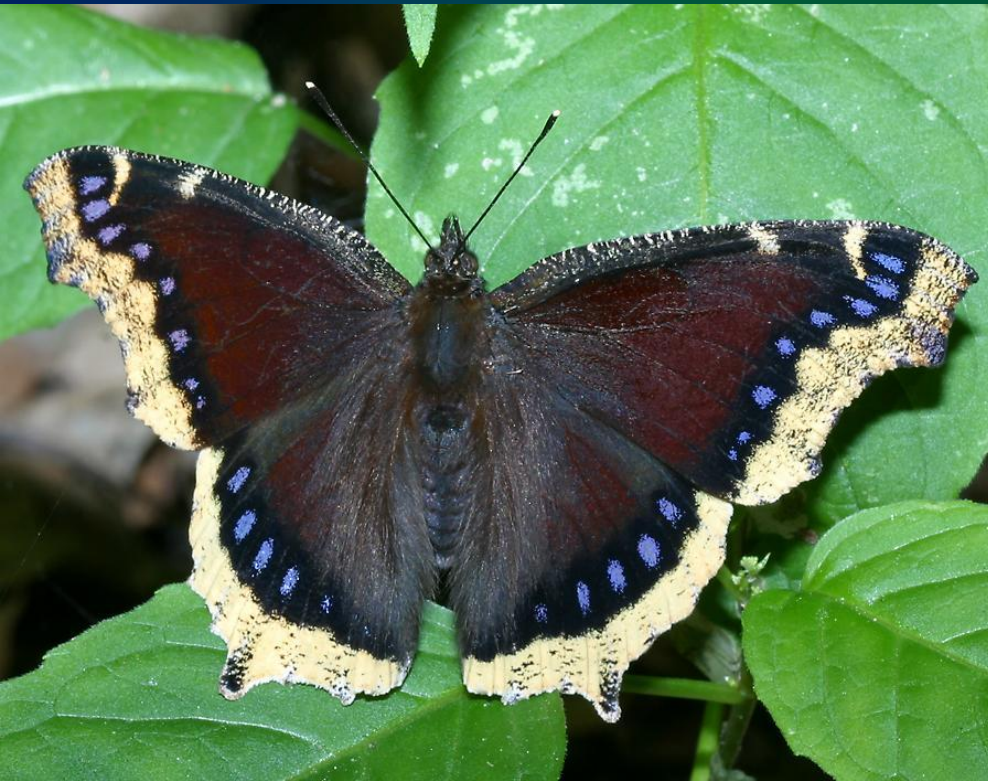


Photo: S. Beare

Butterflies

- Knobbed antennae
- Body narrower, less hairy than moths
- Fly during the day



Mourning Cloak



Red Admiral

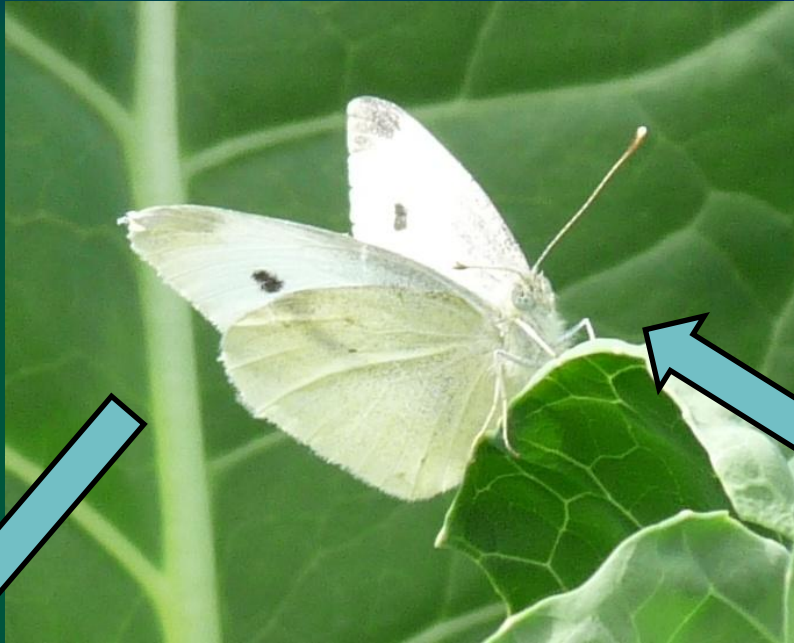
Photo: E. Cronin

European Skipper

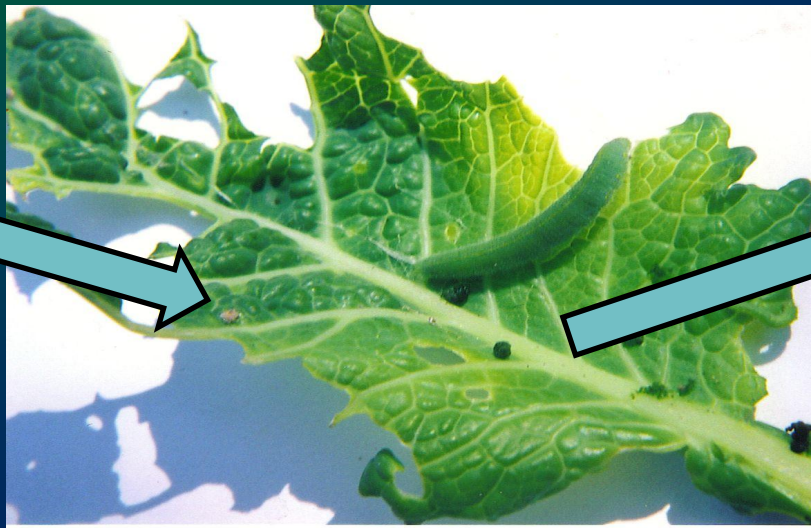
Skippers are
butterflies too
*(though they look
like moths)*

- Hooked antennae
- Stubby, furry bodies
- “Skippy” quick flight

Butterfly
Life Cycle
Cabbage White



Eggs



Larva/caterpillar



Pupa in
chrysalis

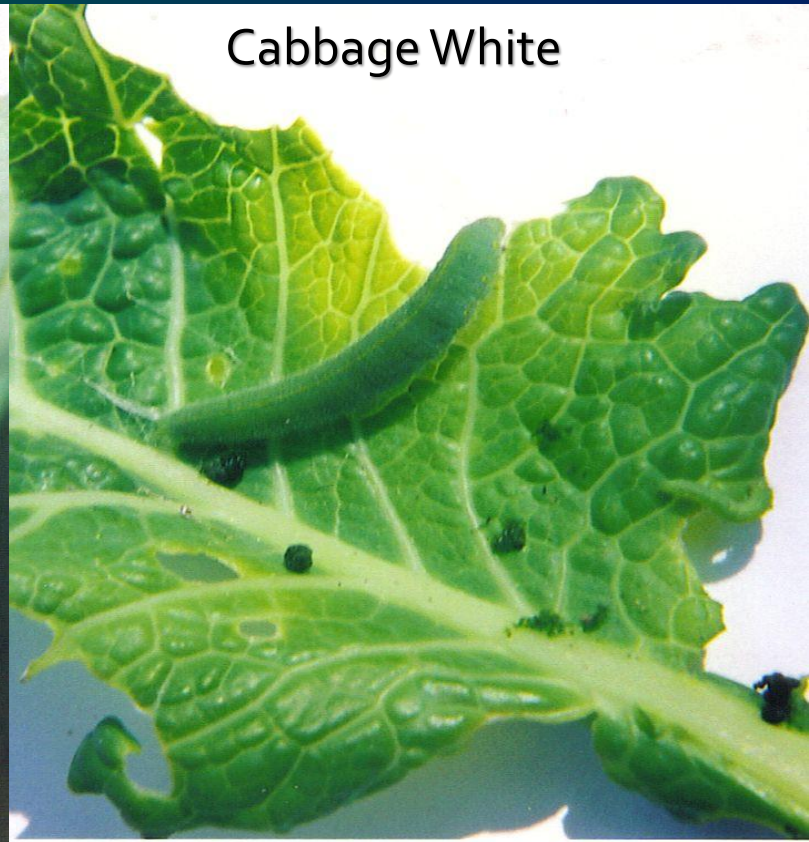
Caterpillars can be smooth or fuzzy

Painted Lady



Photo: E. Cronin

Cabbage White



Young caterpillars often look different from older ones

Both are **Anise Swallowtail** caterpillars

Early caterpillar



Older “parsleyworm”



Some are just plain weird...

Tiger Swallowtail →



Lorquin's Admiral



Another bird poop strategy

Elfin →



Pupation



Eclosion: Last moult to adult

Mating

- Female 'calls' males by emitting sex pheromones
- Males can detect pheromones in parts per million and follow trails upwind



In this case the female may be signaling that she is NOT ready to mate

Photo: E. Cronin

Migration

Instinctive behaviour: e.g., Monarch butterflies travel thousands of miles annually

A few species seen on SSI migrate or drift this way on the wind from the southern US in high population years

West Coast Lady

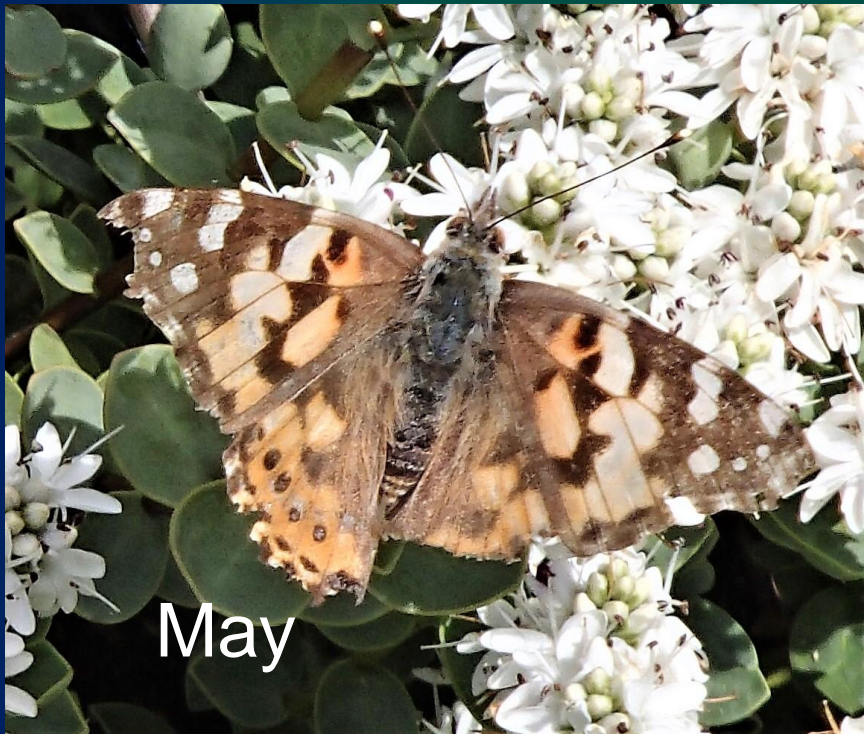


California Tortoiseshell



e.g., Painted Lady

- Worldwide, but not known to survive winter on Salt Spring
- Those seen in early spring are usually tattered after a long flight from the southern deserts of US
- The perfect July individual is likely from a brood that developed locally



Mud-Puddling?

- Mostly males get liquid and nutrients (salts, minerals, amino acids) from wet soil, fresh dung
- May help reproductive success as sodium is transferred in sperm packet to females

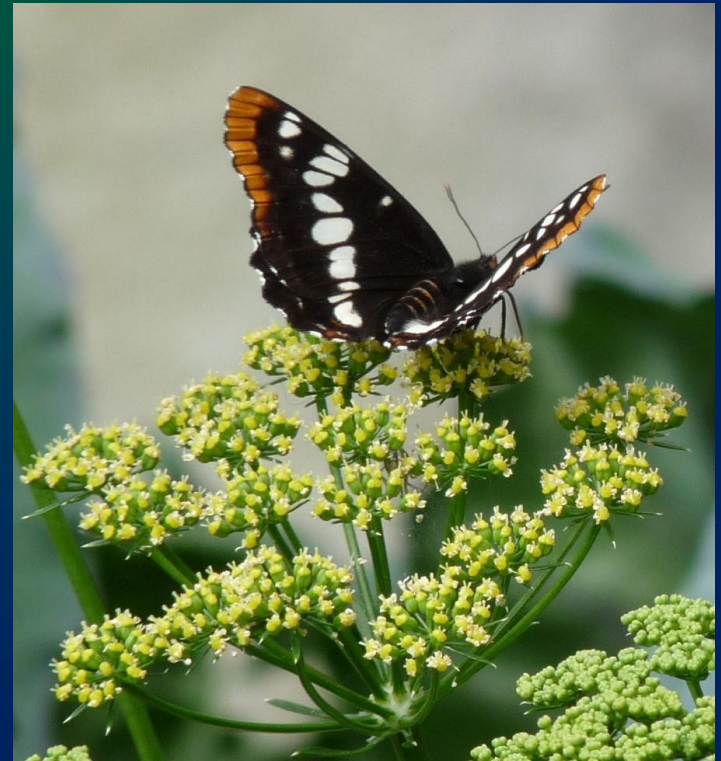


Hilltopping

- Male mating strategy: Males compete to claim the highest ground and wait for females to come find them
- Common in swallowtails, Mourning Cloak, Lorquin's Admiral, Red Admiral, painted ladies and blues



Western Tiger Swallowtail



Lorquin's Admiral

Overwintering

Different species overwinter in different stages:

- Eggs: Pine White, Purplish Copper
- Larvae: Fritillaries, Lorquin's Admiral, Woodnymph
- Pupae: Swallowtails, hairstreaks, elfins, Silvery Blue, Spring Azure
- Adults: Mourning Cloak, Commas ['anglewings'], Milbert's Tortoiseshell, Red Admiral, painted ladies

The number of generations per season is unique to each species: Some have just 1, others have 2 or more broods

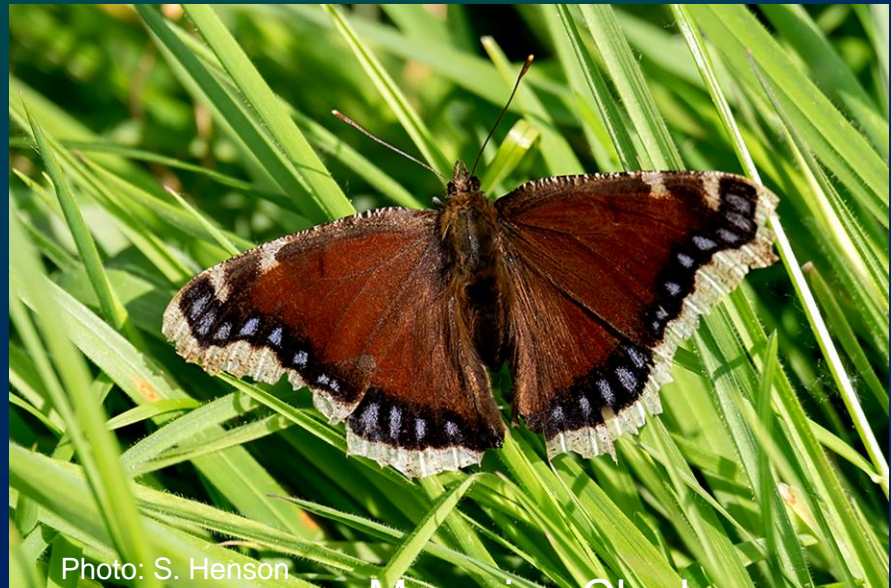


Photo: S. Henson

Mourning Cloak

*Bad things can happen on the way to the
overwintering site....*



Other Disasters

Parasitic flies, parasitic and predatory wasps, diseases, birds, spiders...

And of course, people have had a huge impact: Removing & altering habitat, planting non-native plants, using pesticides....



Chrysalis of a White Cabbage butterfly

Numbers naturally vary from year to year

- Some native species are common one year, rare other years
- Accidental migrants are occasionally numerous
- Some species are decimated in bad winters, especially those that overwinter as adults; extreme heat waves also kill

Cedar
Hairstreak



May 29, 2017

Travel worn
migratory
Painted
←Lady

Examples of variability from past SSI counts

Mourning Cloak:

- 2003: 2
- 2023: 33
- 2024: 17

Painted Lady (migrant)

- 2003: 2
- 2005: 102

Lorquin's Admiral

- 2023: 244
- 2024: 16

W. Tiger Swallowtail

- 2005: 54
- 2019: 159
- 2024: 37

Common woodnymph

2018: 7
2021: 1
2024: 76

Western Spring Azure

- Some species are common because their host plant is common or because their caterpillars eat a wide variety of plants

E.g., **Western Spring Azure**
caterpillars feed on ocean spray,
blueberry, hardhack, elderberry,
Arbutus, dogwood and other plants

Main flight: April-June (2nd brood
later in summer)



The nettle lovers

Red Admiral



West Coast Lady



Satyr Comma



Painted Lady



Milbert's Tortoiseshell



Propertius Duskywing

Some butterflies are rare because their host plant is rare

E.g., *Propertius Duskywing* depends on Garry Oak

Butterflies get nectar from many plants, but caterpillars can only eat leaves of Garry Oak



Flight: April-July



Photo: T. MacLeod

What might we see?

- 22-23 species were recorded on Salt Spring yearly from 2017 through 2023
- 28 species were counted in 2024, though numbers were low
- Royal BC Museum records show about 30 species with current records on Salt Spring; so far SSI counts have found 28 species
- Another 10 species known on southern Vancouver Island might be seen on SSI (3 of these *have been* seen and photographed on SSI since 2017)

With a little practice you should be able to identify *over a dozen* common or distinctive species on sight

*BUT Don't expect to see a lot of butterflies on
any one count day*

Records for SSI

3 species not currently listed by RBCM on distribution maps for Salt Spring have been photographed on SSI

Arctic Skipper

Cedar Hairstreak*

Grey Hairstreak



Photo: S. Henson

Photo: E. Cronin

*2018: 19 Cedar Hairstreaks recorded from 6 locations made it the 7th most common species that year

Special Interest: SSI Endangered Species

Red-Listed species on SSI

- Propertius Duskywing
- Dun Skipper
- Common Woodnymph



Rare sub-species found only in this region

- Moss's Elfin
- Bremner's [Zerene] Fritillary



For more on these see the SSIC website:

saltspringconservancy.ca/protect/wildlife/butterflies/

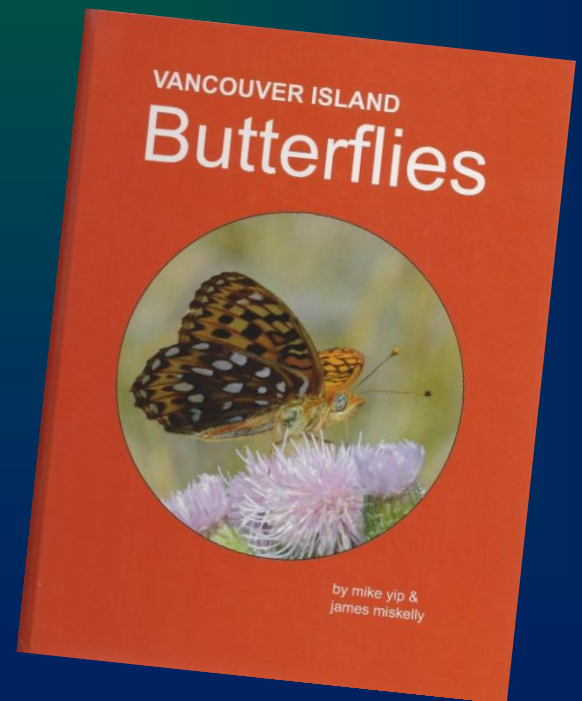
Identification Tips

Best identification resource

- Best reference for SSI: *Vancouver Island Butterflies* by Mike Yip & James Miskelly

Currently out of print, but there is a copy in the SSI library.

- Other books can be used, but they will show many more species than are found on the island. If you are using other books be careful to check:
 - details of location
 - expected flight periods in the season
 - similar species (there are a lot!)



Size Matters

- There is wide variation in size of species, but only slight differences between individuals within the same species
- ALWAYS check your potential ID with size information



California Tortoiseshell



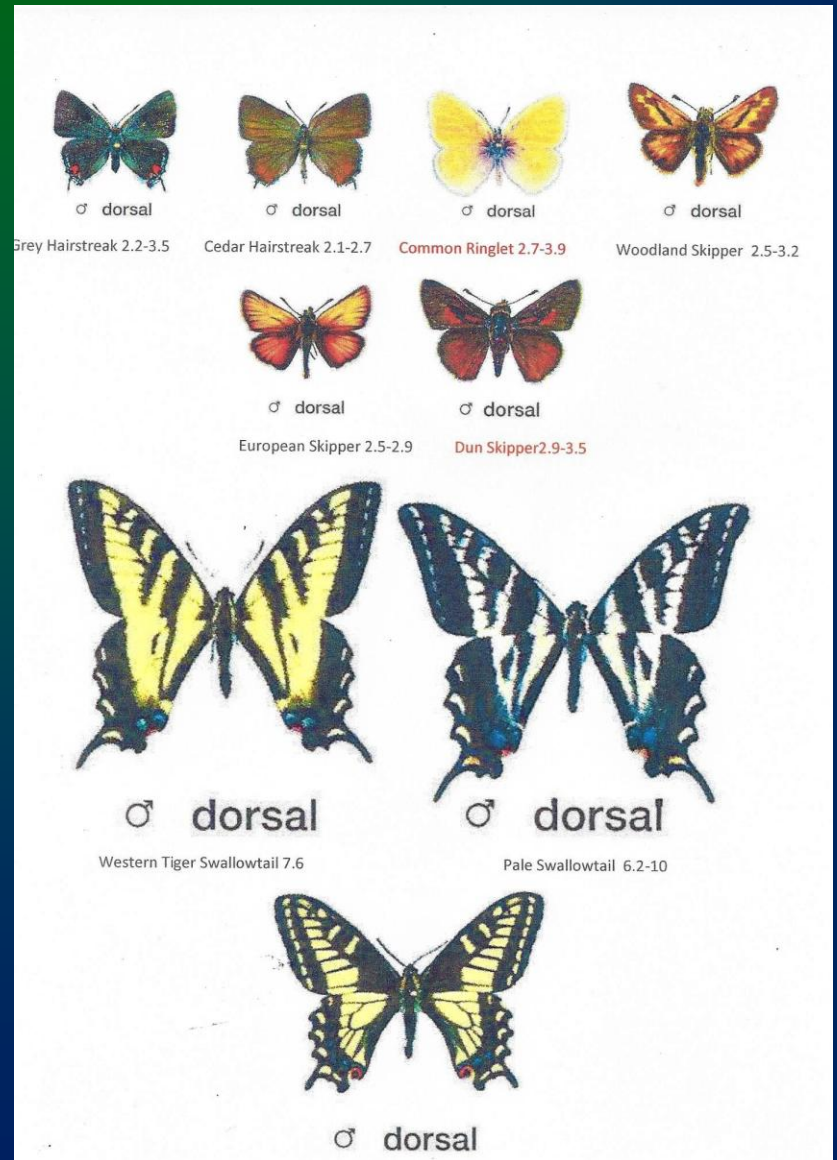
W. Tiger Swallowtail



W. Spring Azure

Check size file

- Here is a size file that Susan Fussell made showing butterflies life size
- Let me know if you want me to send you a copy of this file



Some very small ones are fingertip size

- **Western Spring Azure:** Spirea, Ceonothus →
- **Cedar Hairstreak:** W. Red Cedar ↘
- **Moss's Elfin:** Stonecrop ↓

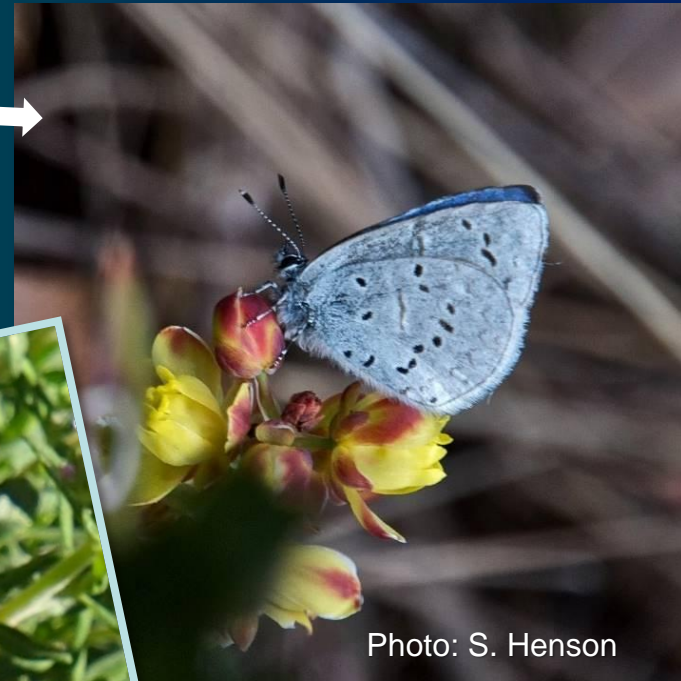


Photo: S. Henson

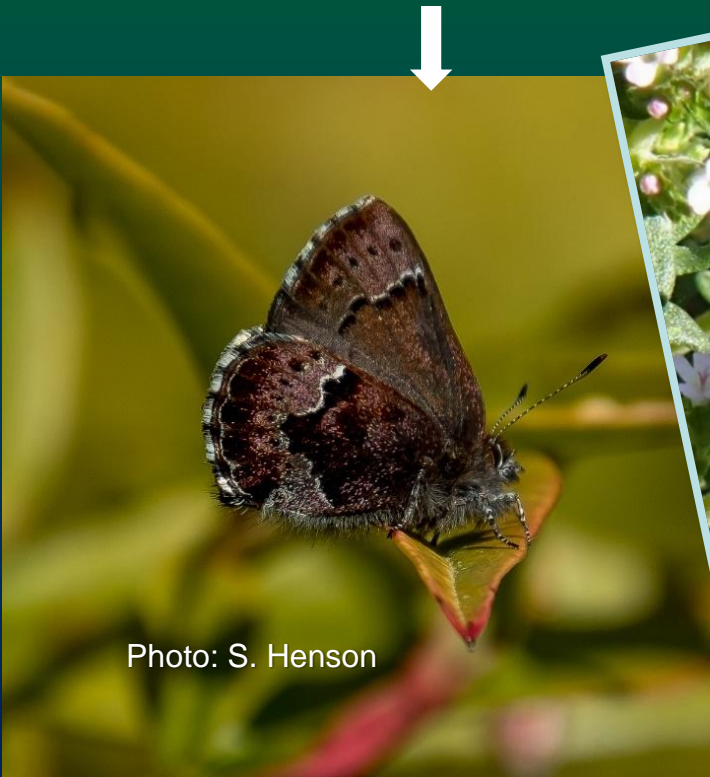


Photo: S. Henson

Flight periods help with ID

- Different species fly at different times of year; species that overwinter as adults fly very early spring; some species have short flight periods and are never seen at other times of the season
- Record sheet shows usual flight periods in yellow for each species

[illegible]

Undersides may be more distinctive than upper side of wing

- Similar species often have distinctive markings on undersides that help in identification
- Differences between sexes also are common

Western Spring Azure



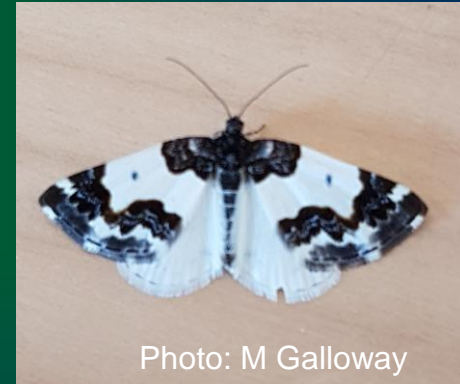
Silvery Blue



Day-flying moths confuse us all spring

White-ribbed carpet moth →

is very small, flies during the day & looks like a 1/3 sized version of the Cabbage White butterfly



A small brown day-flying moth



Other moth confusion

- Moths resting in vegetation during the day fly up when you disturb plants; they look a lot like drab butterflies such as this endangered **Dun Skipper** (note how wings are folded at rest)



Dun Skipper



Moth

Monarchs here? Nope...

NOT a native species in this part of BC (they are present in the interior):

James Miskelly thinks the rare reports are mistaken identifications, or escapes from releases, or strays blown off-course

Don't try to plant milkweeds to attract them



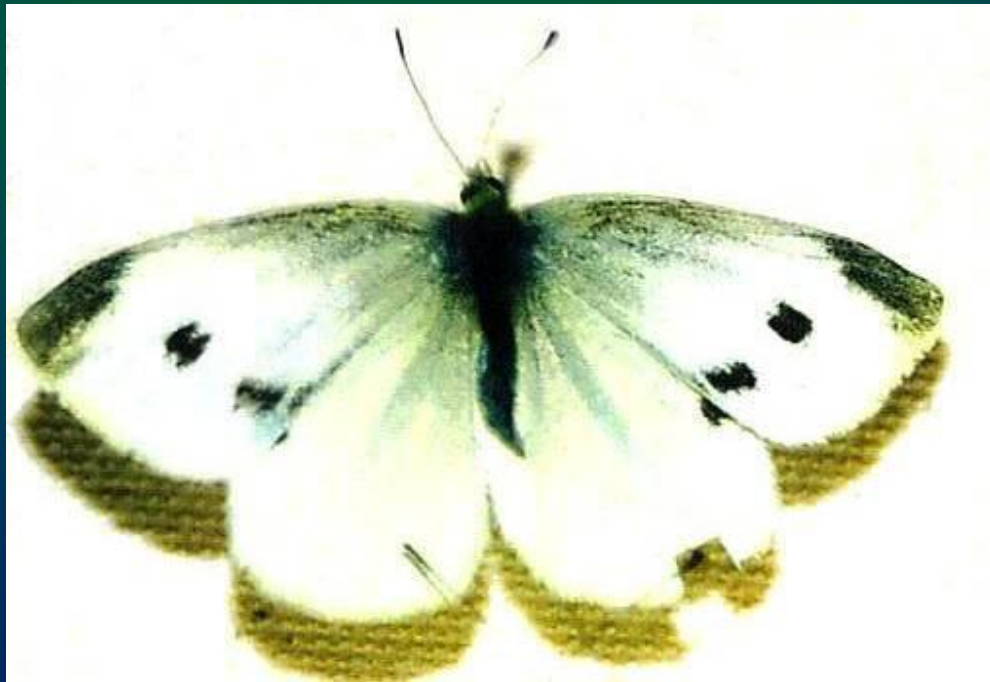
Photo: L. Clark

Memorize these 6 most common species

Cabbage White
Lorquin's Admiral
Western Tiger Swallowtail
Pale Swallowtail
Woodland Skipper
Western Spring Azure

Medium size: Cabbage White

- Non-native, introduced species, very common around gardens
- Hosts: Cabbage (Brassicae) family plants



Medium size: *Lorquin's Admiral*

- Hosts: Willow, poplar, chokecherry, *Spirea*
- Present all season, often very common



*Large: **Western Tiger Swallowtail***

- Yellow & black with zebra stripes across wings; 1 of largest butterflies
- Hosts: willow, alder, maple
- Flight: late May-July



Large: Pale Swallowtail

- Black & cream with tiger stripes across wings; 1 of largest butterflies
- Hosts: alder, currant, cherry
- Flight: June to Sept.



Yes, they do look alike!

Pale Swallowtail

Western Tiger
Swallowtail

Photo: S. Henson



Small: Woodland Skipper

- Most numerous of all species in some years
- Brown checkered pattern on upper- and undersides of wings
- Host plants: Grasses
- Flights: July to October



Small: Western Spring Azure

- Hosts: ocean spray, blueberry, hardhack, elderberry, Arbutus, dogwood and other plants
- Main flight: April-June (2nd brood later in summer)



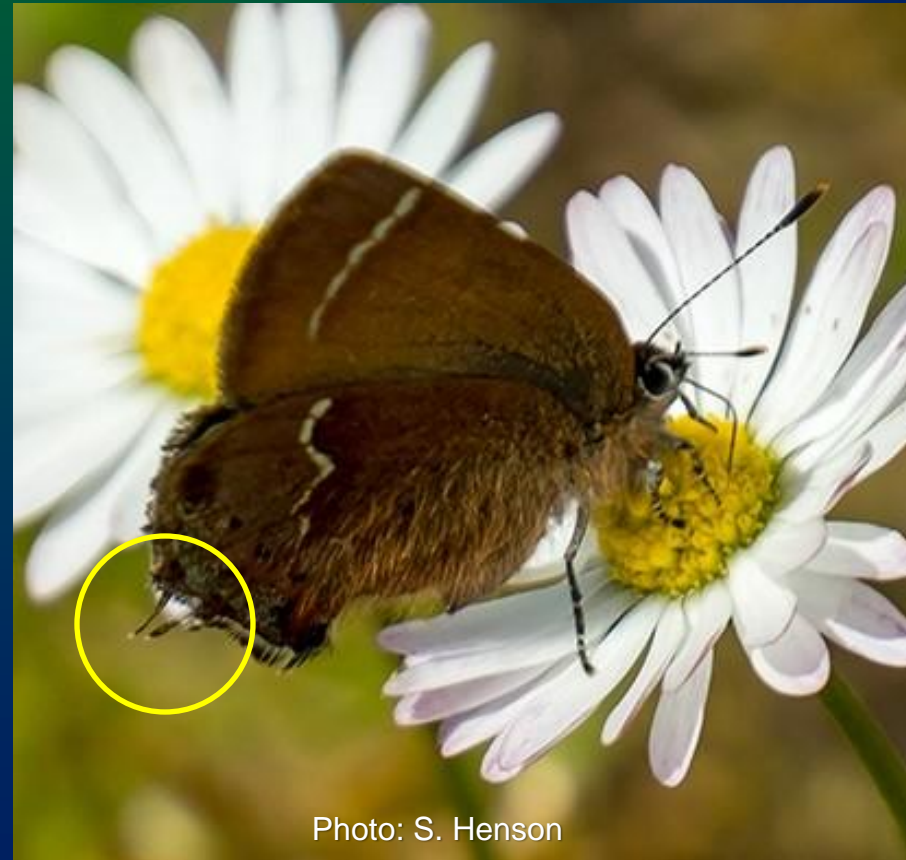
Be familiar with these 6 less common species

Cedar Hairstreak
Propertius Duskywing
Satyr Comma
Mourning Cloak
Pine White
European Skipper

Plus this one: Common some years, non-existent in others:
Painted Lady

Small: Cedar Hairstreak

- Very rare some years, but was 7th most numerous species in 2018
- Host: W. Red Cedar
- One of the spring 'small' browns, look for tiny tails on hindwings



Propertius Duskywing

- Flight in April-July
- Only found in areas with Garry Oak, the caterpillar host plant
- Medium size, dark wings, hard to see against foliage



Medium size: Satyr Comma

- Overwintered adults seen early spring, common
- Jagged wing edge is noticeable
- Flight pattern is very fast and zippy
- Host: nettles



Large: Mourning Cloak

- Hosts: Willow, cottonwood, aspen
- Overwinter as adults: one of earliest seen in the spring



Photo: S. Henson

Medium size: Pine White

- Black marks are well defined
- Hosts: Pine, fir, hemlock



Female



Male

Small: European Skipper

- Introduced species: Common some years
- No marks on upper or lower side of uniformly coloured wings (aside from darker veins and edges)
- Found in grassy meadows

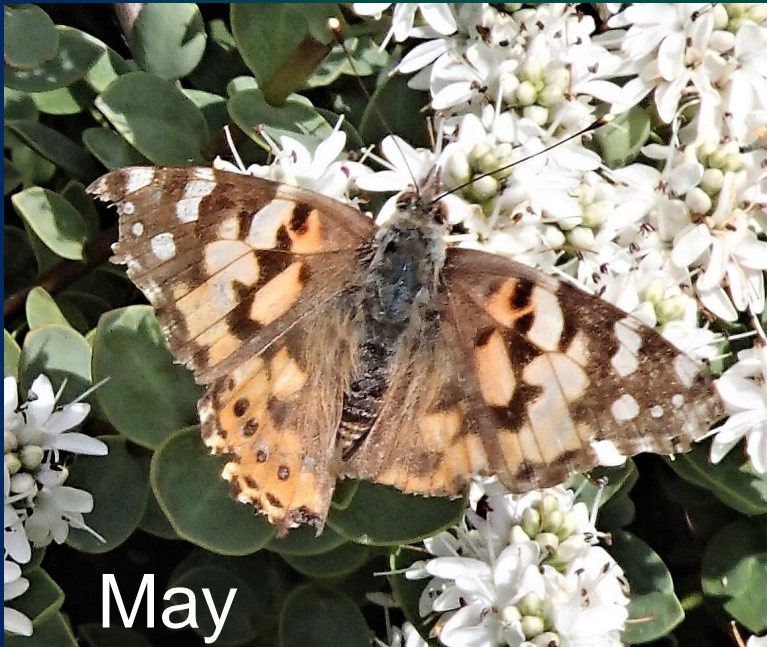


Photo: S. Henson



Medium size: *Painted Lady*

- Migrant: Appear tattered from migration in early season, mid-summer individuals born locally are in better condition
- Host: Nettles, thistles, sage, legumes, lupines
- Common some years, none in other years



Distinctive
(but usually not common species)

Common Woodnymph

Red Admiral

Milbert's Tortoiseshell

Arctic Skipper

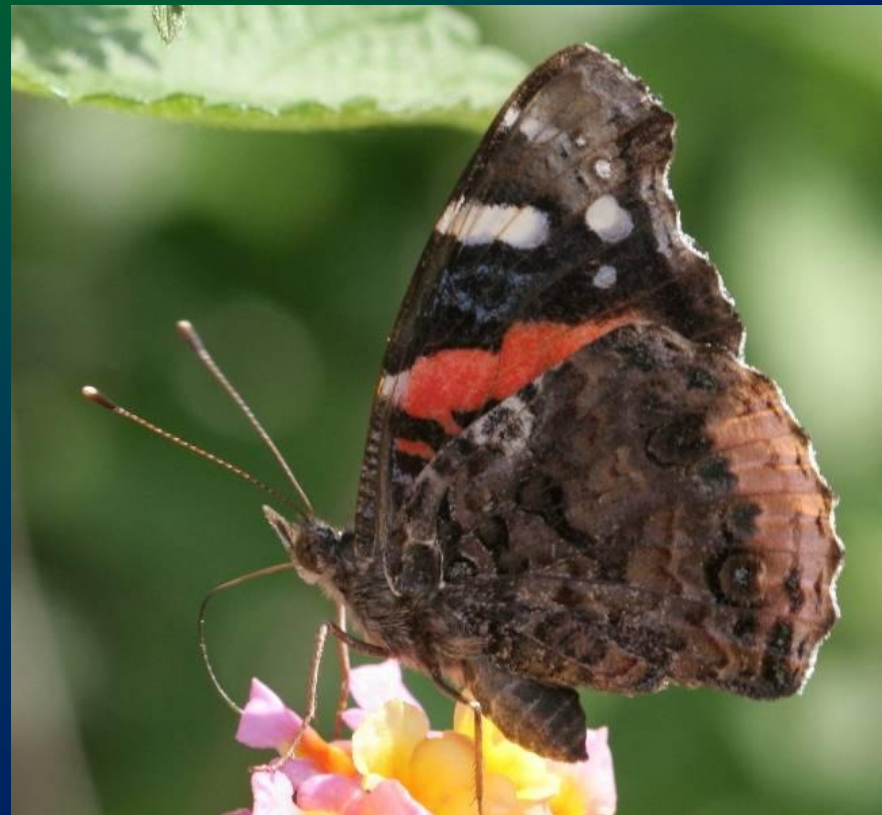
Medium Size: Common Woodnymph

- Hosts: unknown (grasses?)
- Flight: July to September
- Two eye spots distinctive
- Local subspecies is Red-listed
- Seen every year, but not common in most year
- 2024: 76 seen!



Medium size: Red Admiral

- Host: Nettles
- Flight: all season (March to October)



Medium size: Milbert's Tortoiseshell

- Hosts: Nettles
- Flight: all season (April to September)
- None seen most years



Small: Arctic Skipper

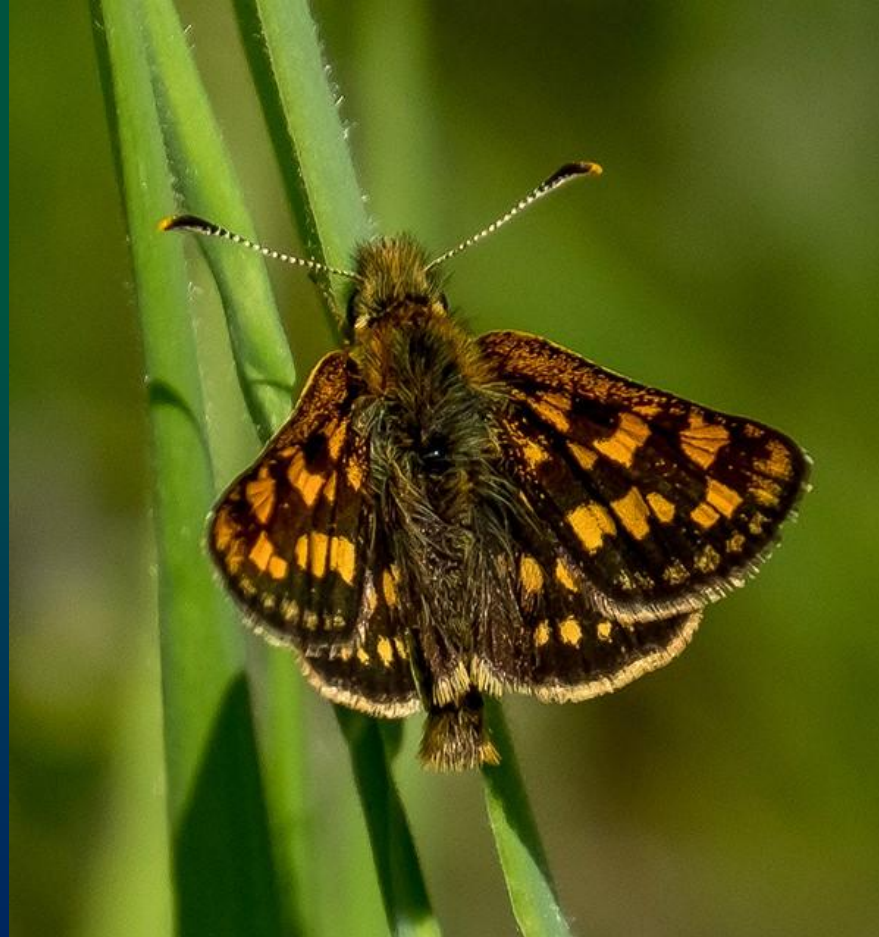


Photo: S. Henson

Very Rare Species (and highly unlikely)

Branded Skippers

Fritillaries

Branded Skippers (very rare)

Silvery marks on underside of wings

Western Branded
Skipper



Common Branded
Skipper



Arctic skipper



Woodland Skipper for comparison →
No silvery marks on underside of wing



Fritillaries: VERY rare

ID by underside of hindwings: Need specimen or photo

Bremner's [Zerene] Fritillary



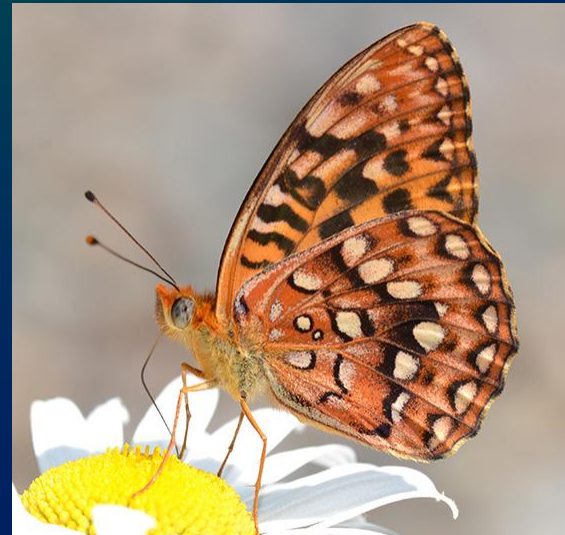
Hindwing: silver spots without dark borders



Hydaspe Fritillary



Hindwings: darker pattern; silver spots with dark borders



Western Tailed Blue (very rare)



Female: sooty blue



Male: brighter blue

Don't worry about the rare ones.... just study the top 12

- If you master these you will be able to identify most species you are likely to see
- If you know them well, you'll know if you see something different

If a butterfly looks different:

- Try to memorize one or two features that make it distinctive so you can look it up later
- Try to get a photo to send to me for help with ID
- If it is listed as “Not Very Common” or “Rare” on the count sheet, we need a photo to confirm the sighting

How to tell similar species apart

Whites

Swallowtails

Skippers

Commas

Ladies

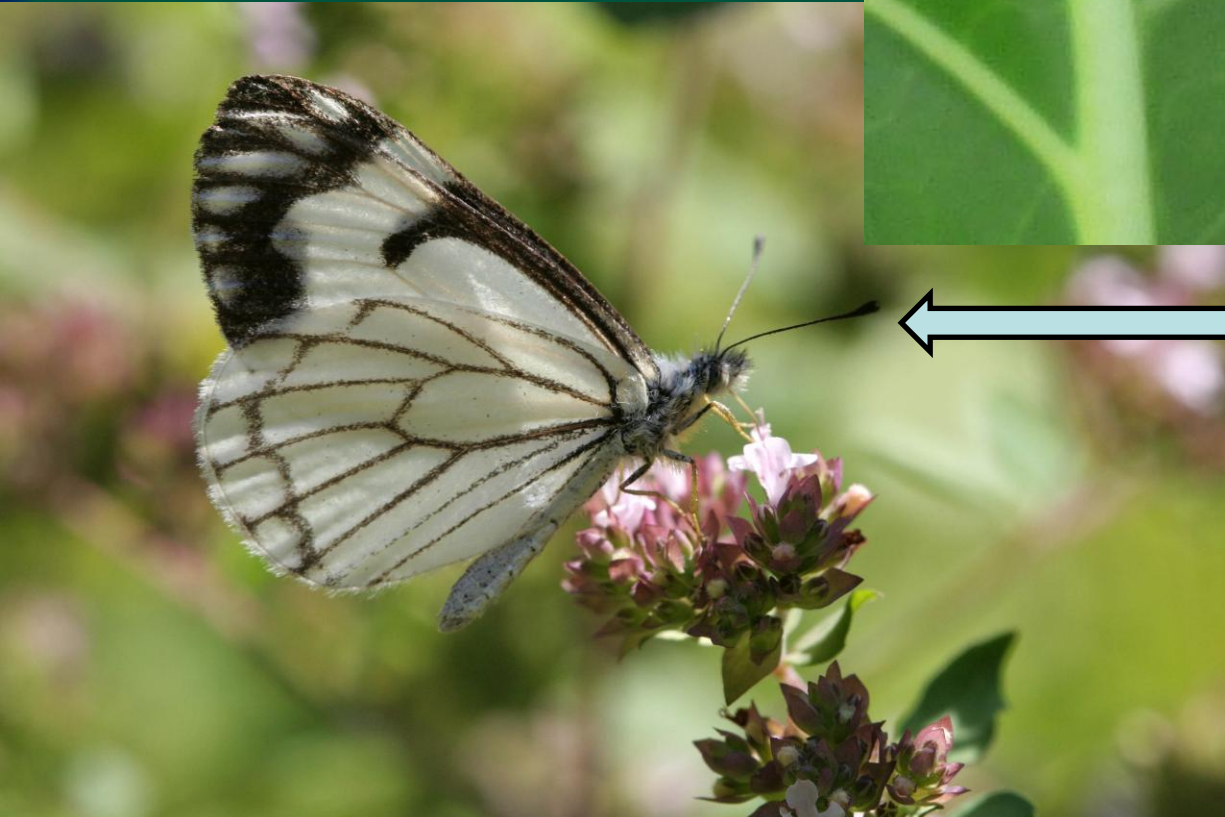
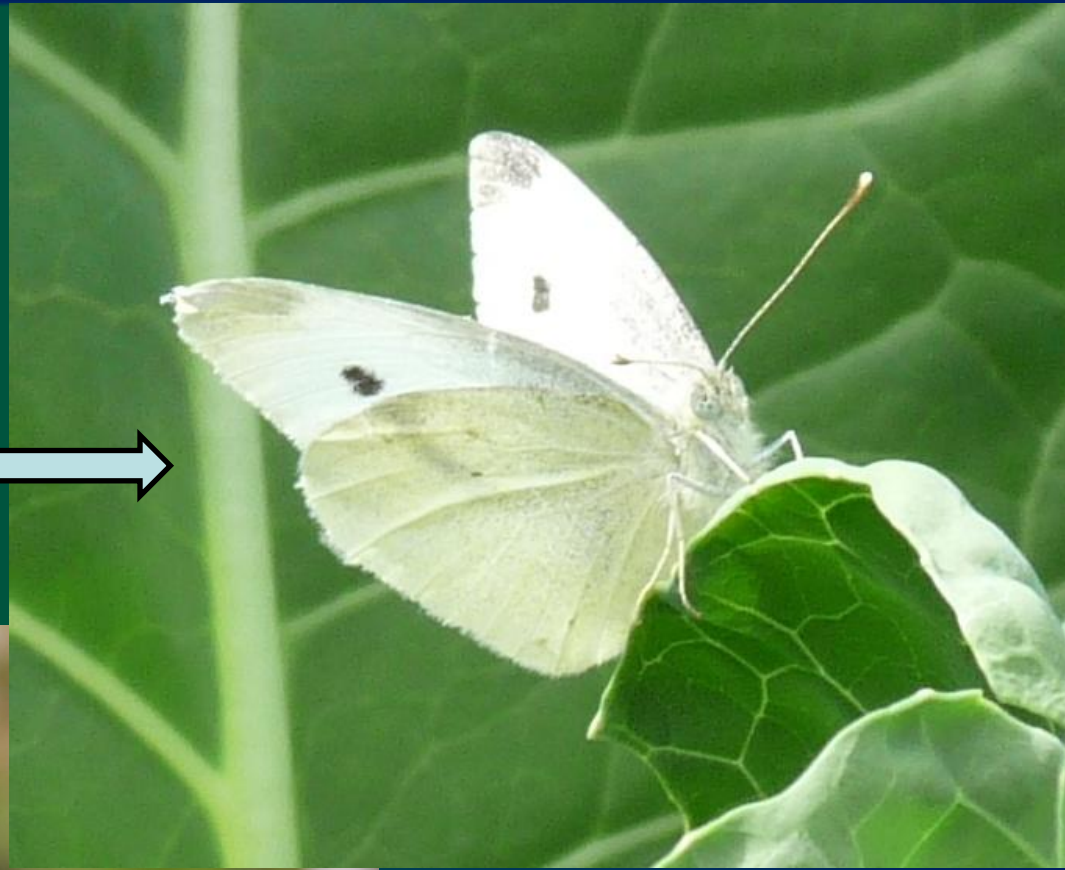
Spring Blues

Elfins

Whites

Both sip nectar at garden & native flowers

Cabbage White: Marks on wings lighter, less defined



Pine White:

- Much darker marks on wings
- Arcing flight pattern from high up in trees

Yellow & Black Swallowtails

Tiger Swallowtail (common):

Zebra stripes cross wings

The most common swallowtail

Anise Swallowtail (rare)

Dark bar/blotch on forewing

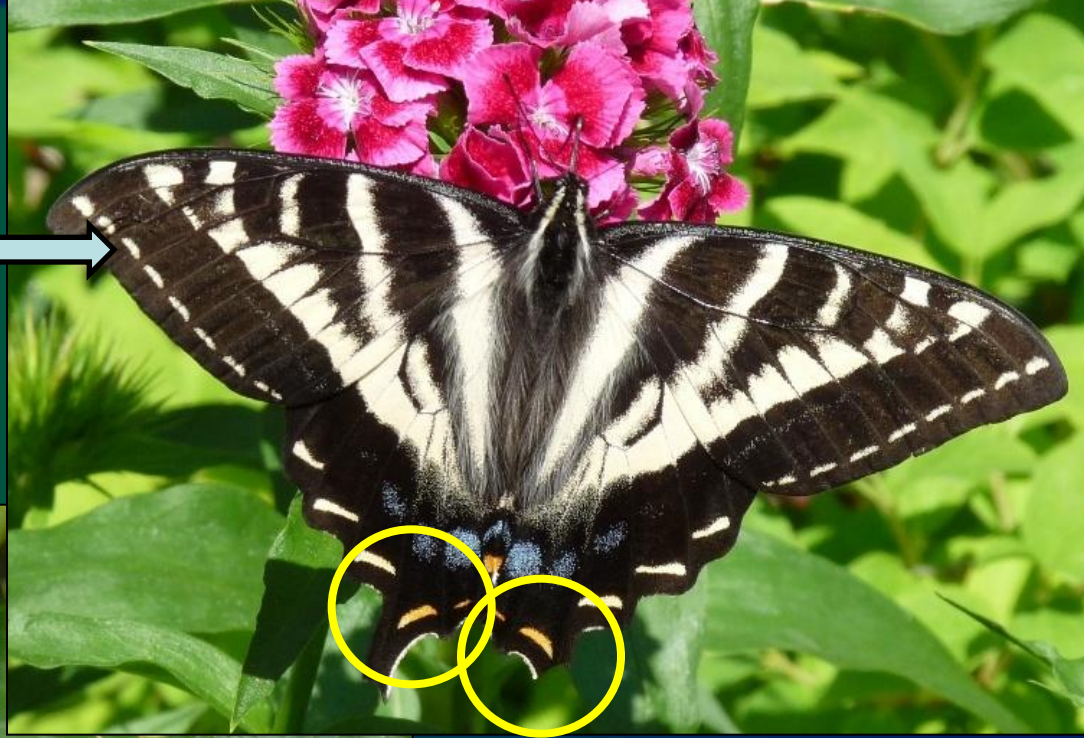
Rare in recent years



Light Swallowtails

Pale Swallowtail

Has orange crescent at base of tail on hindwing



Western Tiger Swallowtail: sometimes old ones are very pale

Has yellow crescent at base of tail on hindwing

Common Skippers

Colour pattern is distinctive

European Skipper:
Plain wings



Woodland Skipper:
Checkerboard wings



© Aaron Schusteff

Comparing Commas

Green Comma (rare):

Wider dark border on both wings

Satyr Comma (common):

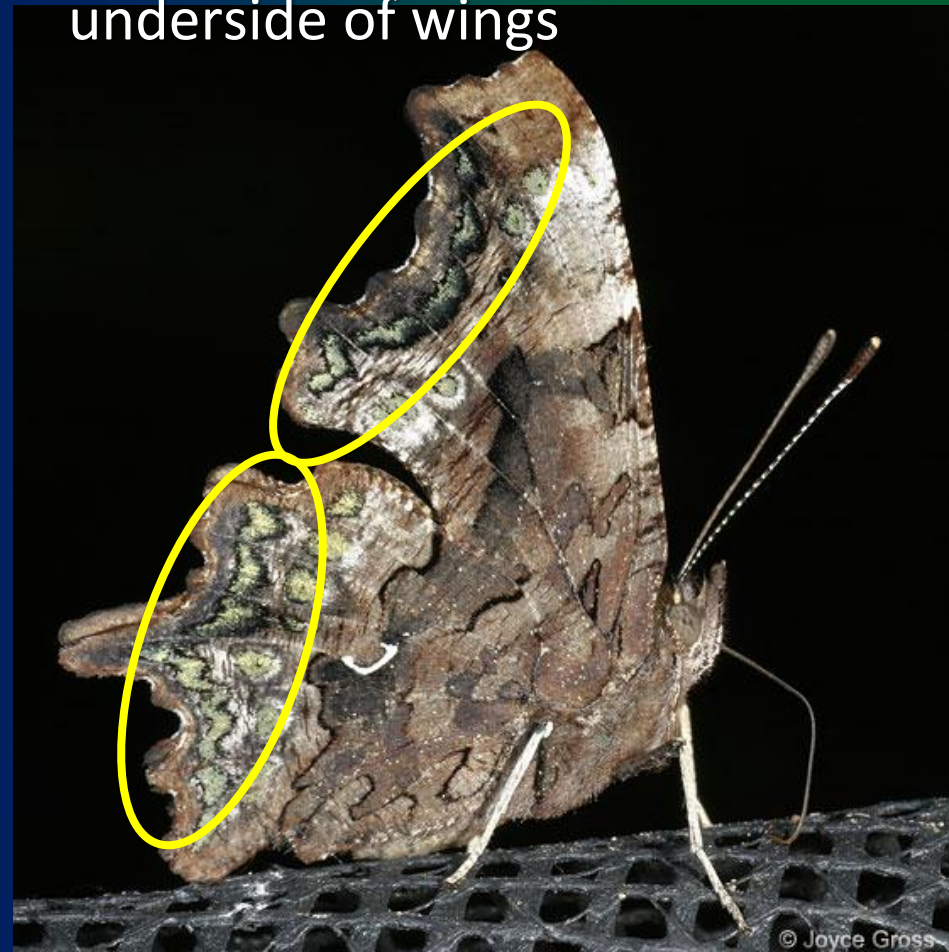
Dark margin on forewing; faded margin on hindwing;
Seen very early (March



Comparing Commas

Green Comma (rare)

Larger, greenish marks on
underside of wings



Satyr Comma (common)

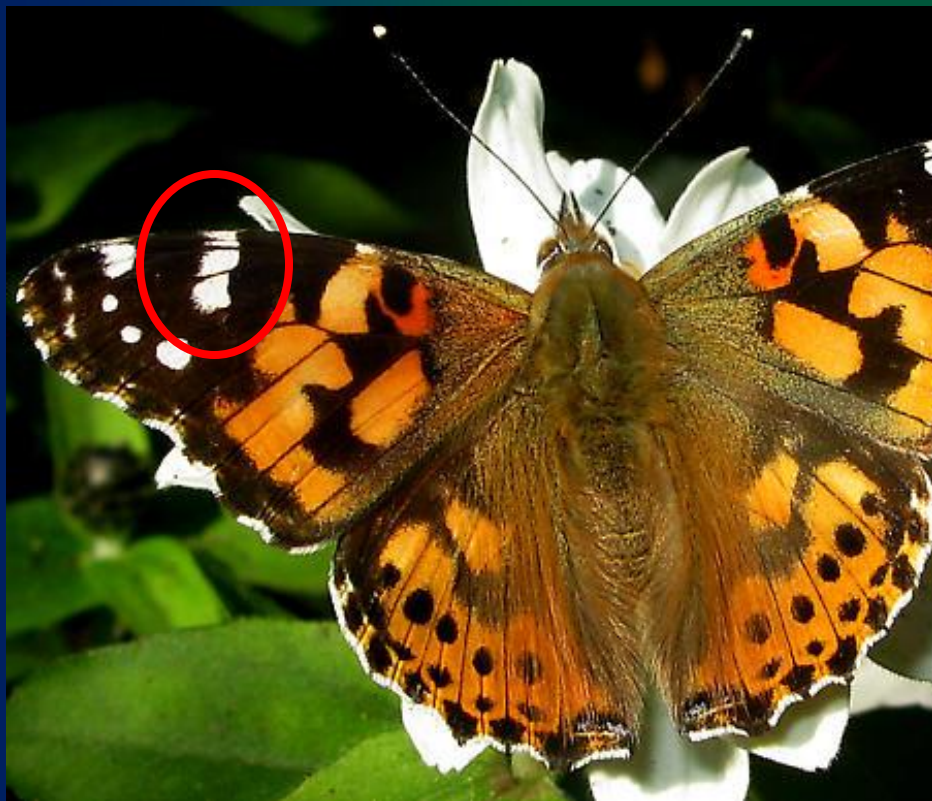
Barely visible marks



The Ladies

Painted Lady (variable)

White mark on leading edge of forewing



West Coast Lady (rare)

Same area is orange, not white
Rare most years



Spring Blues

Western Spring Azure (very common)

Male: very blue

Females: wide, dark
areas on wing edges



Silvery Blue (rare)

Male



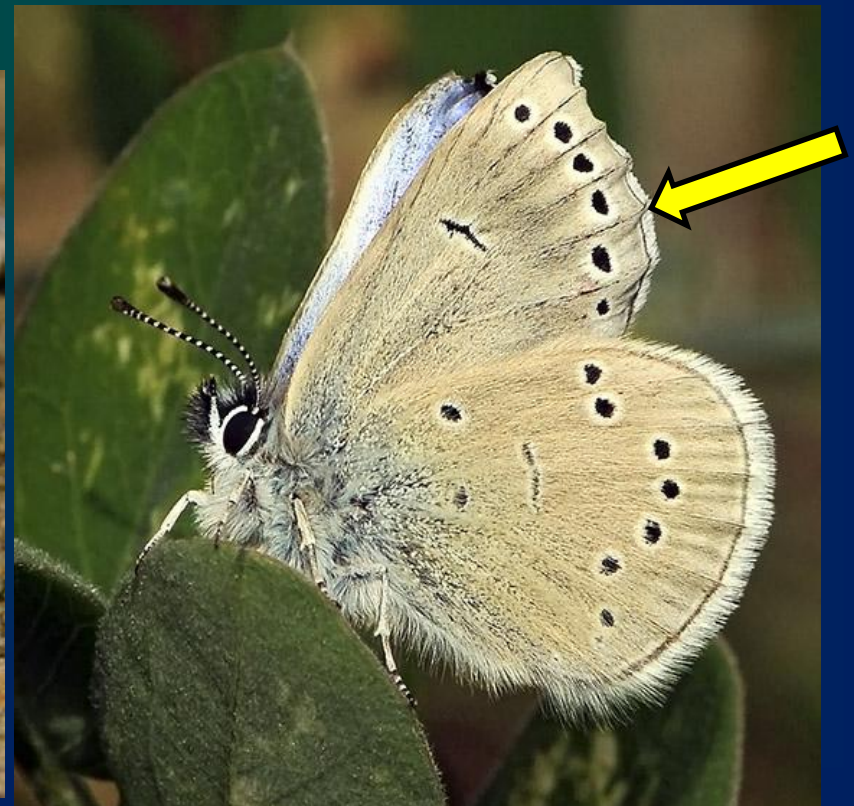
Can't tell them apart from
above? Look at
undersides of wings→

Undersides of wings: Spring 'Blues'

Western Spring Azure: Variety of marks, sometimes faded, all over underside of wing



Silvery Blue: White halos around clear row of black spots around margin; buff background

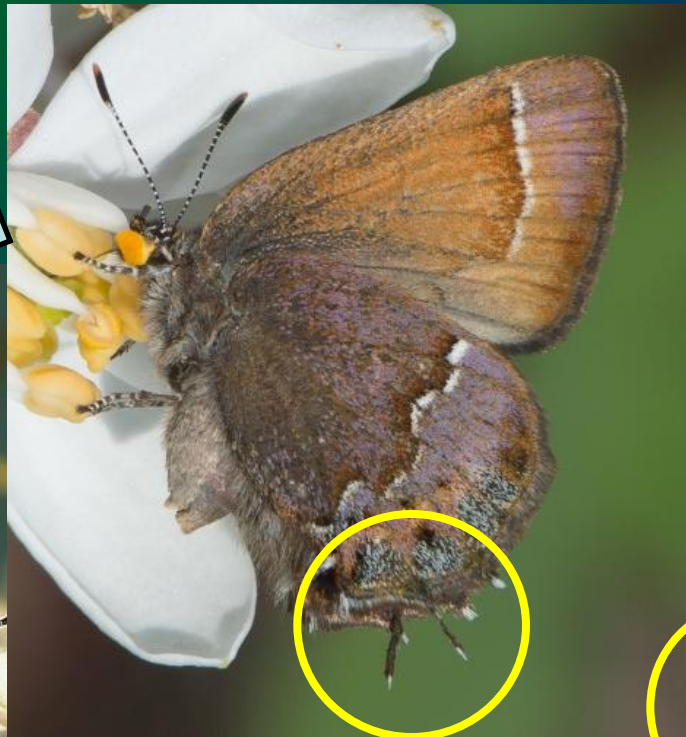
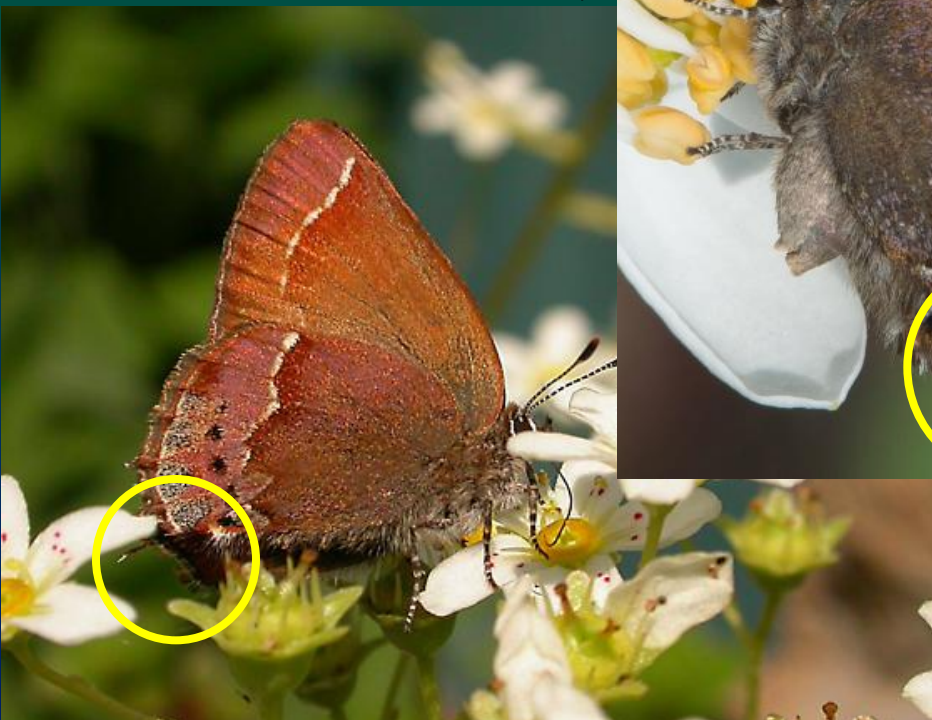


Smallest 'browns'

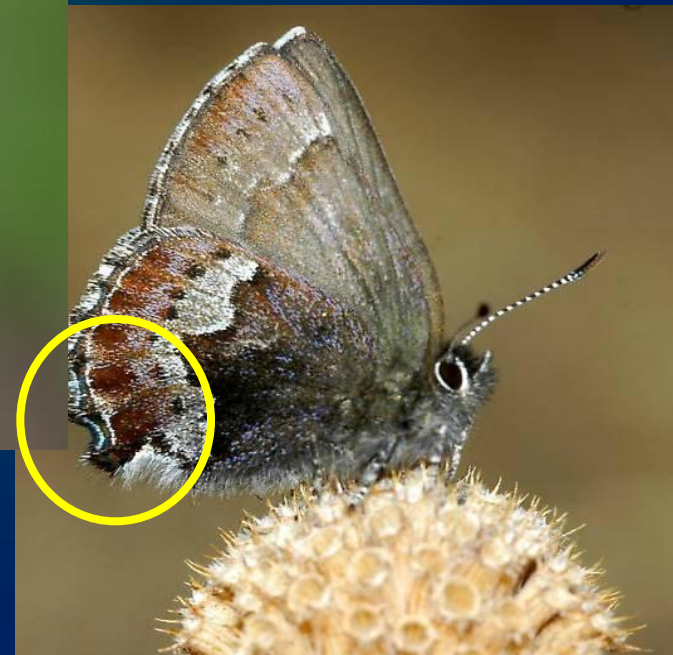
All have similar wavy white line patterns, but tails are distinct

Cedar Hairstreak:

Thin tails on
hindwings:
Hard to see!



Moss's Elfin: Stubby, short 'tail'



Elfins: Different underwing patterns + look for hindwing tail

Western Pine Elfin



No hindwing 'tail'

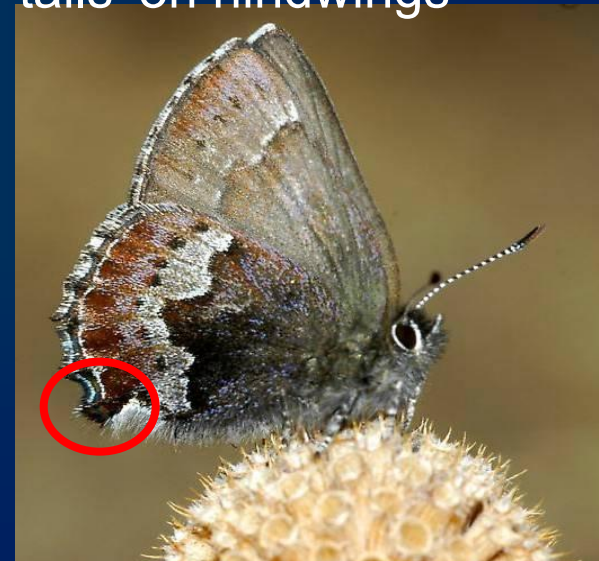
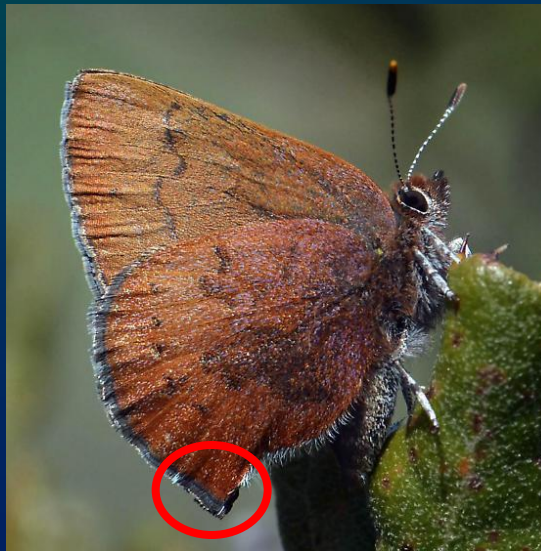
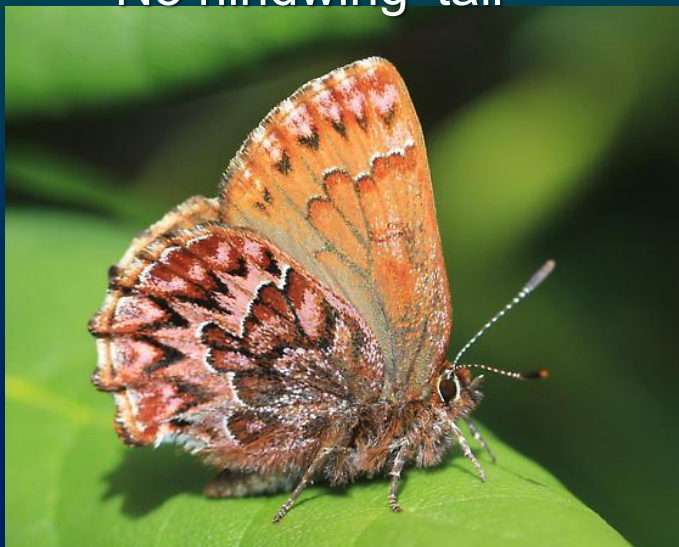
Western Elfin



Moss's Elfin



Both have stubby 'tails' on hindwings



Photographing for ID

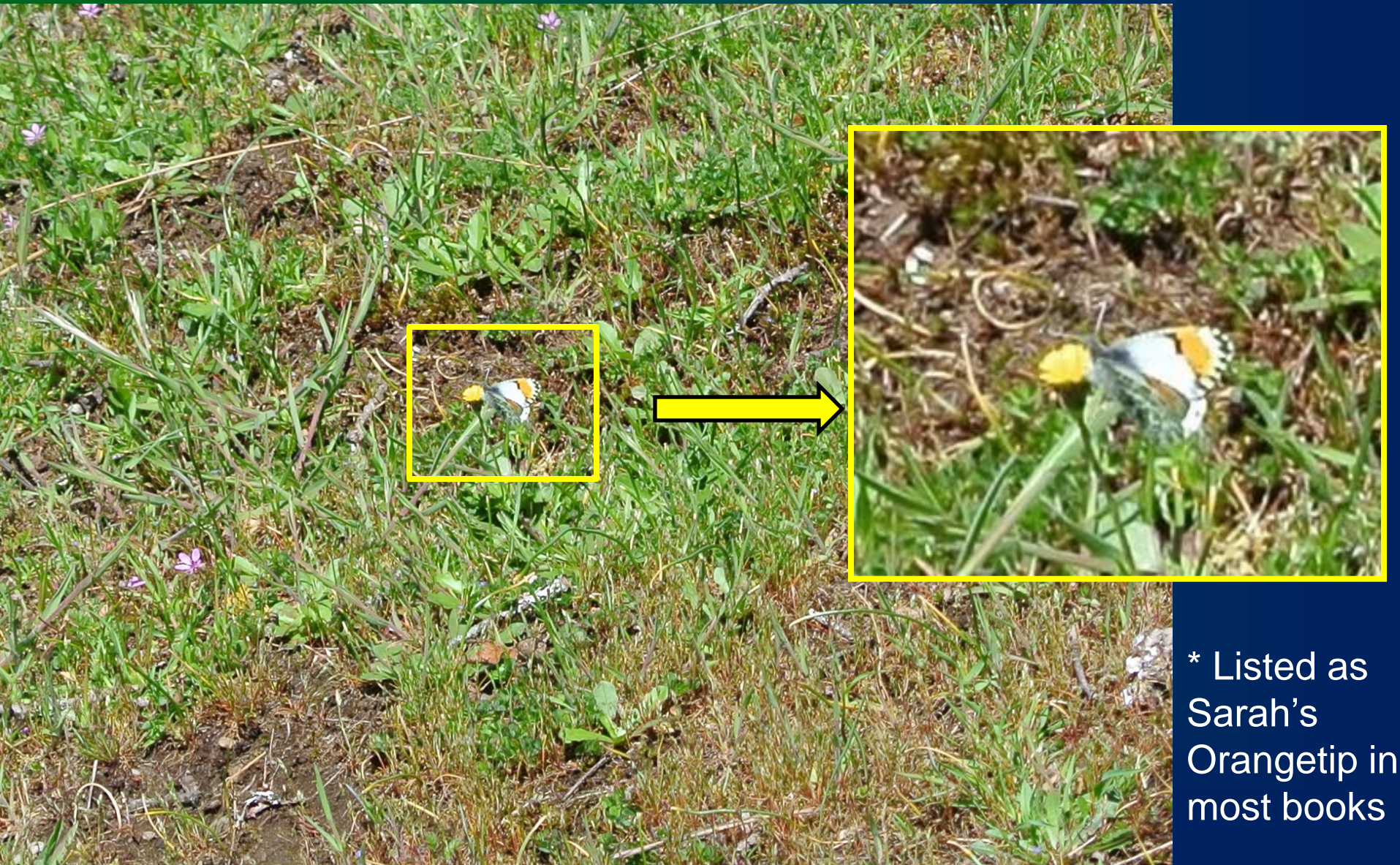
- A distant photo in sharp focus is much more valuable than a blurry closeup because it can be magnified on the computer
 - Start photographing from a distance, taking photos as you get closer (in case they flit, you still have something)
 - For a quick shot it is easier to get a photo in focus at a distance (use auto focus setting)
- To get closer:
 - Be patient and move very slowly
 - Keep your shadow from falling on the butterfly
 - Try to take the photo when the butterfly's wings are wide open (photos of closed wings are useful for some species)

Propertius Duskywing

Excellent photo
for ID purposes
because it was
in focus

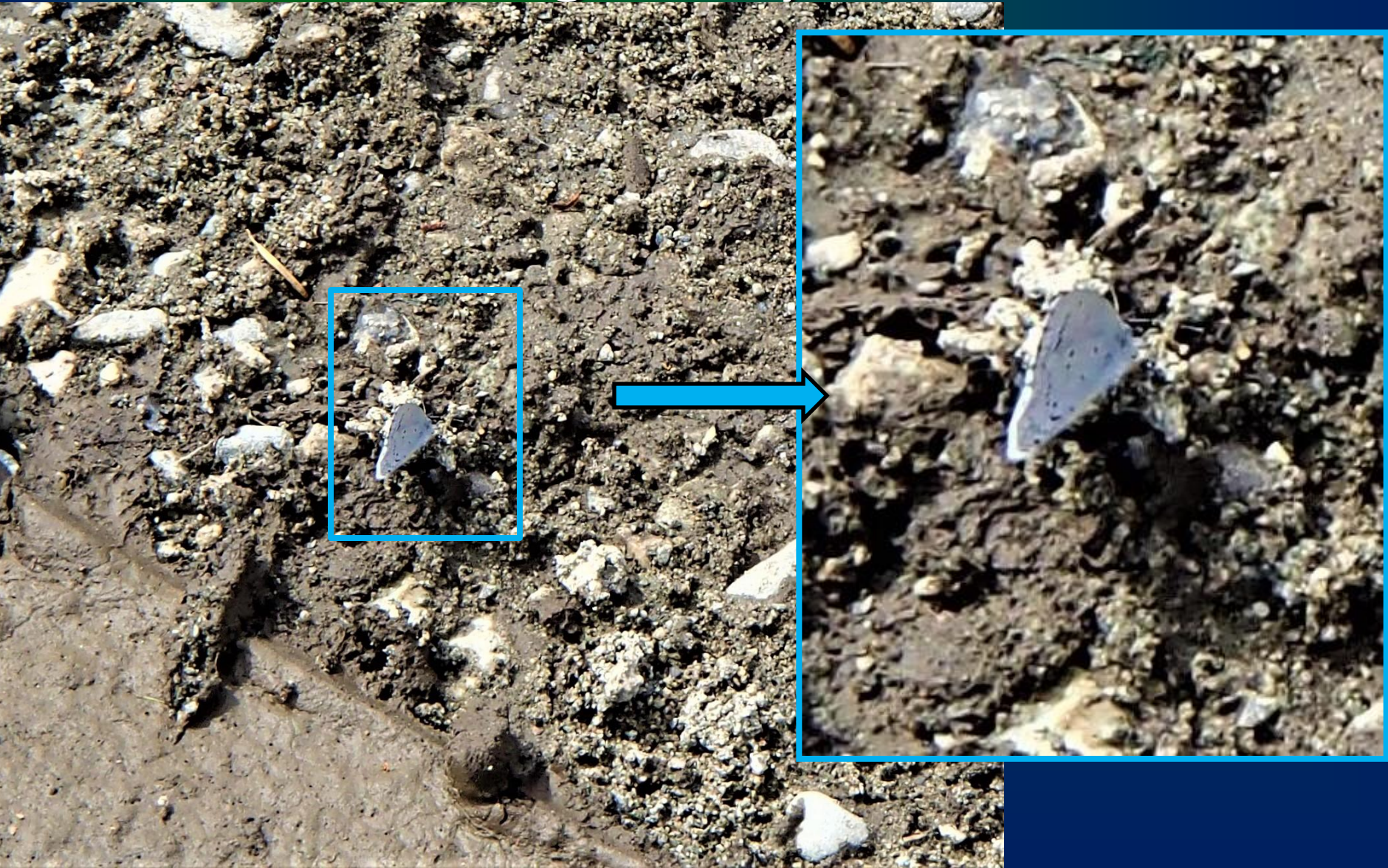


Julia's Orangetip: This photo was fine*



* Listed as
Sarah's
Orangetip in
most books

Western Spring Azure: The underside of wings is key to ID



An attempted closeup

This was sent to me, but I never did find the butterfly in the photo!

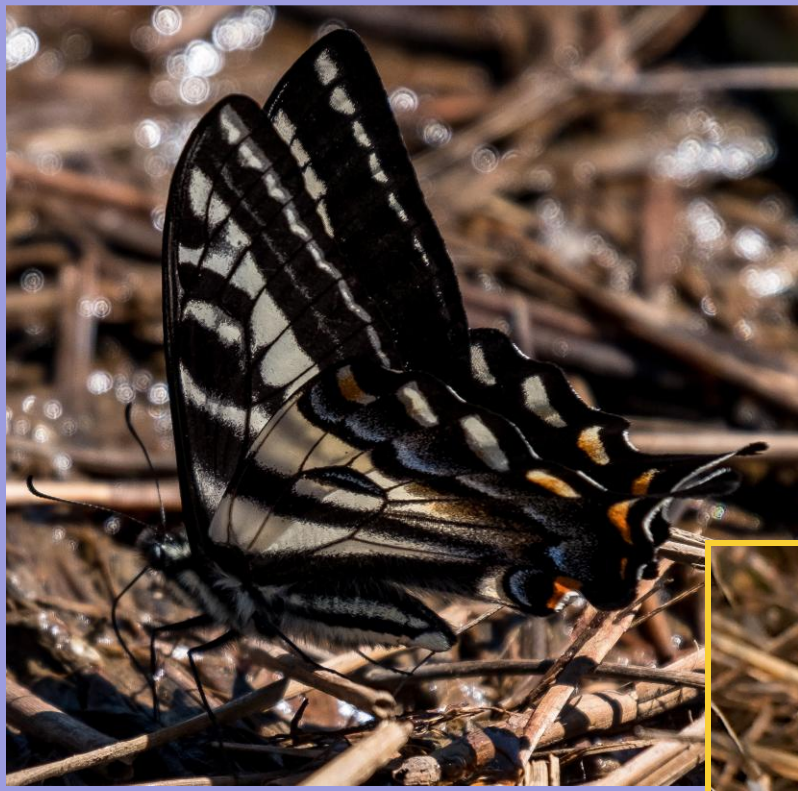


But I could ID this one

The yellow colour and black wing marks are distinctive enough to tell it is a **Western Tiger** and not an Anise swallowtail



Let's Count!



All photos: S. Henson

Counting Butterflies

- The best conditions: Warm, sunny days between 11 am and 4 pm, with little or no wind
 - If the morning is cool, wait until mid-afternoon to count
- Where to look: Open meadows and along roadsides, clearings in the woods, sunny gardens with blooming flowers
- Time of year: A few species appear on warm days as early as March, but most are seen April through September

SSI Count Days

- 3rd week of the month from a Saturday through the following weekend (= 9 possible days to choose from)
- 6 counts: April, May, June, July, August, September

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	34	25	26	27
28	29	30				

Count Records

- For each count route, keep track of the species *and* the number of individuals of each species that you see
- Keep separate records for separate locations if you are counting on more than one route
- Do your best to count on a day within the count period, but if not possible, do a count as close to that time period as you can
- And, yes, there is a place for unidentified butterflies on the count sheet...

Record Sheet

Main flight periods in yellow. Flight periods possible at higher elevations in orange.		Location _____					Recorded by _____	
2023 SSIC Butterfly Count	April__	May__	June__	July__	August__	Sept.__	2022 TOTAL	
Most Common Species								
Cabbage White								
Cedar Hairstreak								
European Skipper								
Lorquin's Admiral								
Mourning Cloak								
Painted Lady <i>migrant</i>								
Pale Swallowtail								
Pine White								
Satyr Comma [Satyr Anglewing]								
Western Spring Azure								
Western Tiger								
Woodland Skipper								
Not Very Common								
Anise Swallowtail								
California Tortoiseshell <i>migrant</i>								
Common Woodnymph								
Green Comma								
Grey Hairstreak								
Hydaspe Fritillary								
Milbert's Tortoiseshell								
Moss's Elfin								

Filling in the data sheets

(...or how to make things easier for me...)

- Only use the data sheet supplied this year, not an earlier version or one of your own invention
- If you don't want to use a data sheet, just list the species & numbers you saw each count day in one email to me at the end of the season and I will enter your data in the spreadsheet
- Record the date & total number of each species seen: please do not use hatch marks (HHH HHH) or put 0's in the empty cells

EXAMPLE:	April 15	May 18	June 19	July 22	Aug 18	Sept 16	Total
Cabbage White		5	6	12	1		24
Western Tiger Swallowtail			3	5			8
Woodland Skipper				43	13		56

Submitting Records

- Use a separate record sheet for each route if you counted more than one route.
- At the end of September, get the record sheets to me:
 - Email me a completed Excel or Word spread sheet
 - OR scan it in and email it [Please do not send phone photos—they are just too hard to decipher]
 - OR list the species and totals for each count day in an email
 - OR mail your record sheet to: Gilkeson, 454 Mt. Belcher Hts., Salt Spring, V8K 2J6
 - Or leave your records in the Apple photo community box with my name on the envelope under 'G' (let me know if you do)

Questions?

We don't have
Peacocks here,
but isn't it pretty!

