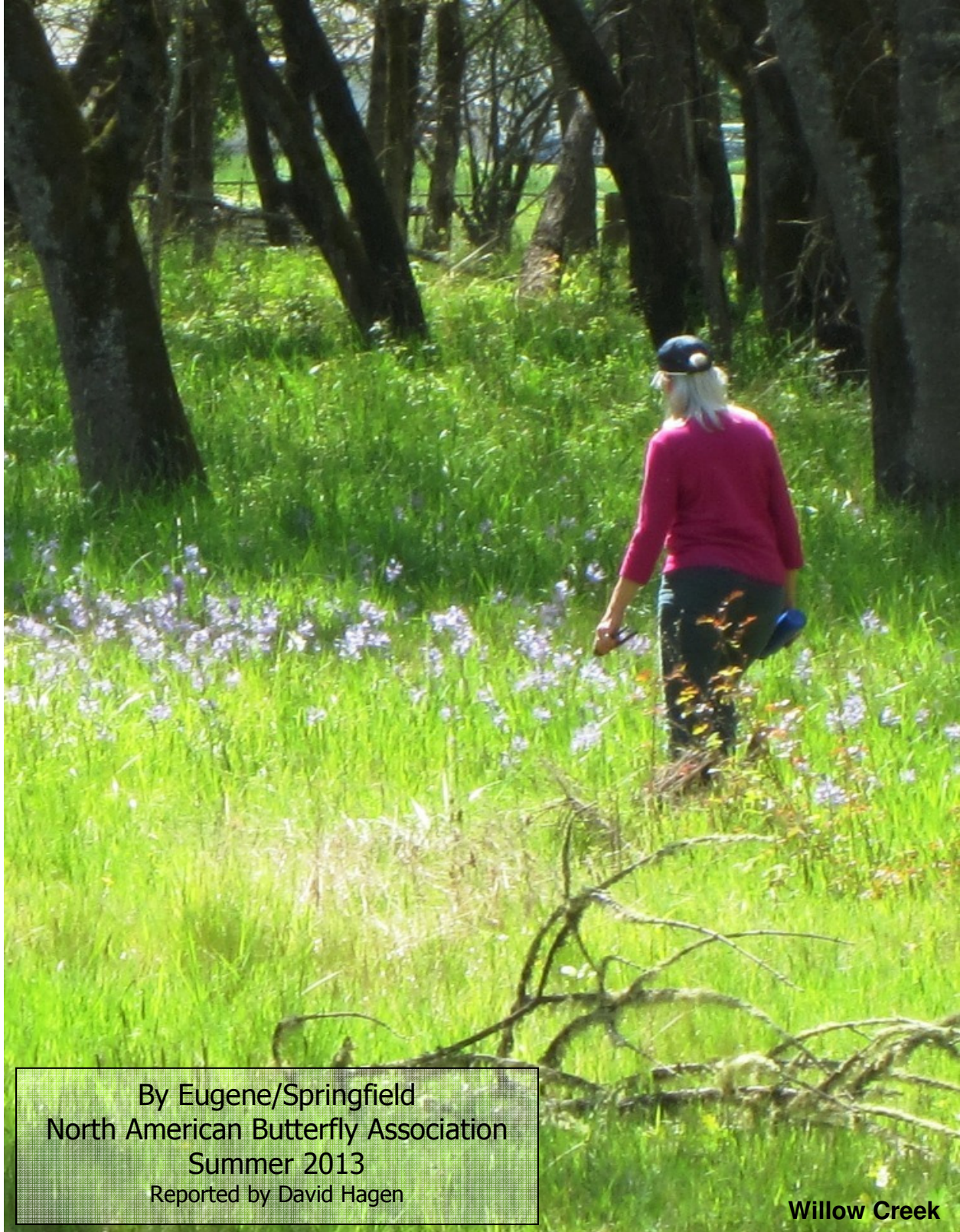


A 2013 Survey of Butterflies at Eugene's Willow Creek Preserve



By Eugene/Springfield
North American Butterfly Association
Summer 2013
Reported by David Hagen

Willow Creek

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Background

In 2013, a volunteer group from the Eugene/Springfield chapter of the North American Butterfly Association (NABA-E/S) surveyed the butterfly population in the southwest region of The Nature Conservancy's Willow Creek Preserve (WCP).

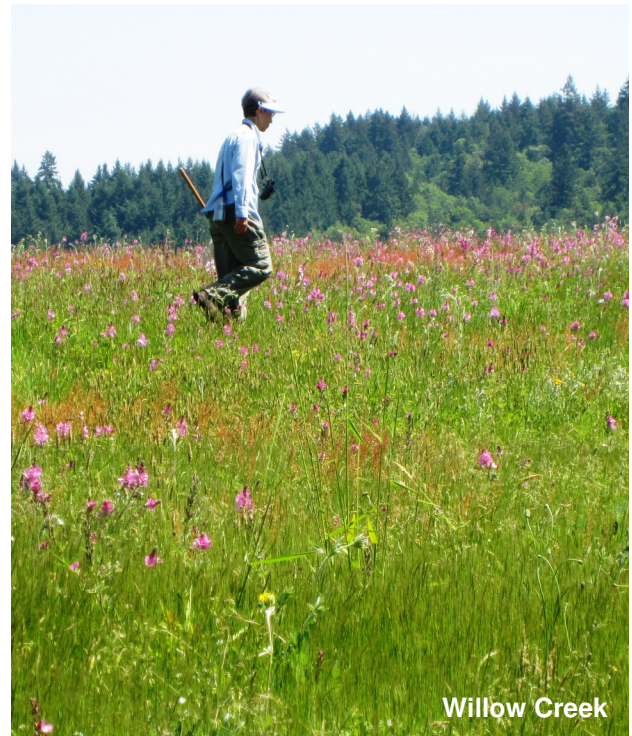
After a preliminary assessment of the Willow Creek Preserve (led by Matt Benotsch of TNC), we decided to confine our survey to the southwest portion of WCP (see Figure 1). Because this site displays a variety of habitats, we recorded our observations separately for three distinct "zones" (see Figures 1 and 2) in the survey area:

- Hayfield (HF) Zone
- Northwest (NW) Zone

Our survey group sought to identify butterfly species, to count the total number of butterflies, and to comment on the general quality of the butterfly habitat. The butterfly season started early in 2013 with a spring that was unseasonably warm and dry throughout Lane County. Therefore, our observations at Willow Creek in 2013 may not be typical and may be biased towards early butterfly emergence times.

Procedures

At southwest Willow Creek for 2013 we conducted surveys throughout the butterfly season at intervals of approximately two weeks. We followed a route (see Figures 1 and 2) which we had established during our first survey: out through the SW Zone; crisscrossing through the HF Zone; and then returning through the NW Zone. Each survey day we recorded the weather, the number and names of the participants, and the time on site. Our tally sheets contained separate columns for the three zones of our survey area.



Results

Overview

Eleven volunteers participated in the 2013 study at the Willow Creek preserve. The group completed fourteen surveys extending from April 11th through September 27th. The volunteers spent 129 person-hours in the field (Tables 1 and 5). In total, we logged about 204 person-hours on this project when travel, prep work, and analysis times are included.

In this survey, we identified 25 different butterfly species (Table 1). We counted almost 1600 individual butterflies — 248 in the SW Zone (Table 2), 915 in the HF Zone (Table 3), and 423 in the NW Zone 1 (Table 4).

The four most common butterflies observed were: Ochre ringlets (*Coenonympha tullia*), with 512; Common wood-nymphs (*Cercyonis pegala*), with 355 (high throughout Lane County this year); Common checkered-skippers (*Pyrgus communis*), with 239 (a surprise for us); and Field crescents (*Phyciodes pulchella*), with 111. The butterflies seen at Willow Creek showed us a different spectrum from what we have observed previously at comparable areas in the Willamette Valley, in other years. (More on this, below.) The butterflies, as they were observed at different times of the year, is shown graphically in Figure 3. Of the top four, Common checkered-skippers appeared the earliest – peaking in early May; next, Ochre ringlets and Field crescents peaked in early June; and finally, there was a population spike for Common wood-nymphs in late July. Figure 3 also shows evidence for second broods in the cases of Common checker-skippers (in mid July), Ochre ringlets (in late August), and Common wood-nymphs (in late August).

Zone-by-zone Comparisons

We have compared the butterfly occurrences in the three distinct restoration

zones of southwest Willow Creek preserve. The Southwest Zone (Table 2 and Figure 4) is the least diverse habitat-wise of the three zone, and there is little evidence of restoration activity. Not surprisingly, the SW Zone was the lowest in butterfly diversity and individual numbers. The butterflies there were primarily Ochre ringlets and Common wood-nymphs, and these were seen primarily in the second half of the season.

The Hayfield Zone (Table 3 and Figure 4) has been restored most aggressively with a variety of native plants, many of which attract butterflies. Especially early in the season, there were vast tracts of various flowers which could be seen from far away. The blooming period, however, was primarily in the first half of the season and that is when we saw the most butterflies. Later, as the Hayfield dried out, we saw fewer butterflies. The Hayfield Zone has a known population of Fender's blue butterflies and their host plant, the Kincaid's lupine. We saw these butterflies (and plants) early in the season. However, other groups are actively studying Fender's blues at this site, and our primary focus was on butterfly diversity. (There is more on Fender's blues, below.) This zone benefits from being surrounded by woodland strips on all edges, and this helped bring out additional species.



Finally, the Northwest Zone (see Table 4 and Figure 4) exhibits grassy paths through an oak woodland area. (See the cover photo.) This zone provided us with good butterfly diversity across the season, especially with the nearby woodlands providing a cooling influence later as the summer heated up and as the open areas dried out. In the Northwest Zone, we occasionally observed Lorquin admirals and California sisters flying amongst the oak trees, yet Ochre ringlets and Common wood-nymphs were far more common here, as they were everywhere.

A comparison of the butterfly sightings in the three zones is presented in the panels of Figure 4. We saw Common checkered-skippers (with a few exceptions) primarily in the Hayfield Zone; Ochre ringlets and Common wood-nymphs were approximately equal in the three zones; and Field crescents were mostly in the Northwest Zone. We observed a few other trends, although based upon lower numbers. We saw Gray hairstreaks only in the Hayfield Zone, and these we saw early in the season (mid to late April); Sonoran skippers (early June) were in all three zones (approximately equally); Silvery blues and Fender's blues almost exclusively in the Hayfield Zone (in early to mid May); and Eastern tailed-blues were in all three zones, but mostly in the Hayfield Zone (in mid May and mid July; two broods).

In the case of Fender's blue butterflies, even our experienced observers sometimes had difficulties distinguishing them from Silvery blues. We made a composite, labeled photo to highlight the differences – see Figure 5. We also note that Silvery blues appear slightly earlier (early May) in comparison to Fender's blues (mid May).

Comparisons to previous surveys

NABA-ES has performed surveys in other, nearby wetland areas in recent seasons. In 2009 and in 2010 we surveyed

Dragonfly Bend (and the adjacent Brigg's Site), and in 2011 and 2012 we surveyed Coyote Prairie. Although these surveys were in different areas and in different years, we can make some tentative comparisons – see the panels of Figure 6. Ochre ringlets were common in all surveys, but a bit earlier at Willow Creek (as noted earlier, 2013 experienced an early butterfly season in general). Common wood-nymphs were also numerous in all areas but especially in 2013 and again, slightly earlier at Willow Creek. Common checkered skippers and Gray hairstreaks were far more numerous at Willow Creek than at the other sites, and we saw Sonoran skippers and Fender's blues exclusively at Willow Creek. Field crescents were plentiful at Willow Creek in 2013 and at Coyote Prairie in 2012, but less so in earlier years. We occasionally saw California sisters and Anise swallowtails at Willow Creek (especially in the Northwest Zone), but rarely or not at all in our earlier surveys. We commonly saw Eastern tailed-blues in all surveys; they were a little more common at Dragonfly Bend than at Willow Creek. Sachem skippers were astronomically abundant at Coyote Prairie, but fairly rare at Willow Creek. Finally, Orange sulfurs were extremely numerous at Dragonfly Bend in 2009 and 2010, but much less common in more recent surveys at other sites.



Future Plans

The Eugene/Springfield chapter of NABA will possibly repeat our survey of Willow Creek again in year 2014. It is a beautiful site and conveniently nearby. However, we will also consider alternative options such as a return to Dragonfly Bend or a survey at a new location, for example, at the Willamette Confluence bordering Lane County's Buford Park. Regardless of our decision, we hope to see numerous butterfly individuals and many different species here in the Willamette Valley.



Blackberries



Willow Creek



Willow Creek

Table 1. Willow Creek 2013 Survey Summary

Total species no: 25

Day number: 1 16 23 30 45 58 72 87 99 114 128 142 156 170
 Date: 4/11 4/26 5/3 5/10 5/25 6/7 6/21 7/6 7/18 8/2 8/16 8/30 9/13 9/27

Common Name															Ind. Tot.
Western Tiger Swallowtail	0	1	0	0	4	1	6	4	1	1	0	0	0	0	18
Anise Swallowtail	0	1	1	0	1	0	0	1	1	0	0	0	0	0	5
Cabbage White	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
Orange Sulphur	0	0	0	0	4	3	0	1	6	2	0	0	0	0	16
Gray Hairstreak	0	13	6	15	3	0	3	0	0	0	0	0	0	0	40
Eastern Tailed-blue	0	5	5	13	8	1	1	5	10	4	2	0	0	0	54
Silvery Blue	0	25	25	5	1	0	0	0	0	0	0	0	0	0	56
Spring (Echo) Azure	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
Boisduval's (Fender's) Blue	0	0	2	15	12	1	0	0	0	0	0	0	0	0	30
Field Crescent	0	0	0	0	17	70	23	1	0	0	0	0	0	0	111
Mylitta Crescent	0	2	5	0	0	0	2	0	0	1	6	3	0	0	19
Mourning Cloak	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Red Admiral	0	1	2	0	0	0	0	0	0	0	0	0	0	1	4
Painted Lady	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
West Coast Lady	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Lorquin's Admiral	0	0	0	2	5	4	3	0	0	1	1	0	0	0	16
California Sister	0	0	0	0	0	2	1	5	2	0	0	0	0	0	10
Common Wood-Nymph	0	0	0	0	0	0	6	128	101	14	35	49	22	0	355
Ochre (Common) Ringlet	0	0	0	8	29	194	99	23	12	11	56	36	41	3	512
Proteritius Duskywing	0	1	4	2	8	0	0	0	0	0	0	0	0	0	15
Common Checkered-Skipper	0	26	34	61	27	3	0	14	37	18	16	3	0	0	239
Sachem	0	0	0	0	6	0	0	0	0	2	1	0	0	0	9
Sonoran Skipper	0	0	0	0	1	27	18	1	0	1	0	0	0	0	48
Dun Skipper	0	0	0	0	0	3	8	2	0	0	0	0	0	0	13
Woodland Skipper	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6
Indiv. totals:	3	79	84	123	126	309	171	185	170	56	122	91	63	4	1586
Surveyors:	5	7	4	3	5	4	5	3	5	5	4	4	4	3	11
Field hours:	2.00	2.25	2.50	2.75	2.50	2.50	2.00	2.00	2.50	2.00	1.75	1.50	1.00	0	29.25
Field-person-hours:	10.00	15.75	10.00	8.25	12.50	10.00	10.00	6.00	10.00	12.50	8.00	7.00	6.00	3.00	129.00
Tavel person-hours:	5.00	7.00	4.00	3.00	5.00	4.00	5.00	3.00	5.00	5.00	4.00	4.00	4.00	3.00	61.00
Extra vol pers-hrs (prep):	0.50	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	10.25	13.75
Volunteer-person-hours:	15.50	23.00	14.25	11.50	17.75	14.25	15.25	9.25	15.25	17.75	12.25	11.25	10.25	16.25	203.75
Weather notes: †	c/c/s	w/c/s	w/b/s	w/c/s	w/c/s	w/c/s	w/c/s	w/b/s	w/c/s	w/c/s	h/c/p	w/c/p	w/c/s	c/c/d	
Date:	4/11	4/26	5/3	5/10	5/25	6/7	6/21	7/6	7/18	8/2	8/16	8/30	9/13	9/27	

* Volunteer hours

Volunteer hours include hours in the field, travel time to and from the site, and prep time. Travel time was estimated at 30 minutes each way, "Extra" volunteer hours includes meeting time, prep time, report writing, etc. sometimes before or after the date.

† Weather notes

Total volunteer hours: 203.75

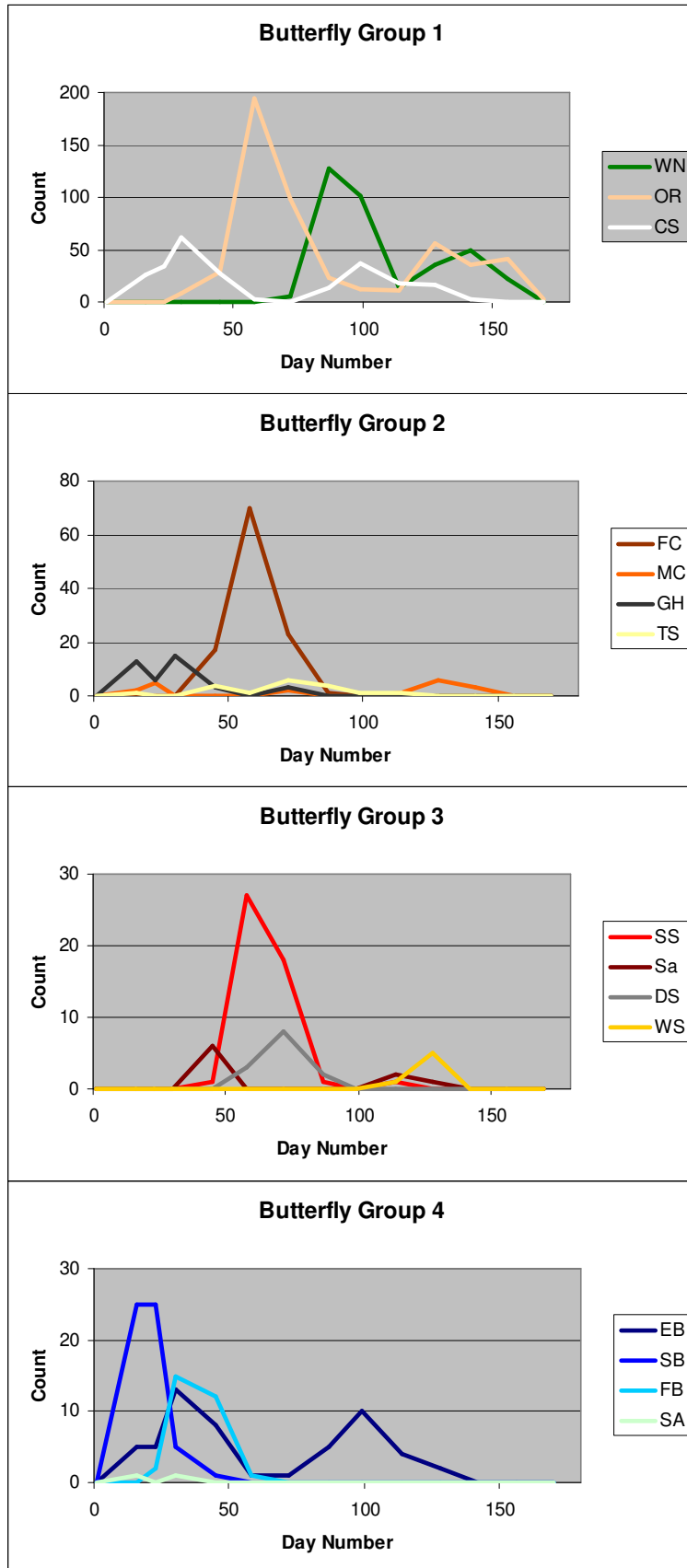
This is encoded as Temperature/Wind/Sky using the following abbreviations:

Temperature: h = hot (>80F), w = warm (65-80F), c = cool (<65F)

Wind: c = calm (0-5mph), b = breezy (5-15mph), w = windy (15-25mph), s = strong (>25mph)

Sky: s = sunny, p = partly cloudy, c = cloudy, d = drizzly, r = rainy

Figure 3. Willow Creek 2013 Survey Graphs



Notes:

Day 1 = Apr 11
 Day 50 = May 29
 Day 100 = Jul 19
 Day 150 = Sep 7
 Day 200 = Oct 27

Apr 1 = Day -9
 May 1 = Day 21
 Jun 1 = Day 52
 Jul 1 = Day 82
 Aug 1 = Day 113
 Sep 1 = Day 144
 Oct 1 = Day 174

CS = Checkered-skipper
 DS = Dun skipper
 EB = Eastern tailed-blue
 FB = Fender's blue
 FC = Field crescent
 GH = Gray hairstreak
 MC = Mylitta crescent
 OR = Ochre ringlet
 SB = Silvery blue
 SA = Spring azure
 Sa = Sachem
 SS = Sonoran skipper
 WN = Wood nymph
 WS = Woodland skipper
 TS = W. tiger swallowtail

Table 2. Willow Creek Southwest Zone

		Total species no: 10													
Day number:	1	16	23	30	45	58	72	87	99	114	128	142	156	170	
Date:	4/11	4/26	5/3	5/10	5/25	6/7	6/21	7/6	7/18	8/2	8/16	8/30	9/13	9/27	
Common Name															Ind. Tot.
Western Tiger Swallowtail	0	1	0	0	1	0	0	1	0	0	0	0	0	0	3
Anise Swallowtail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cabbage White	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orange Sulphur	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gray Hairstreak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eastern Tailed-blue	0	1	0	0	1	0	0	0	0	1	0	0	0	0	3
Silvery Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spring (Echo) Azure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boisduval's (Fender's) Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Field Crescent	0	0	0	0	2	8	0	0	0	0	0	0	0	0	10
Mylitta Crescent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mourning Cloak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Red Admiral	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Painted Lady	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Coast Lady	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lorquin's Admiral	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
California Sister	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Common Wood-Nymph	0	0	0	0	0	0	0	35	22	0	2	2	0	0	61
Ochre (Common) Ringlelet	0	0	0	1	4	62	29	7	1	1	18	8	12	0	143
Proterius Duskywing	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Common Checkered-Skipper	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
Sachem	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Sonoran Skipper	0	0	0	0	0	11	11	1	0	0	0	0	0	0	23
Dun Skipper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Woodland Skipper	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Indiv. totals:	0	3	0	1	10	81	40	44	23	2	22	10	12	0	248

Table 3. Willow Creek Hayfield Zone

		Total species no: 24													
Day number:	1	16	23	30	45	58	72	87	99	114	128	142	156	170	
Date:	4/11	4/26	5/3	5/10	5/25	6/7	6/21	7/6	7/18	8/2	8/16	8/30	9/13	9/27	
Common Name															Ind. Tot.
Western Tiger Swallowtail	0	0	0	0	2	1	3	1	1	1	0	0	0	0	9
Anise Swallowtail	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
Cabbage White	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
Orange Sulphur	0	0	0	0	3	3	0	1	4	1	0	0	0	0	12
Gray Hairstreak	0	13	6	15	3	0	3	0	0	0	0	0	0	0	40
Eastern Tailed-blue	0	4	4	13	6	1	1	5	6	2	1	0	0	0	43
Silvery Blue	0	25	23	5	1	0	0	0	0	0	0	0	0	0	54
Spring (Echo) Azure	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
Boisduval's (Fender's) Blue	0	0	2	15	12	1	0	0	0	0	0	0	0	0	30
Field Crescent	0	0	0	0	12	10	8	0	0	0	0	0	0	0	30
Mylitta Crescent	0	2	1	0	0	0	2	0	0	0	1	1	0	0	7
Mourning Cloak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Red Admiral	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
Painted Lady	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
West Coast Lady	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Lorquin's Admiral	0	0	0	0	0	3	1	0	0	0	0	0	0	0	4
California Sister	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Common Wood-Nymph	0	0	0	0	0	0	5	31	33	9	20	38	21	0	157
Ochre (Common) Ringlet	0	0	0	5	18	102	37	6	5	8	31	17	22	2	253
Propertius Duskywing	0	0	1	1	2	0	0	0	0	0	0	0	0	0	4
Common Checkered-Skipper	0	26	34	60	25	3	0	13	36	18	16	3	0	0	234
Sachem	0	0	0	0	5	0	0	0	0	1	0	0	0	0	6
Sonoran Skipper	0	0	0	0	0	5	5	0	0	1	0	0	0	0	11
Dun Skipper	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
Woodland Skipper	0	0	0	0	0	0	0	0	0	1	3	0	0	0	4
Indiv. totals:	2	75	74	116	90	130	67	58	85	42	72	59	43	2	915

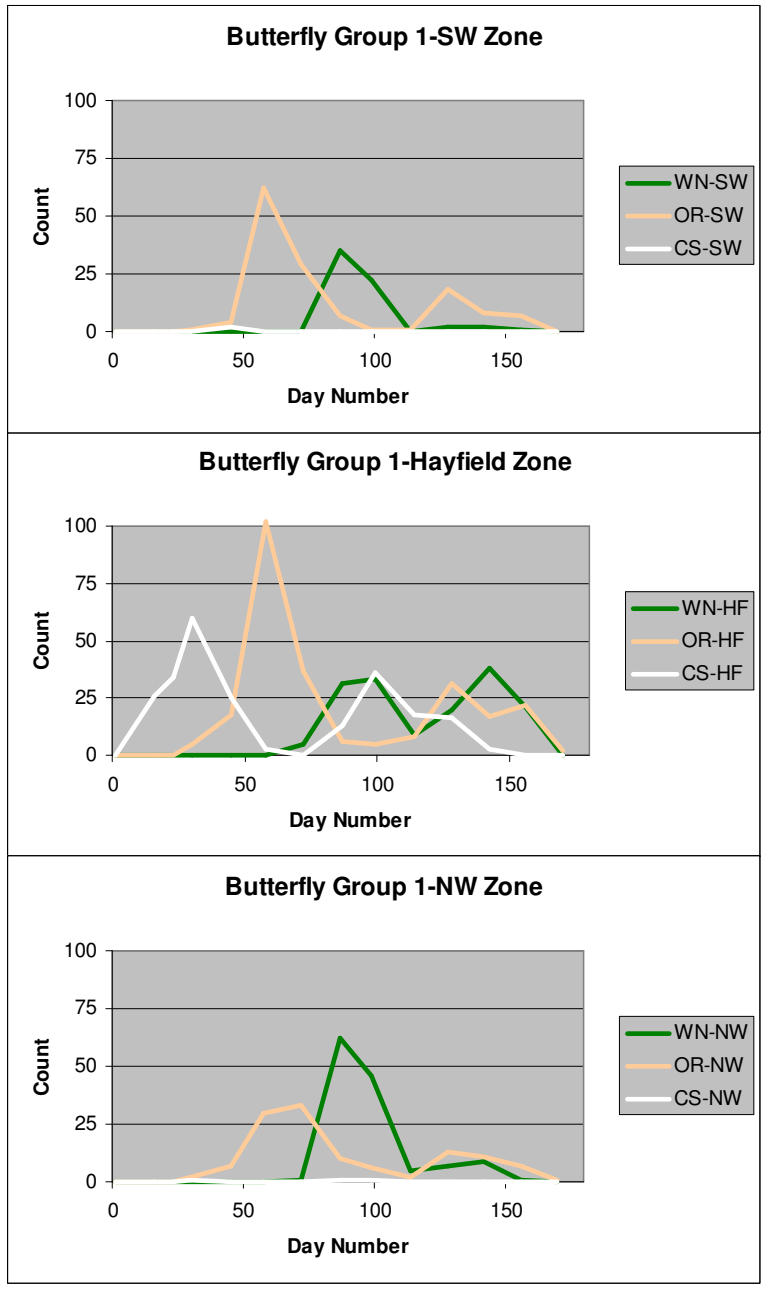
Table 4. Willow Creek Northwest Zone

Total species no:

Day number: 1 16 23 30 45 58 72 87 99 114 128 142 156 170
 Date: 4/11 4/26 5/3 5/10 5/25 6/7 6/21 7/6 7/18 8/2 8/16 8/30 9/13 9/27

Common Name	1	16	23	30	45	58	72	87	99	114	128	142	156	170	Ind. Tot.
	4/11	4/26	5/3	5/10	5/25	6/7	6/21	7/6	7/18	8/2	8/16	8/30	9/13	9/27	
Western Tiger Swallowtail	0	0	0	0	1	0	3	2	0	0	0	0	0	0	6
Anise Swallowtail	0	1	0	0	0	0	0	1	1	0	0	0	0	0	3
Cabbage White	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orange Sulphur	0	0	0	0	1	0	0	0	2	1	0	0	0	0	4
Gray Hairstreak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eastern Tailed-blue	0	0	1	0	1	0	0	0	4	1	1	0	0	0	8
Silvery Blue	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Spring (Echo) Azure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boisduval's (Fender's) Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Field Crescent	0	0	0	0	3	52	15	1	0	0	0	0	0	0	71
Mylitta Crescent	0	0	4	0	0	0	0	0	0	1	5	2	0	0	12
Mourning Cloak	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Red Admiral	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Painted Lady	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Coast Lady	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lorquin's Admiral	0	0	0	2	5	1	2	0	0	1	1	0	0	0	12
California Sister	0	0	0	0	0	1	1	5	2	0	0	0	0	0	9
Common Wood-Nymph	0	0	0	0	0	0	1	62	46	5	7	9	1	0	131
Ochre (Common) Ringlet	0	0	0	2	7	30	33	10	6	2	13	11	7	1	122
Protertius Duskywing	0	0	3	1	6	0	0	0	0	0	0	0	0	0	10
Common Checkered-Skipper	0	0	0	1	0	0	0	1	1	0	0	0	0	0	3
Sachem	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2
Sonoran Skipper	0	0	0	0	1	11	2	0	0	0	0	0	0	0	14
Dun Skipper	0	0	0	0	0	3	7	1	0	0	0	0	0	0	11
Woodland Skipper	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Indiv. totals:	1	1	10	6	26	98	64	83	62	12	28	22	8	2	423

Figure 4. Zone by Zone Comparisons



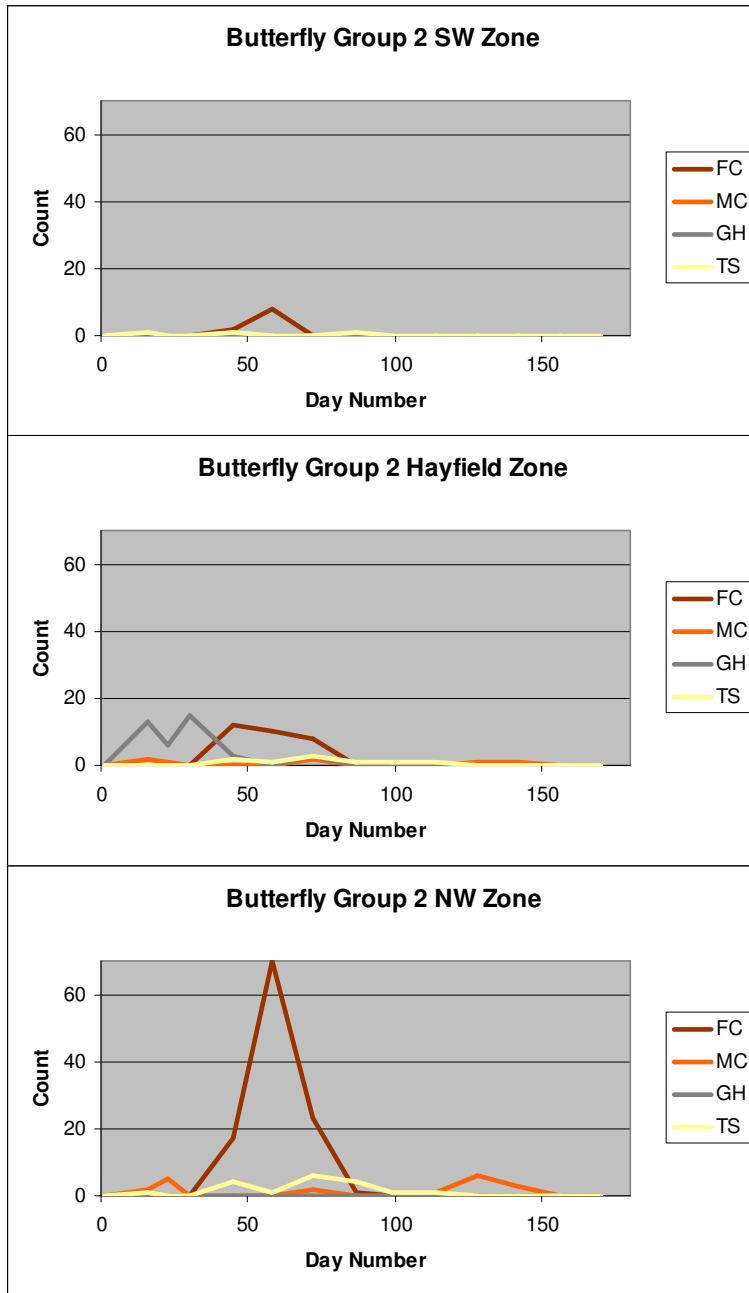
Notes:

Day 1 = Apr 11
 Day 50 = May 29
 Day 100 = Jul 19
 Day 150 = Sep 7
 Day 200 = Oct 27

Apr 1 = Day -9
 May 1 = Day 21
 Jun 1 = Day 52
 Jul 1 = Day 82
 Aug 1 = Day 113
 Sep 1 = Day 144
 Oct 1 = Day 174

CS = Checkered-skipper
 OR = Ochre ringlet
 WN = Wood nymph

Figure 4. Zone by Zone Comparisons (Cont.)



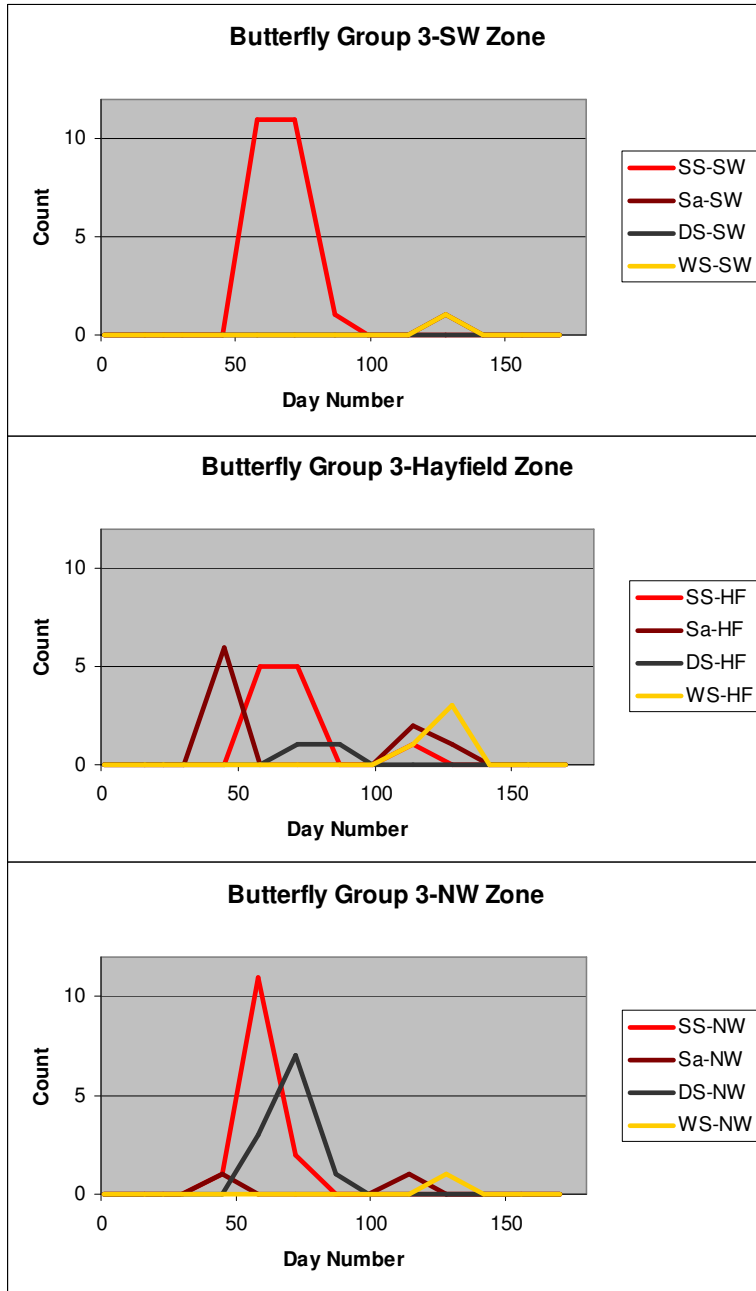
Notes:

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 May 1 = Day 21
 Jun 1 = Day 52
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 Oct 1 = Day 174

FC = Field crescent
 GH = Gray hairstreak
 MC = Mylitta crescent
 TS = W. tiger swallowtail

Figure 4. Zone by Zone Comparisons (Cont.)



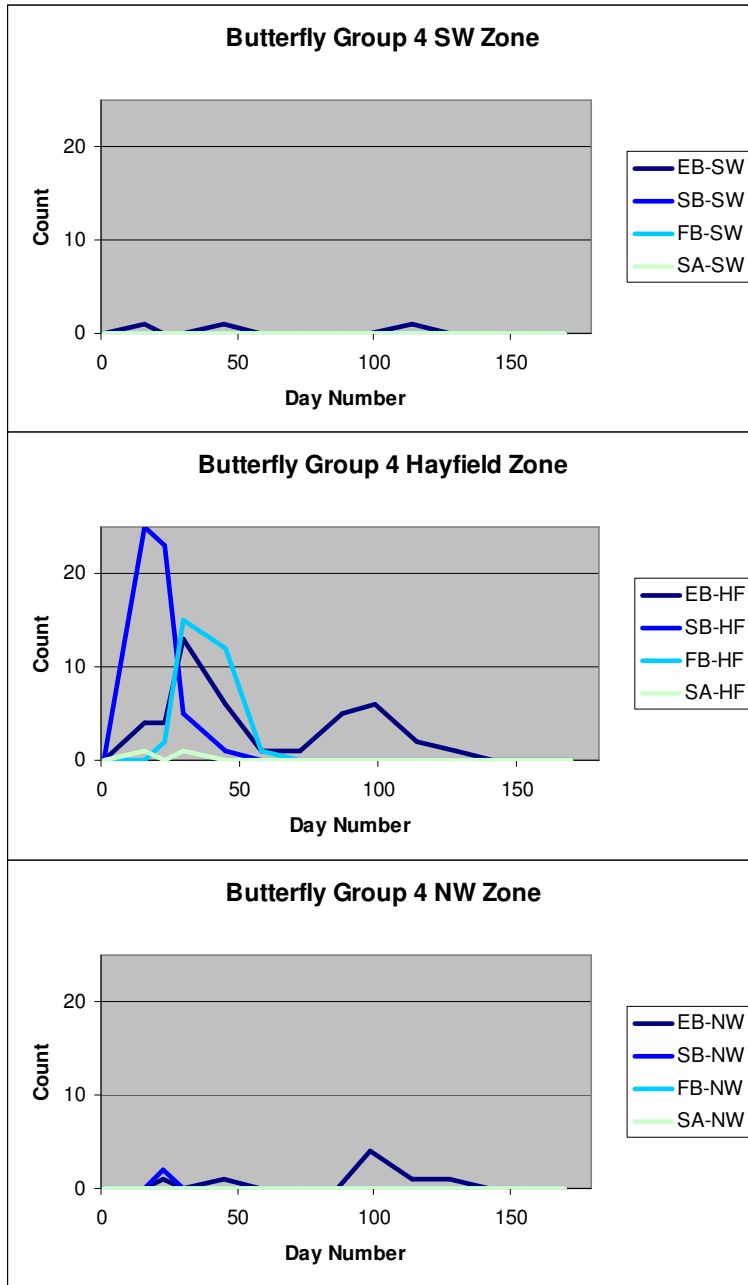
Notes:

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Apr 1 = Day -9
 May 1 = Day 21
 Jun 1 = Day 52
 Jul 1 = Day 82
 Aug 1 = Day 113
 Sep 1 = Day 144
 Oct 1 = Day 174

DS = Dun skipper
 Sa = Sachem
 SS = Sonoran skipper
 WS = Woodland skipper

Figure 4. Zone by Zone Comparisons (Cont.)



Notes:

Day 1 = Apr 11
 Day 50 = May 29
 Day 100 = Jul 19
 Day 150 = Sep 7
 Day 200 = Oct 27

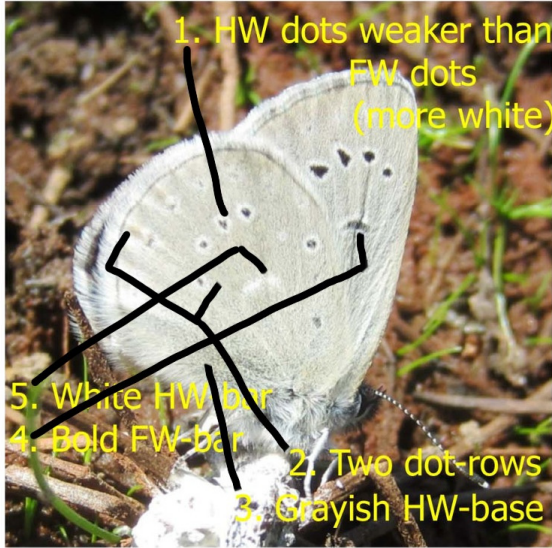
Apr 1 = Day -9
 May 1 = Day 21
 Jun 1 = Day 52
 Jul 1 = Day 82
 Aug 1 = Day 113
 Sep 1 = Day 144
 Oct 1 = Day 174

EB = Eastern tailed-blue
 FB = Fender's blue
 SB = Silvery blue
 SA = Spring azure

Figure 5. Fender's and Silvery Blue Butterflies

Two Similar Blue Butterflies

Fender's



Silvery

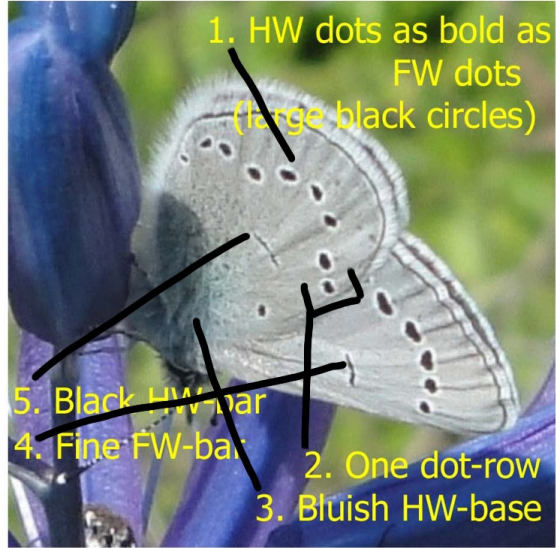
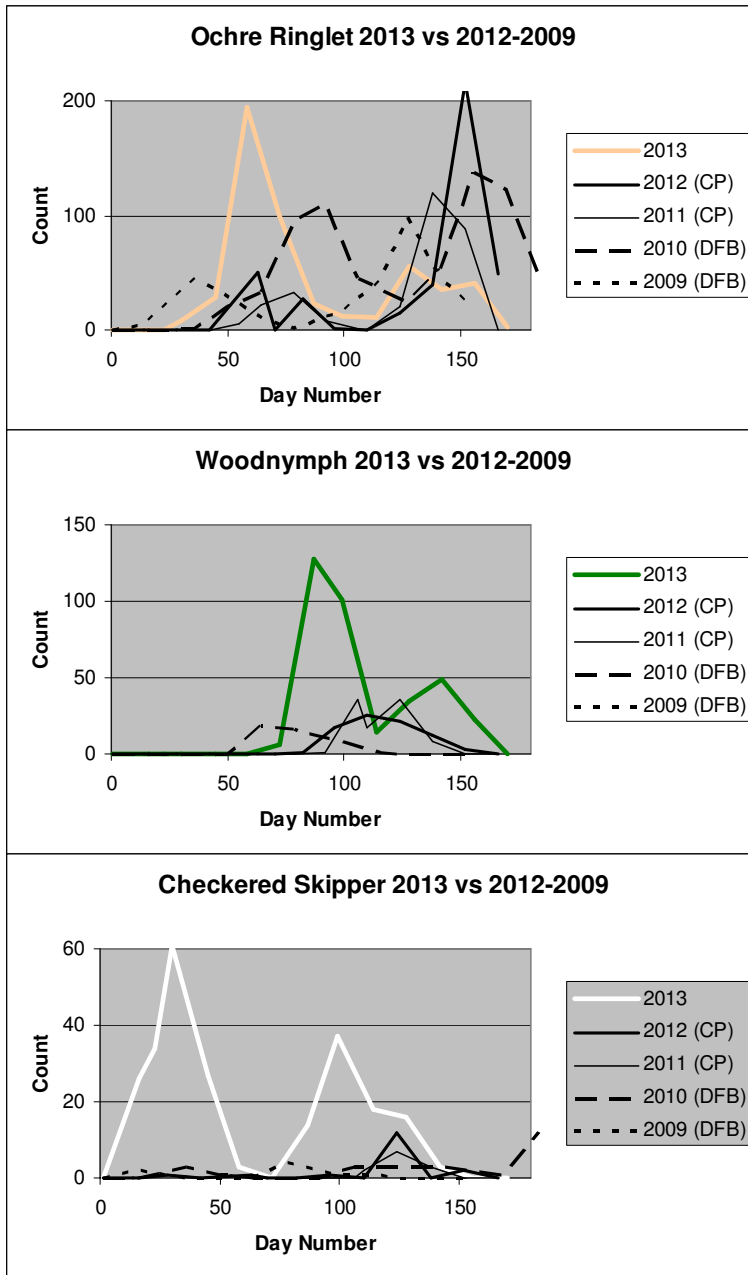


Figure 6. Year-by-Year Comparisons

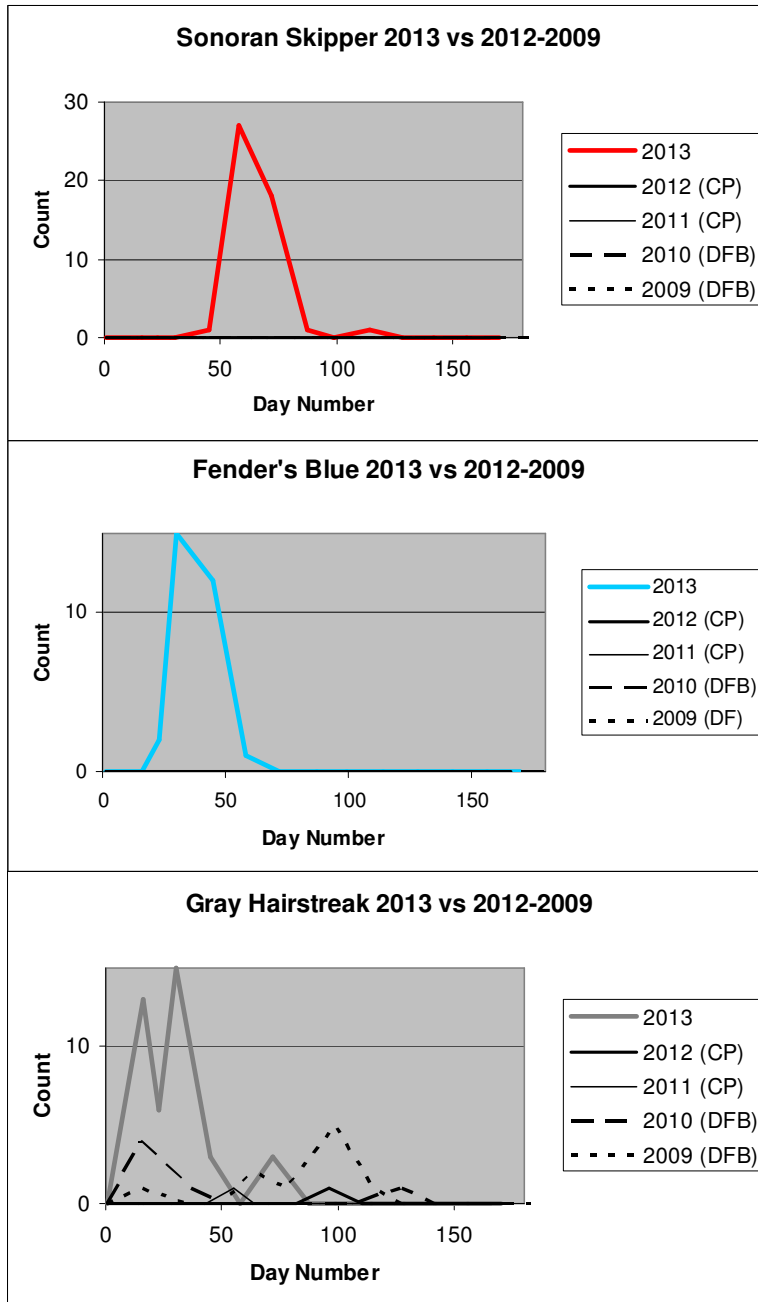


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Figure 6. Year-by-Year Comparisons (Cont.)

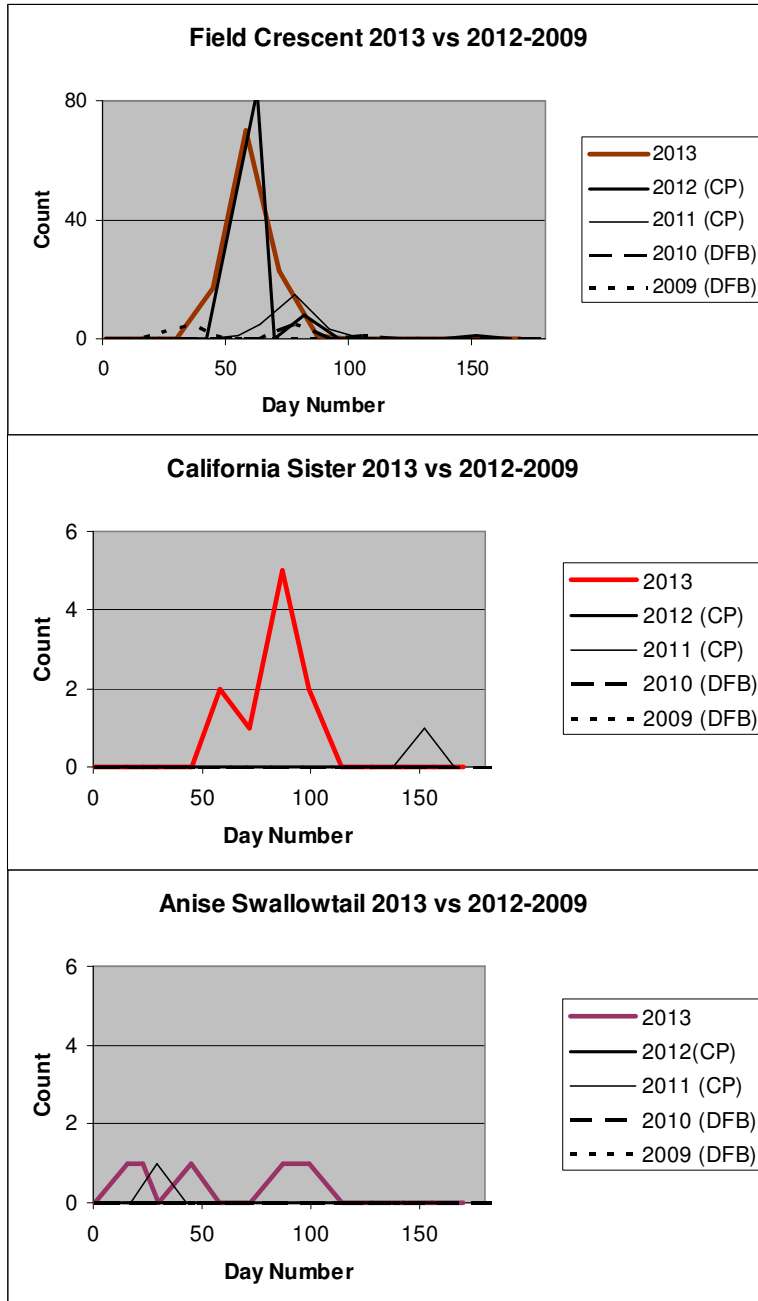


Notes:

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 Day 50 = May 29
 Day 100 = Jul 19
 Day 150 = Sep 7
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 May 1 = Day 21
 Jun 1 = Day 52
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Figure 6. Year-by-Year Comparisons (Cont.)

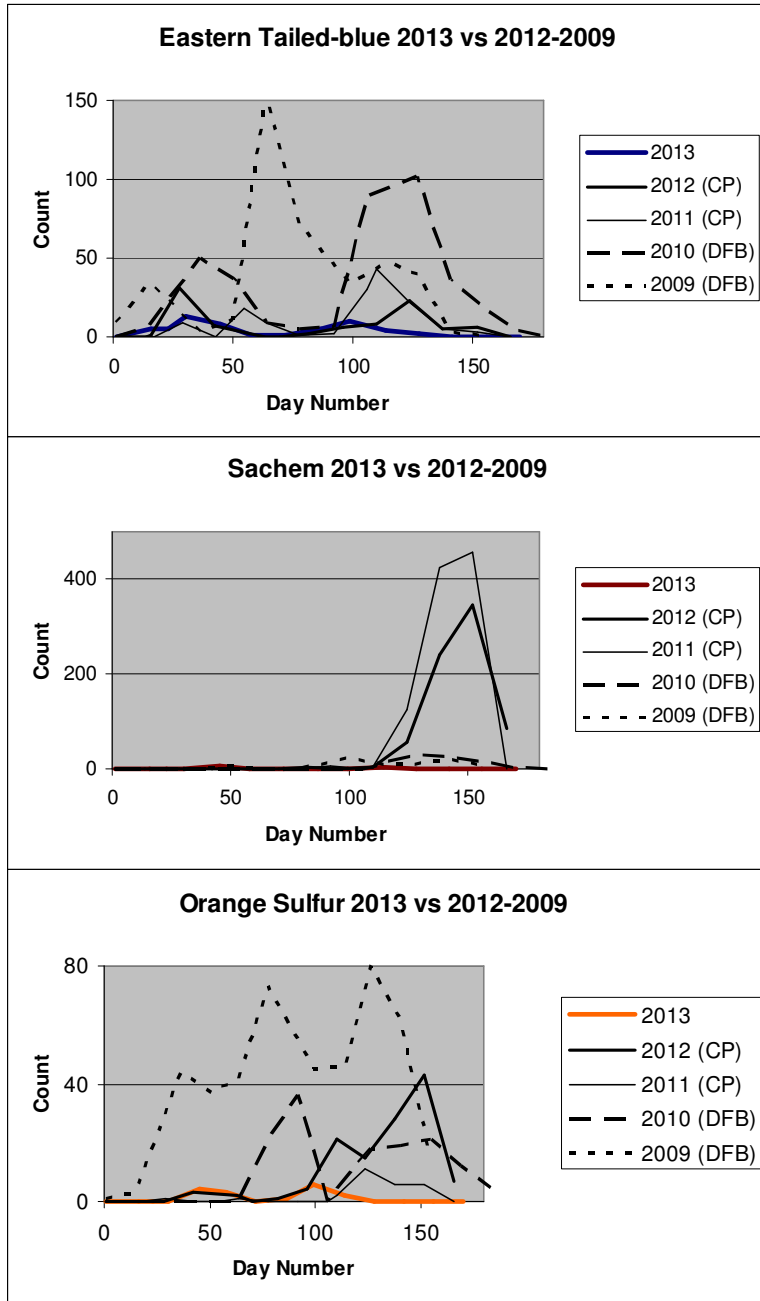


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 Day 100 = Jul 19
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Figure 6. Year-by-Year Comparisons (Cont.)



Notes:

Day 1 = Apr 11
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 Oct 1 = Day 174

Table 5. Volunteers & Volunteer Hours

		Day number:	1	16	23	30	45	58	72	87	99	114	128	142	156	170	
		Date:	4/11	4/26	5/3	5/10	5/25	6/7	6/21	7/6	7/18	8/2	8/16	8/30	9/13	9/27	
Surveyor Name																	Ind. Tot.
David Hagen	Field hrs:	2.00	2.25	2.50	2.75	2.50	2.50	2.00	2.00	2.00	2.50	2.00	1.75	1.50	1.00		29.25
	Travel & Extra Vol. hrs:	1.50	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	11.25	27.75
Lois Hagen	Field hrs:	2.00	2.25	2.50	2.75	2.50	2.50	2.00	0.00	2.00	0.00	2.00	1.75	1.50	0.00		23.75
	Travel & Extra Vol. hrs:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00		11.00
Lori Humphreys	Field hrs:	2.00	2.25	2.50	2.75	2.50	2.50	2.00	2.00	2.00	2.50	2.00	0.00	0.00	1.00		26.00
	Travel & Extra Vol. hrs:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00		12.00
Donald Gudehus	Field hrs:	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		2.00
	Travel & Extra Vol. hrs:	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		1.00
Dana Furgerson	Field hrs:	0.00	2.25	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.50	0.00	1.75	1.50	1.00		11.00
	Travel & Extra Vol. hrs:	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00		6.00
Rick Ahrens	Field hrs:	2.00	2.25	2.50	0.00	0.00	2.50	0.00	0.00	2.00	2.50	2.00	1.75	1.50	0.00		19.00
	Travel & Extra Vol. hrs:	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00		9.00
Jo von Hippel	Field hrs:	0.00	0.00	0.00	0.00	2.50	0.00	0.00	0.00	0.00	2.50	0.00	0.00	0.00	0.00		5.00
	Travel & Extra Vol. hrs:	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00		2.00
Alison Center	Field hrs:	0.00	0.00	0.00	0.00	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		2.50
	Travel & Extra Vol. hrs:	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		1.00
Diane Shock	Field hrs:	0.00	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		2.25
	Travel & Extra Vol. hrs:	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		1.00
Kurt Koivu	Field hrs:	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00		6.00
	Travel & Extra Vol. hrs:	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00		3.00
Ingrid Ford	Field hrs:	0.00	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		2.25
	Travel & Extra Vol. hrs:	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		1.00
Total field hours:																	129.00
Total volunteer hours:																	203.75

Notes:

Volunteer hours include hours in the field, travel time to and from the site, and preparation time. Travel time was estimated at 30 minutes each way.
 Volunteer hours on "4/13/12" include prep, travel, and meeting times occurring before that date.
 Volunteer hours on "9/28/12" include report preparation times occurring after that date.