



# Taylor's checkerspot larval habitat pilot study

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2022





# Taylor's checkerspot butterfly

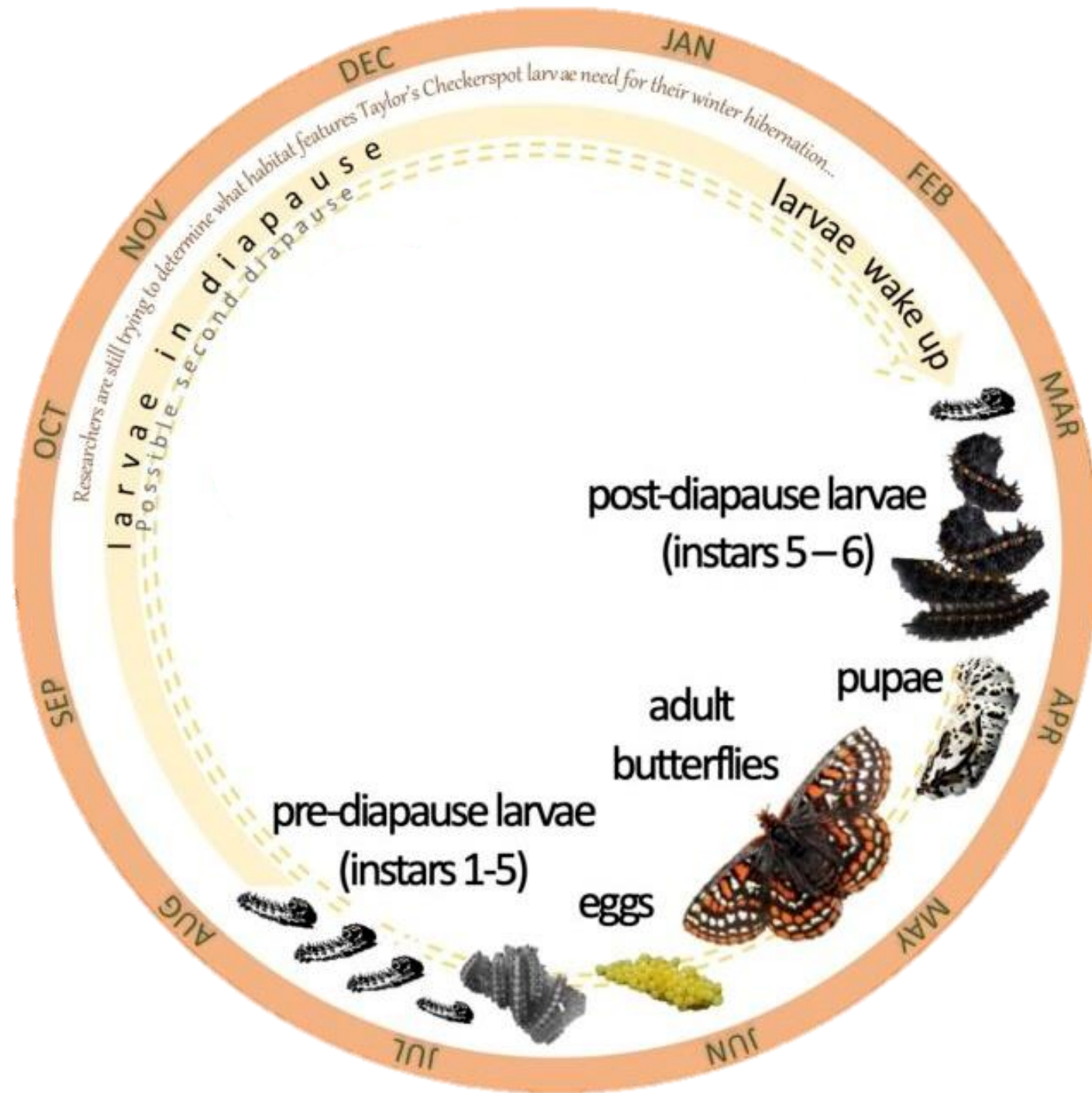
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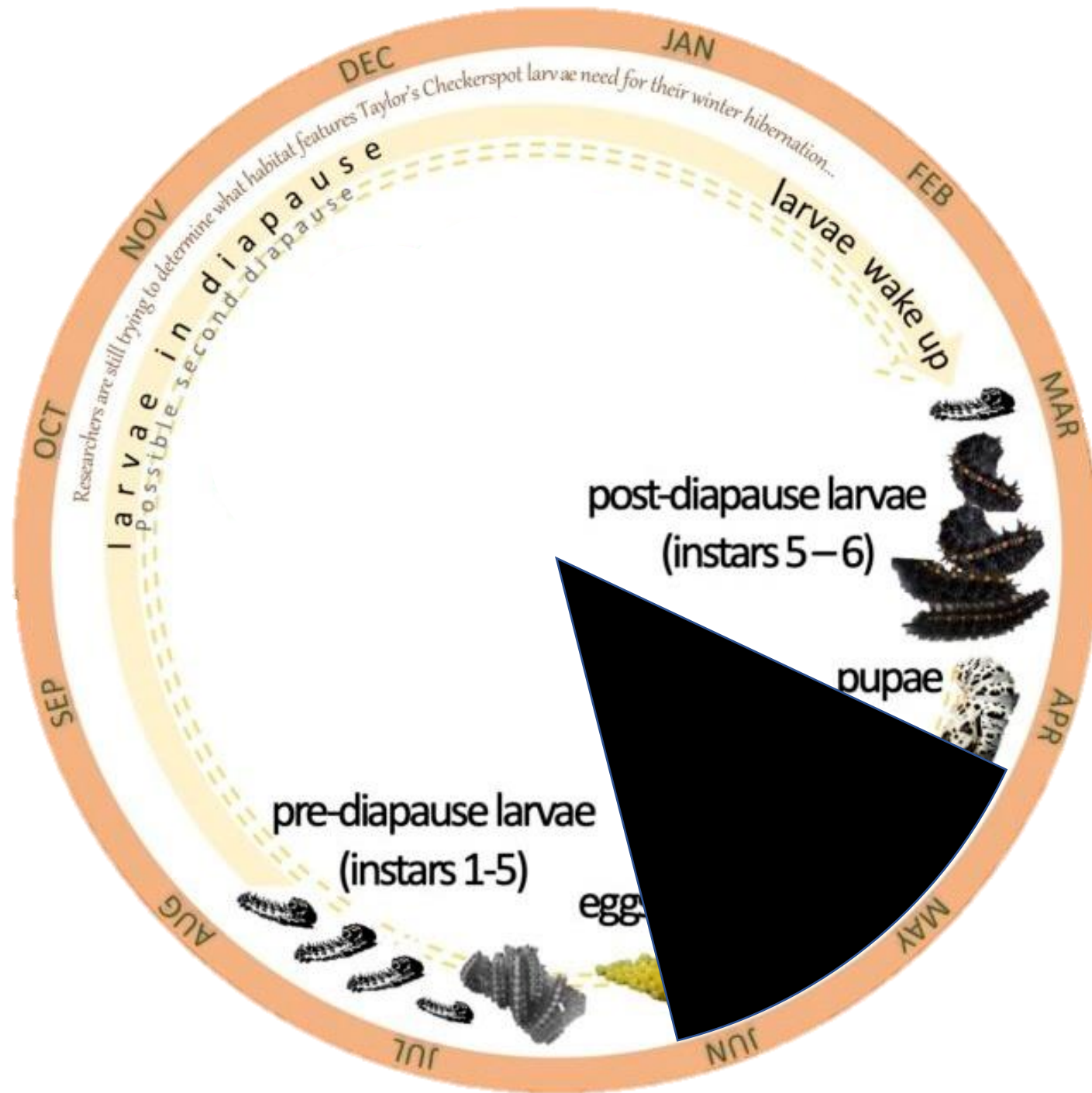
- Endemic to Washington and the Pacific Northwest
- Subspecies of the Edith's checkerspot
- Restricted to eight populations in Washington
- State and federally endangered



Life history

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# Habitat

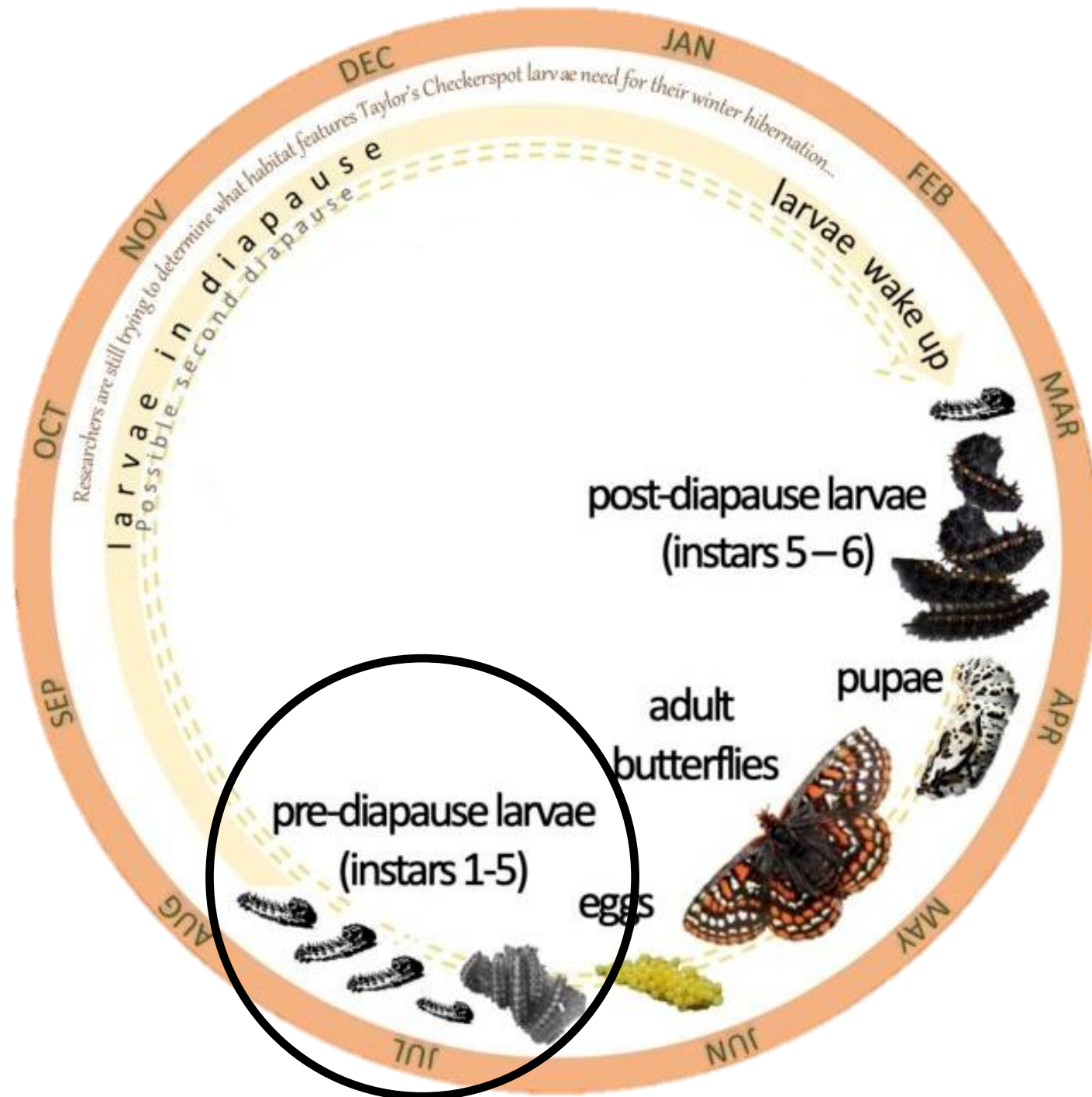
Larval habitat is KEY for Taylor's  
checkerspot recovery



# Project goals

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- Investigate pre-diapause larval habitat characteristics to ultimately provide restoration recommendations for land managers to facilitate species recovery



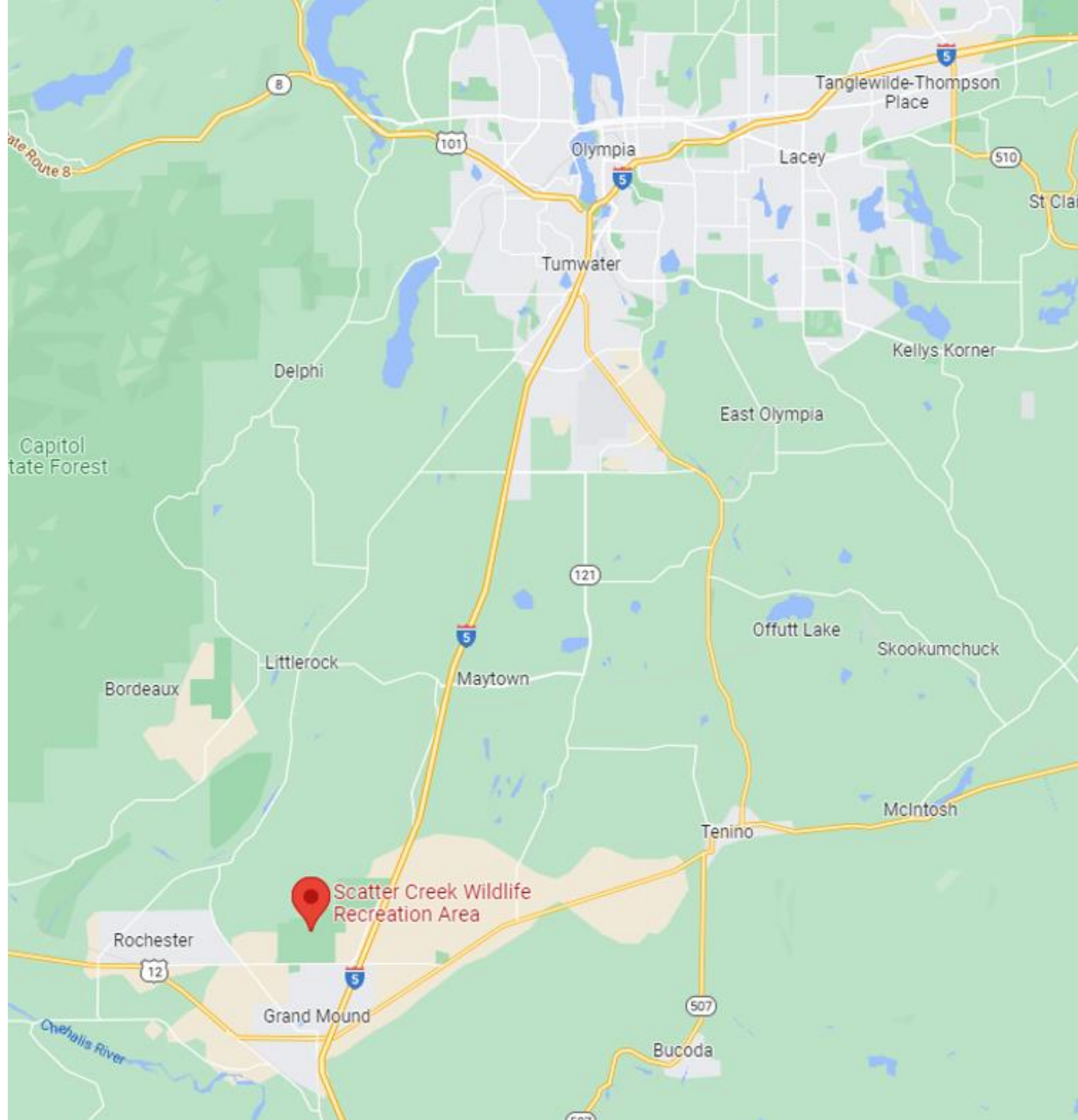


## Question:

- What makes high quality pre-diapause larval habitat?
- What is the relationship between larval host plant density and larval nest density?

# Study site

## Scatter Creek Wildlife Area

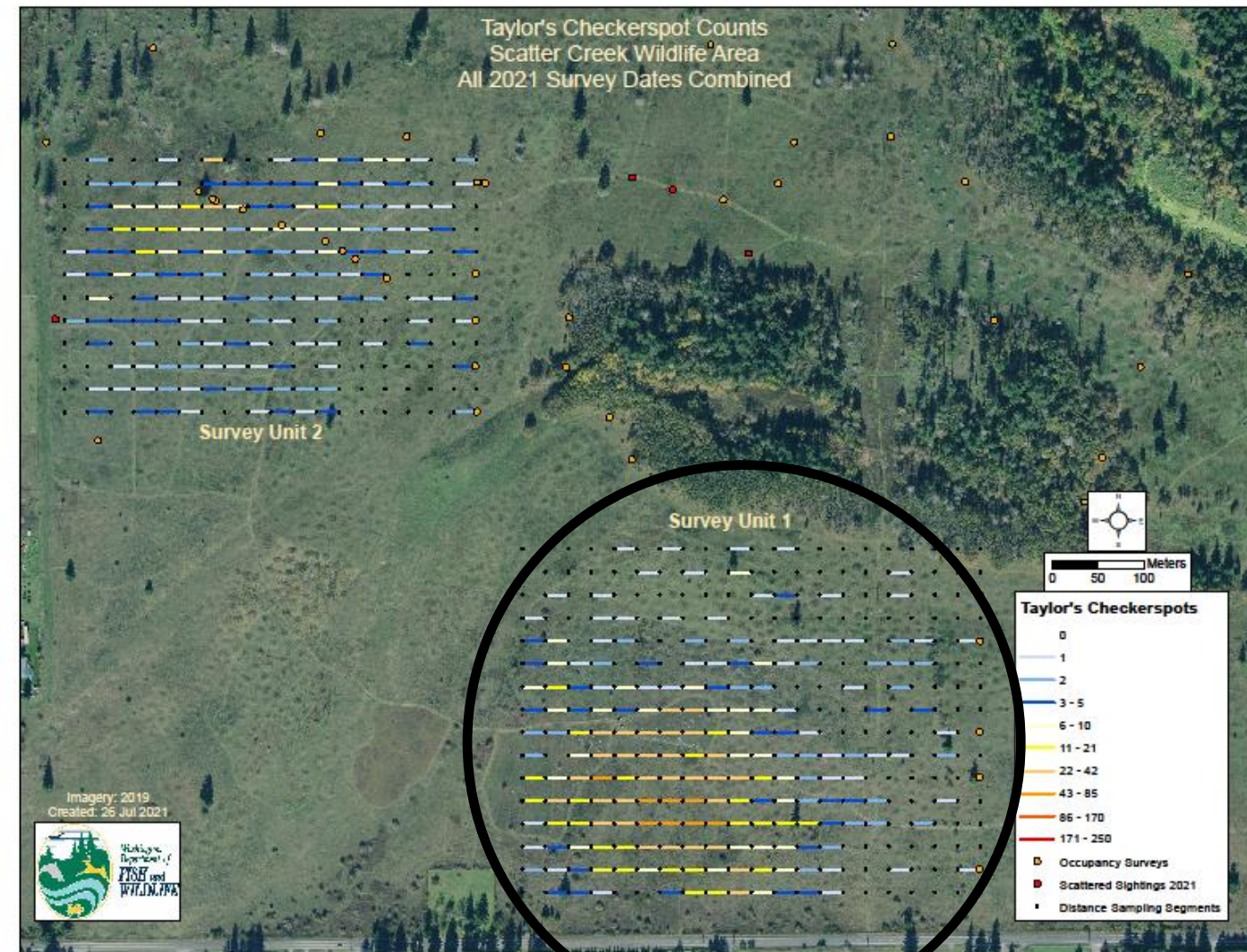


A wide-angle photograph of a lush meadow filled with various wildflowers. In the foreground, there are large green leaves and clusters of bright red flowers. The middle ground is dominated by numerous yellow daisy-like flowers and smaller purple blossoms. The background shows a dense line of evergreen and deciduous trees under a cloudy sky.

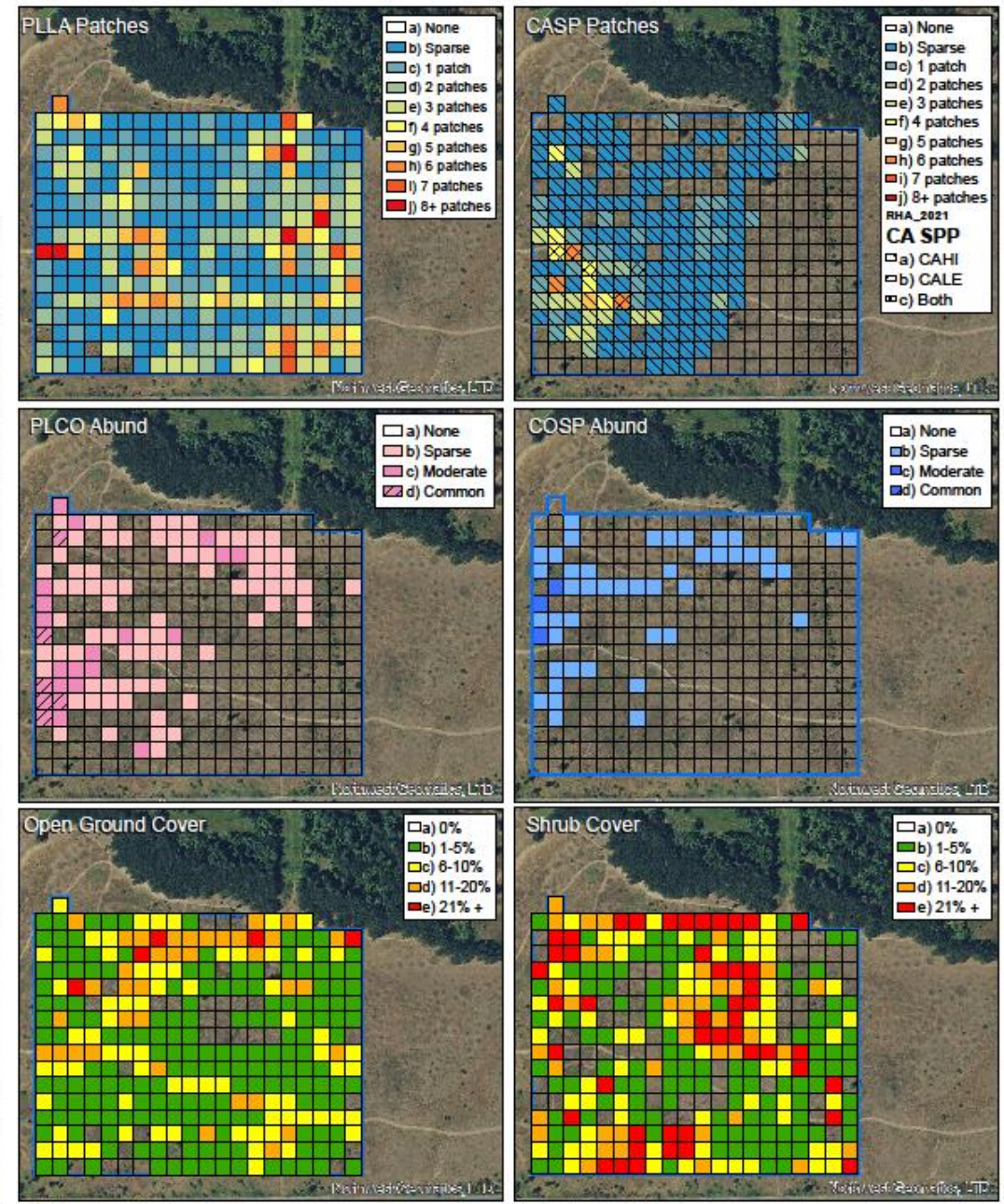
Where are the larvae?

Technically we don't know...but we can guess!!

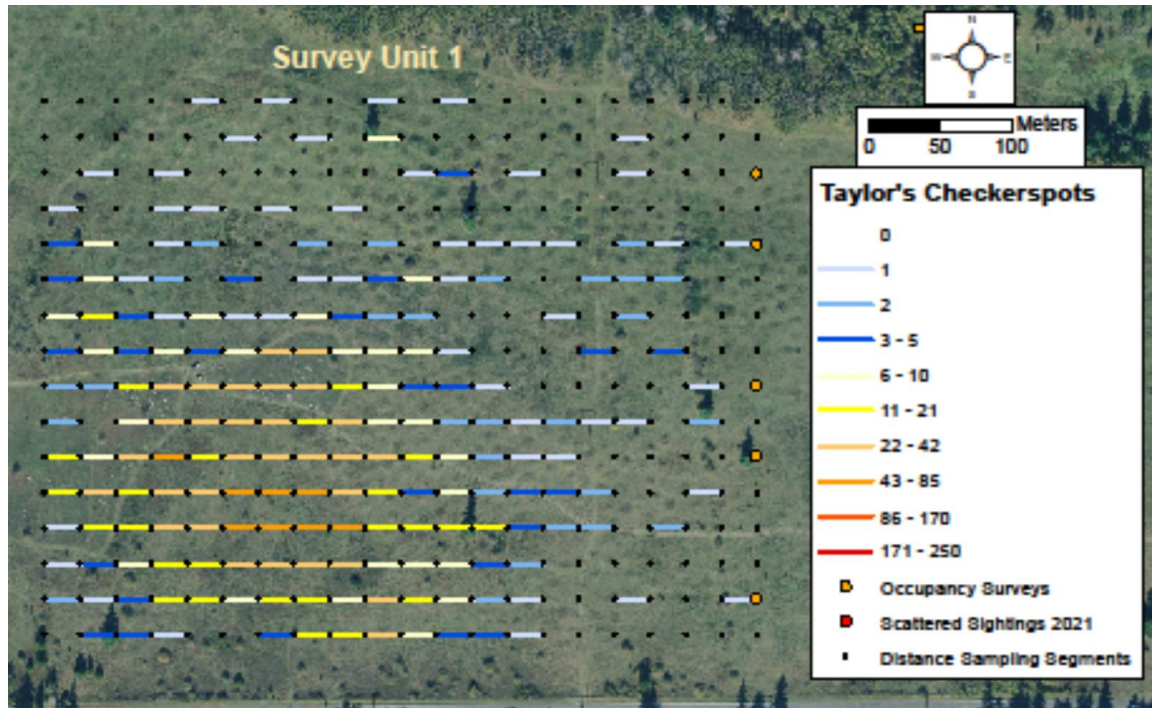
# Scatter Creek South Unit



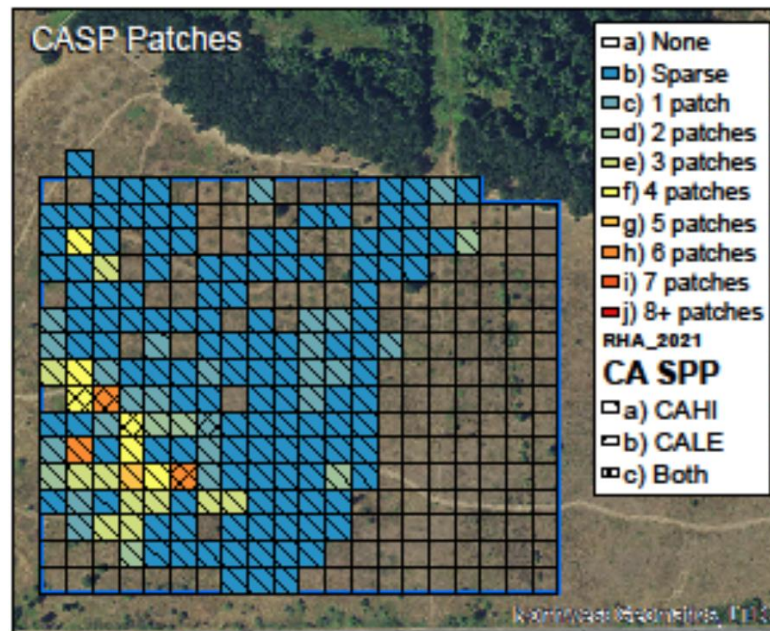
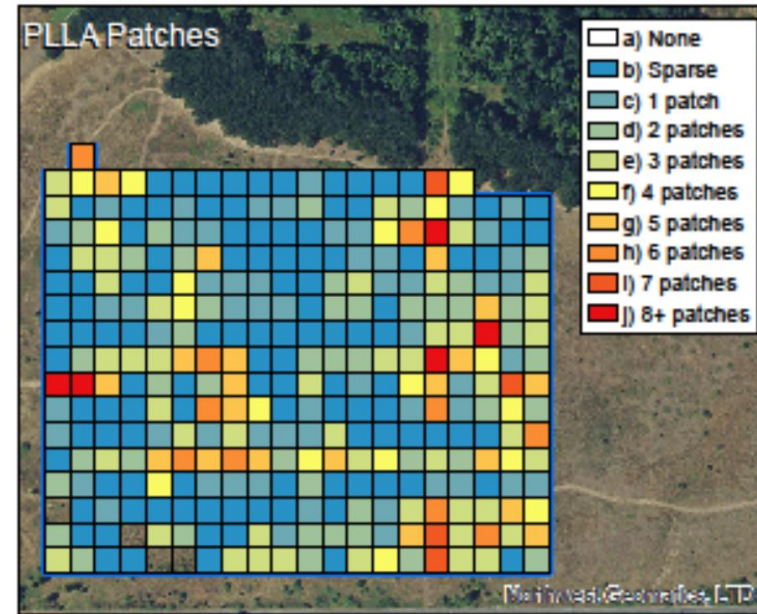
## Rapid Habitat Assessment - SCS, 2021



# Study site



## Rapid Habitat Assessment - SCS, 2021

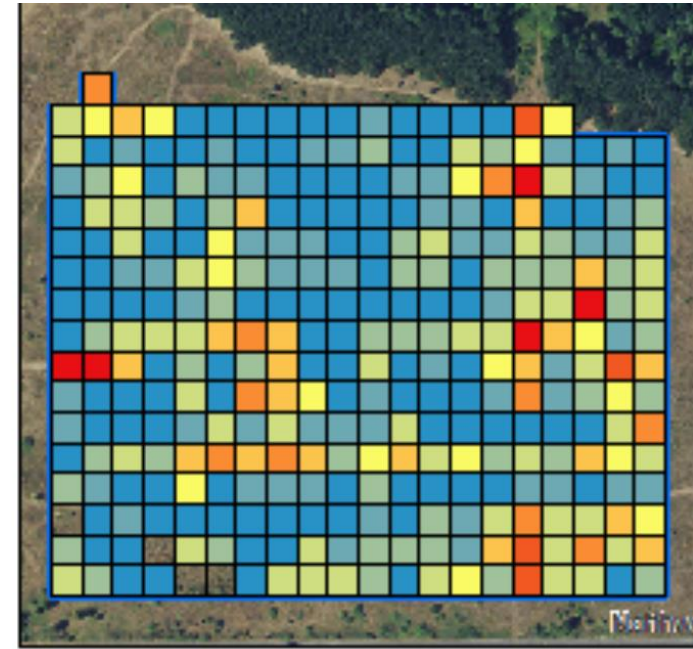


# Methods

- Combine RHA larval host data, larvae presence data, and adult observation data from 2021
  - Correlation matrix
- Identify probable grid cells where we may find pre-diapause larvae
  - Greatest amount of host plant (Plantago + Castilleja)
  - At least 10 adult observations

# Methods

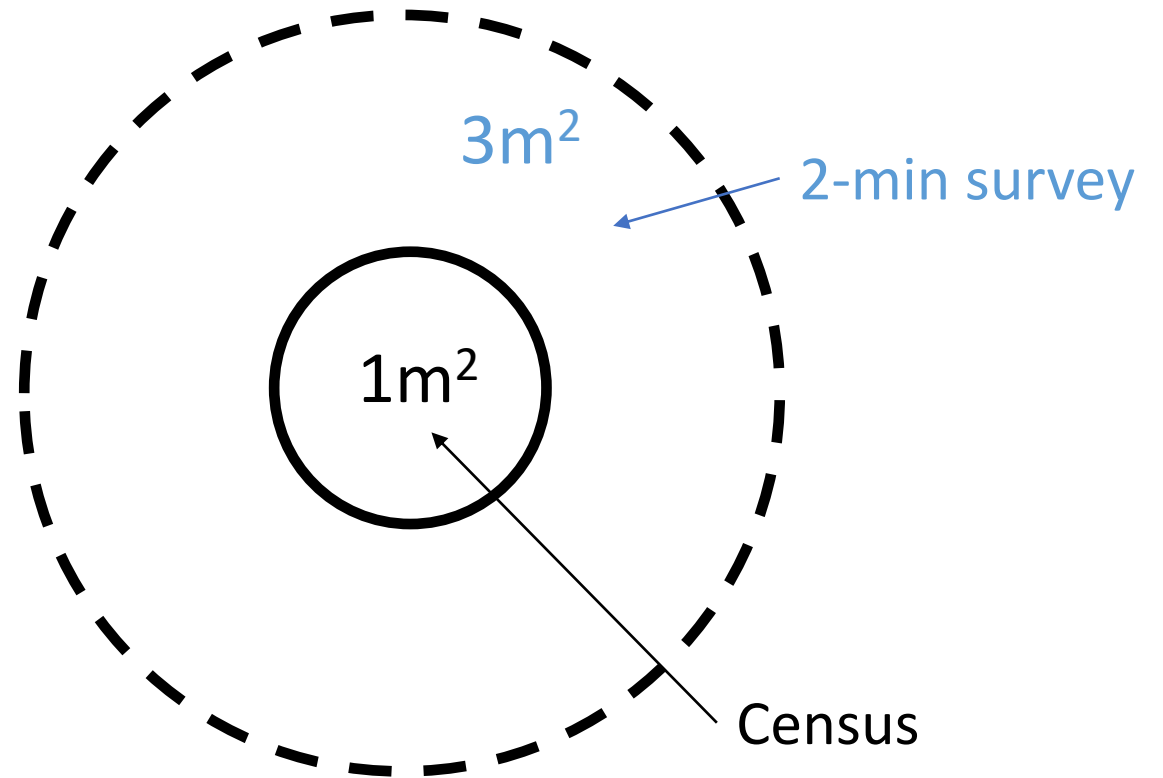
- Random subset of grids to sample
  - High likelihood
  - Medium likelihood
  - Low likelihood



|    | ts.low     | ts.med    | ts.high   |
|----|------------|-----------|-----------|
| 1  | SCS1_2_19  | SCS1_5_25 | SCS1_4_22 |
| 2  | SCS1_2_16  | SCS1_4_20 | SCS1_5_19 |
| 3  | SCS1_2_20  | SCS1_4_19 | SCS1_5_20 |
| 4  | SCS1_3_18  | SCS1_1_19 | SCS1_5_21 |
| 5  | SCS1_10_25 | SCS1_1_17 | SCS1_5_22 |
| 6  | SCS1_2_15  | SCS1_1_18 | SCS1_5_23 |
| 7  | SCS1_2_23  | SCS1_3_23 | SCS1_5_24 |
| 8  | SCS1_2_21  | SCS1_5_18 | SCS1_7_20 |
| 9  | SCS1_10_22 | SCS1_2_22 | SCS1_8_24 |
| 10 | SCS1_2_17  | SCS1_4_23 | SCS1_9_20 |

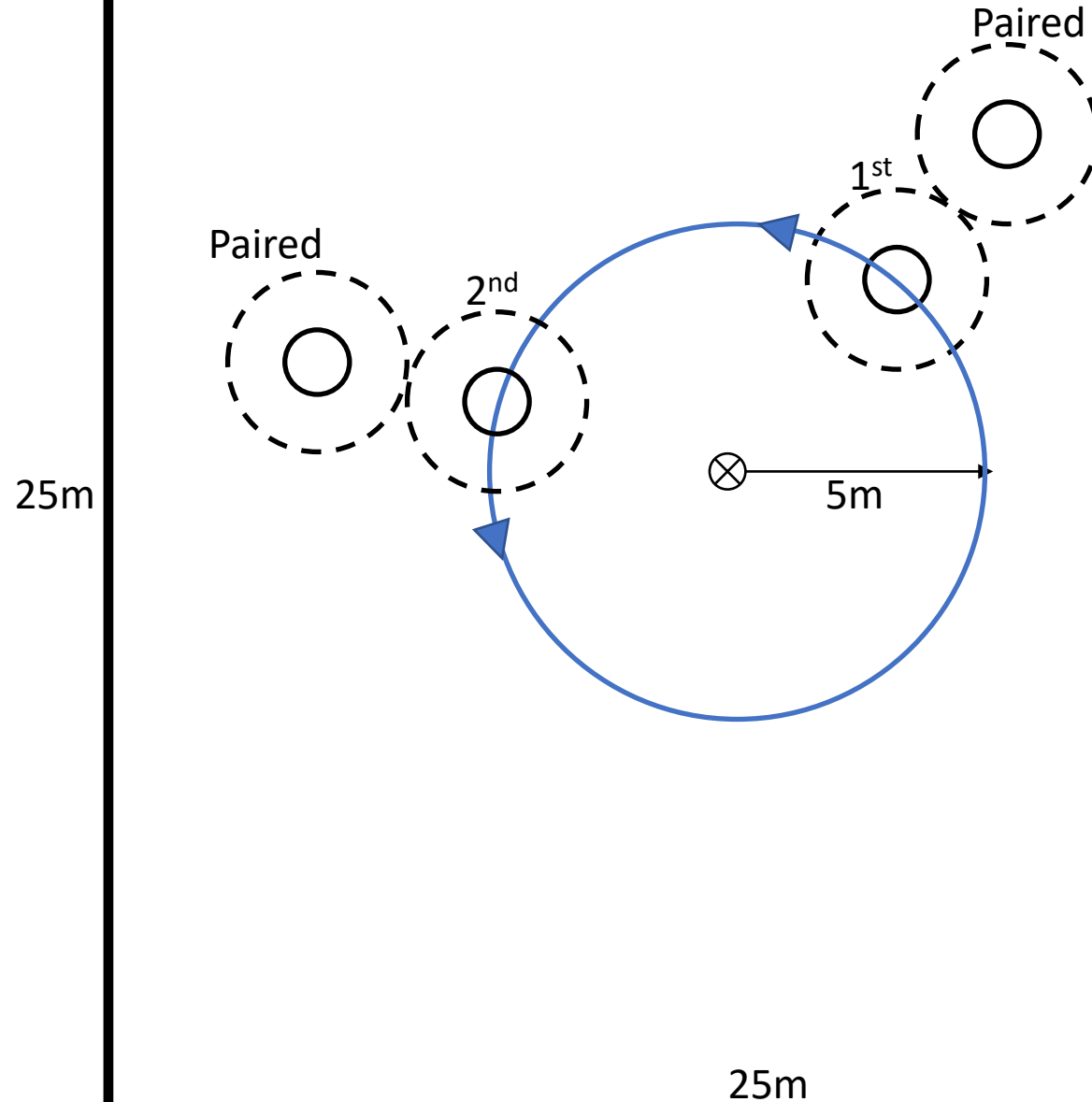
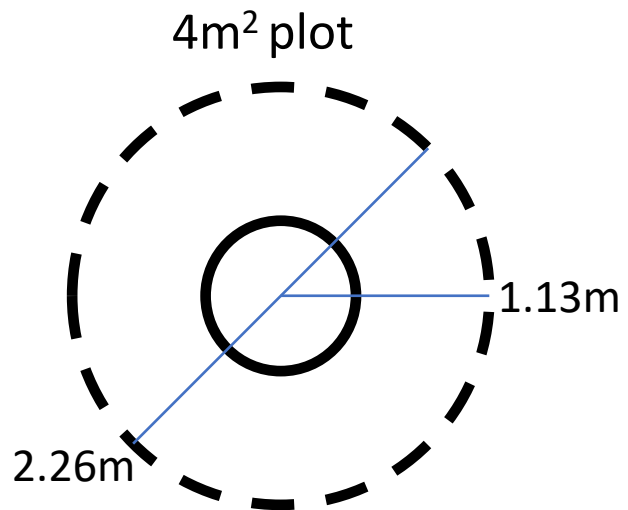
# Sampling

- Experimental unit =  $4\text{m}^2$  circle
- Response variable = larval nest density
- Explanatory variable = host plant density
- Patch:
  - Plantago  $>10$  plants/ $\text{m}^2$
  - Castilleja  $>2$  plants/ $\text{m}^2$



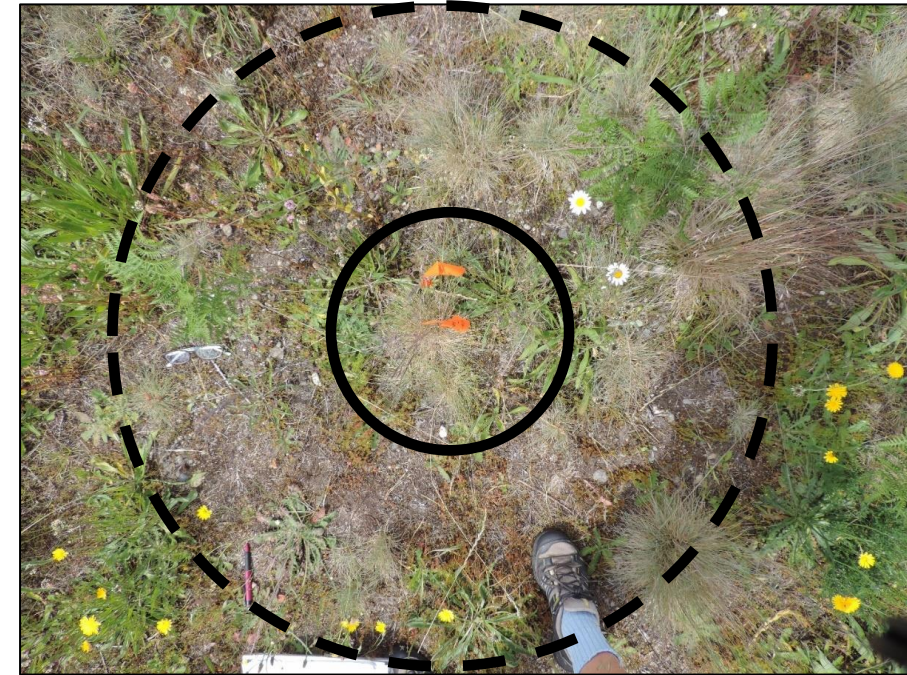
# Sampling

- Paired sample design



# Data collection

- 1m<sup>2</sup> plot
  - Percent cover host plant by species
  - Number of host plants by species
  - Number of larval nests
  - Percent open ground
  - Grass:Forb ratio of remaining cover
- 3m<sup>2</sup> surrounding area
  - Percent cover host plant by species
  - Number of larval nests











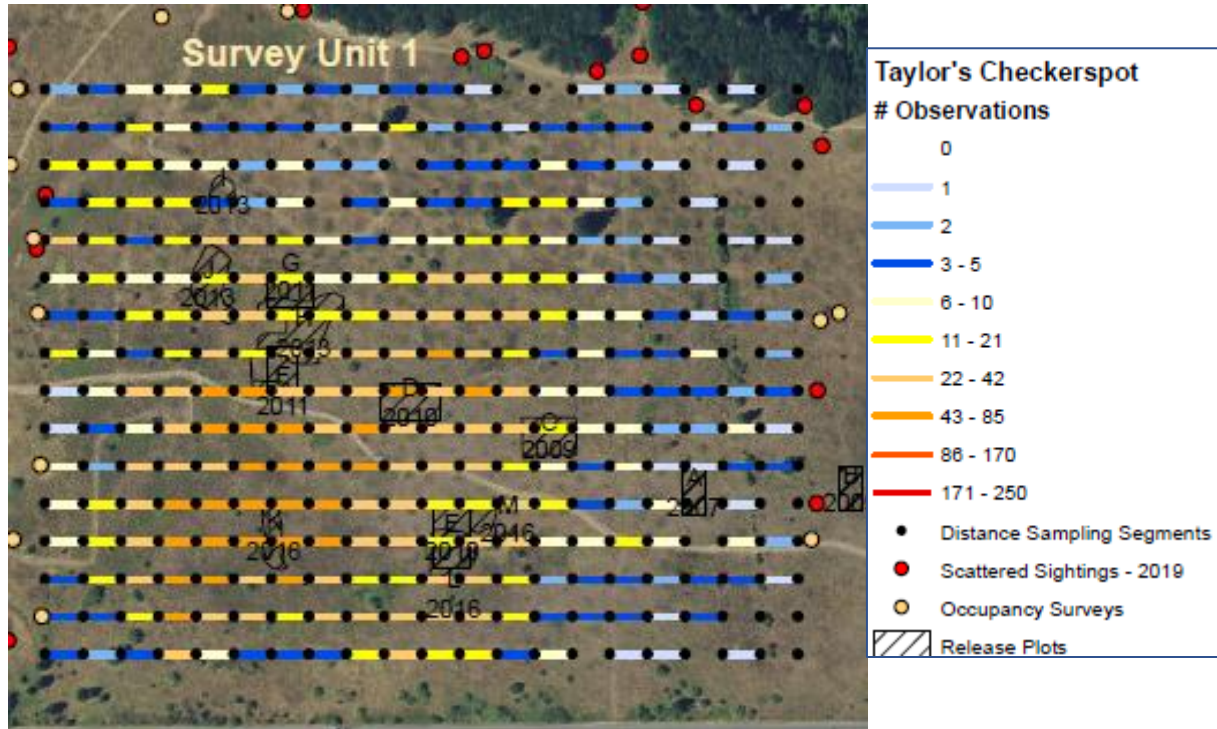
# Analysis & results...

- Methods appropriate for a paired sample design
- Larval nests  $\sim$  Host plant density (AKA  $Y \sim X$ )

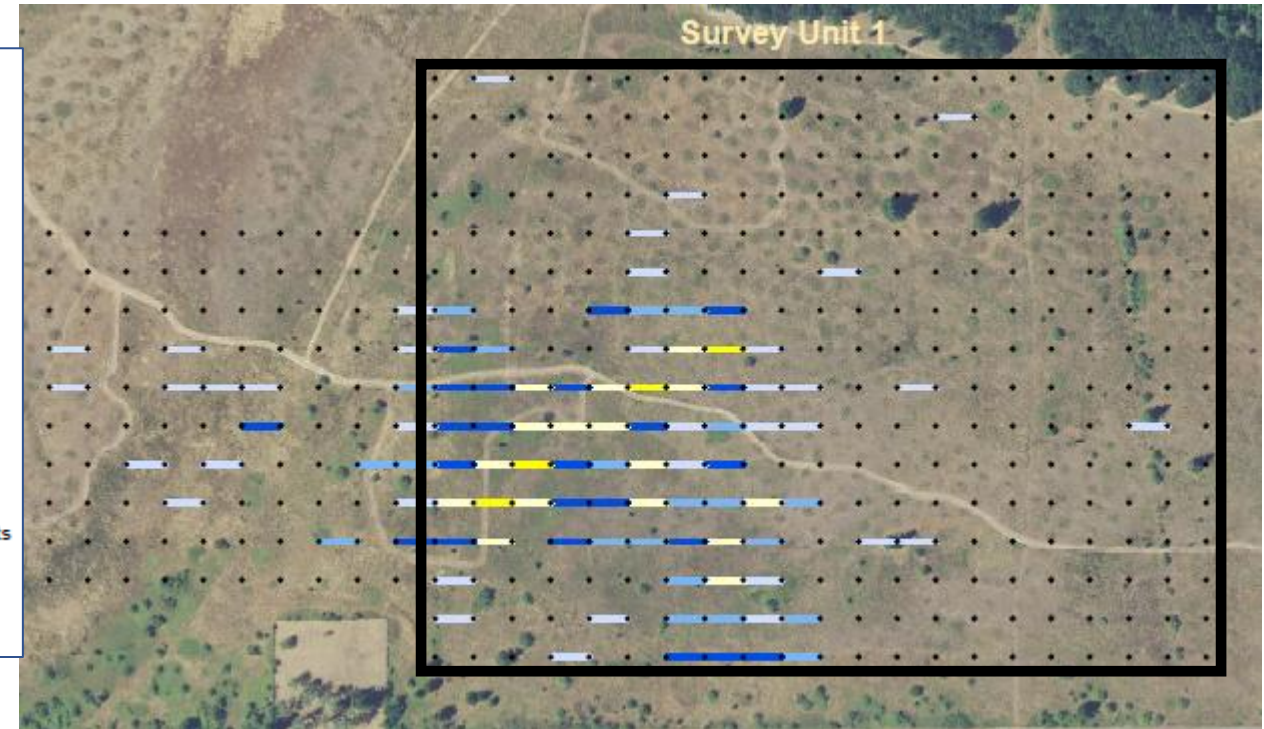
Reserved for awesome  
graph of useful data!!!

# TCB adult abundance and distribution

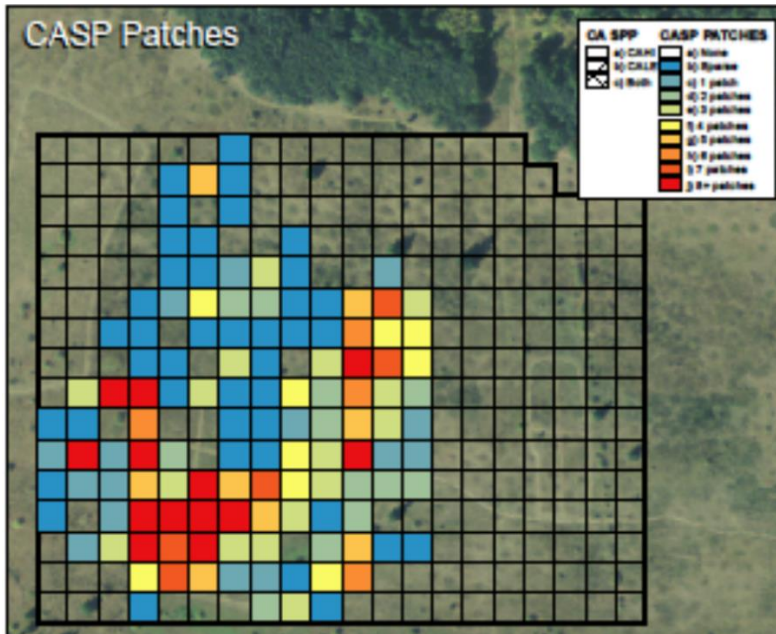
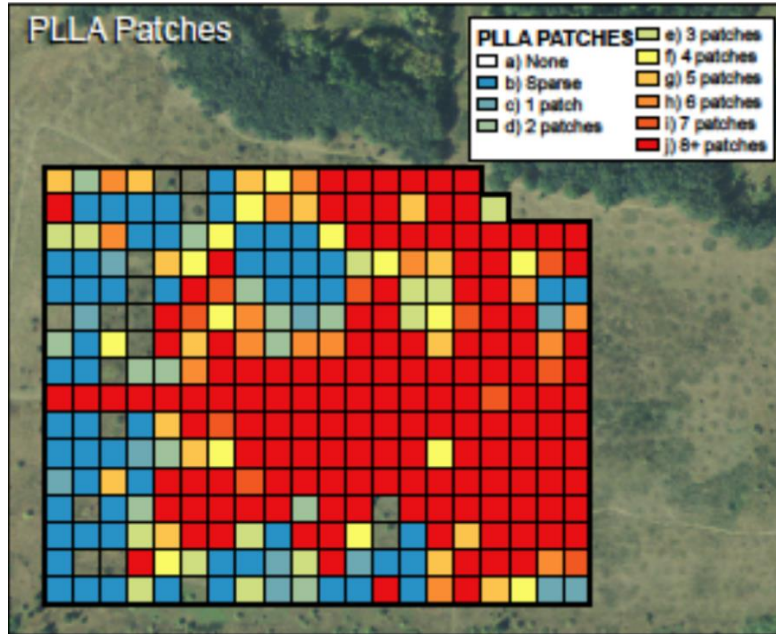
# 2019



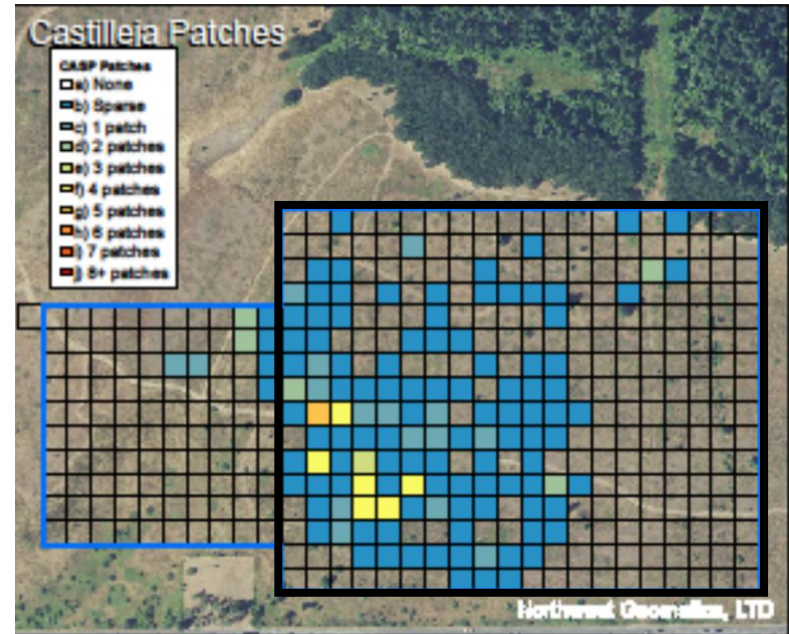
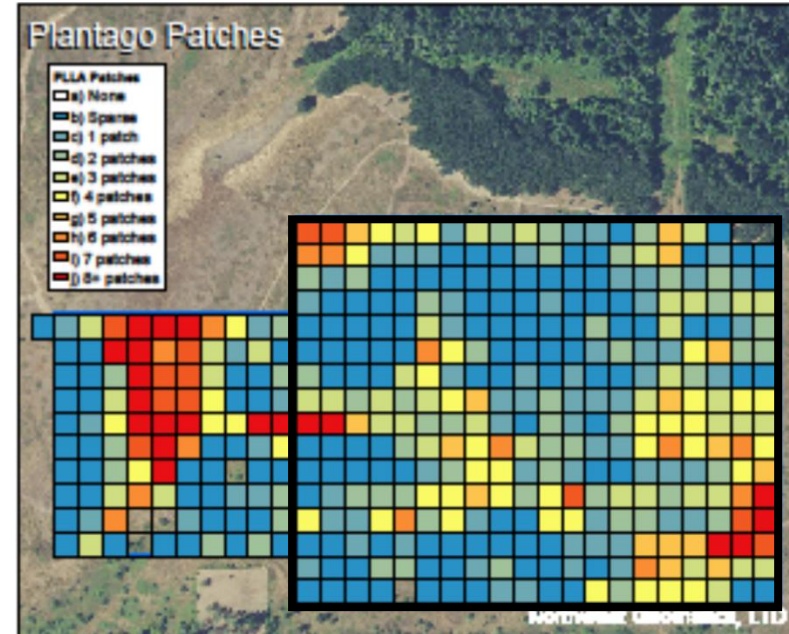
2022



# SCS1 2016



# SCS1 2022



A photograph of a butterfly and a caterpillar in a natural setting. The butterfly, on the left, has black wings with orange and white spots. The caterpillar, on the right, is black with orange spots and is crawling on a green leaf. The background consists of green grass and dry twigs. A large white diamond shape is overlaid in the center, containing the text "Questions and comments?" and "Thanks!!".

Questions and  
comments?

Thanks!!