



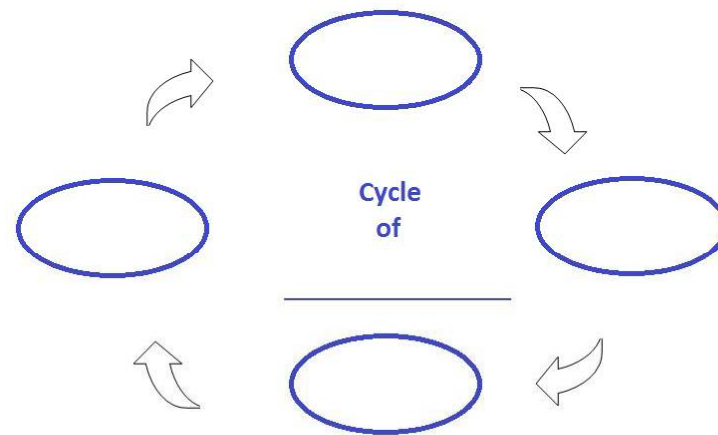
Pheno – What??

Studying when things happen in
nature

Phenology

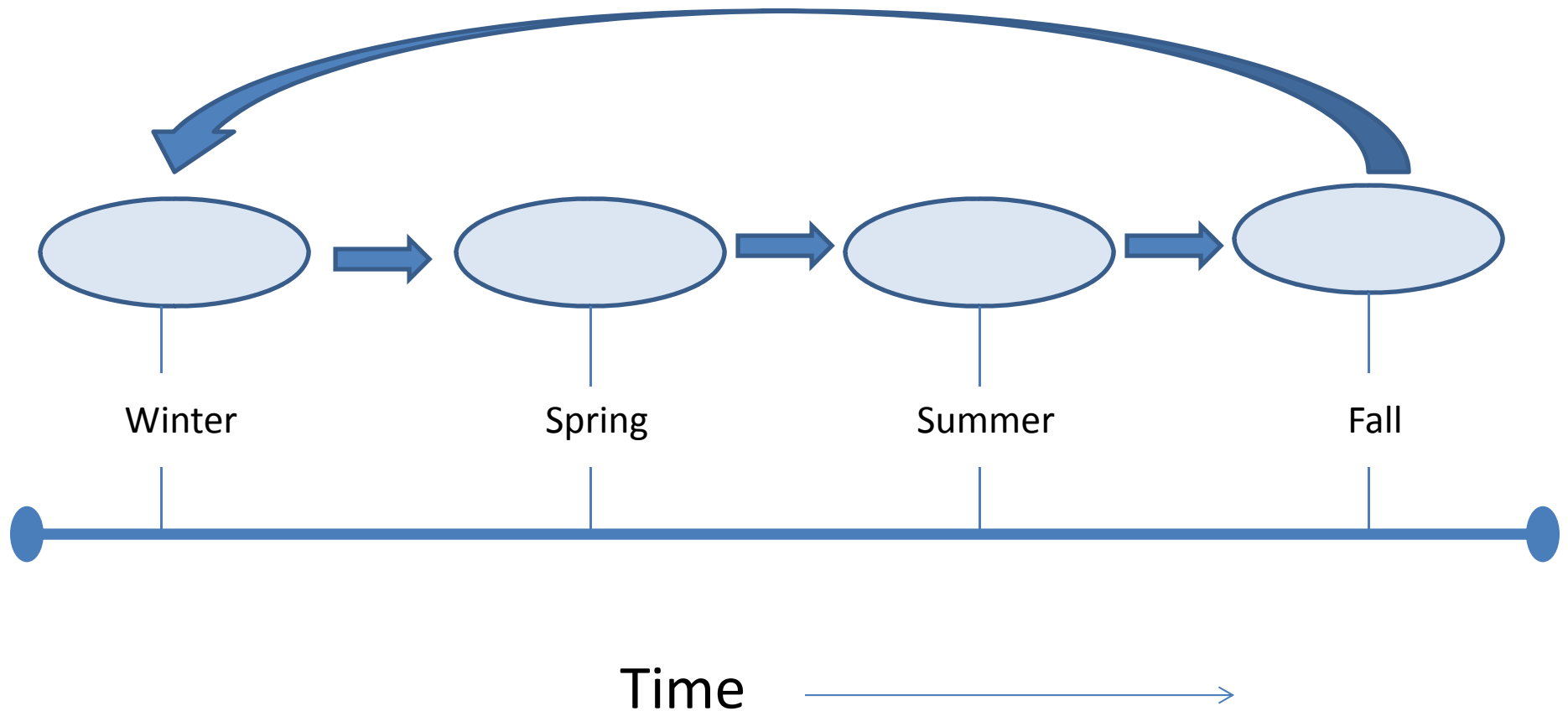


Life Cycles



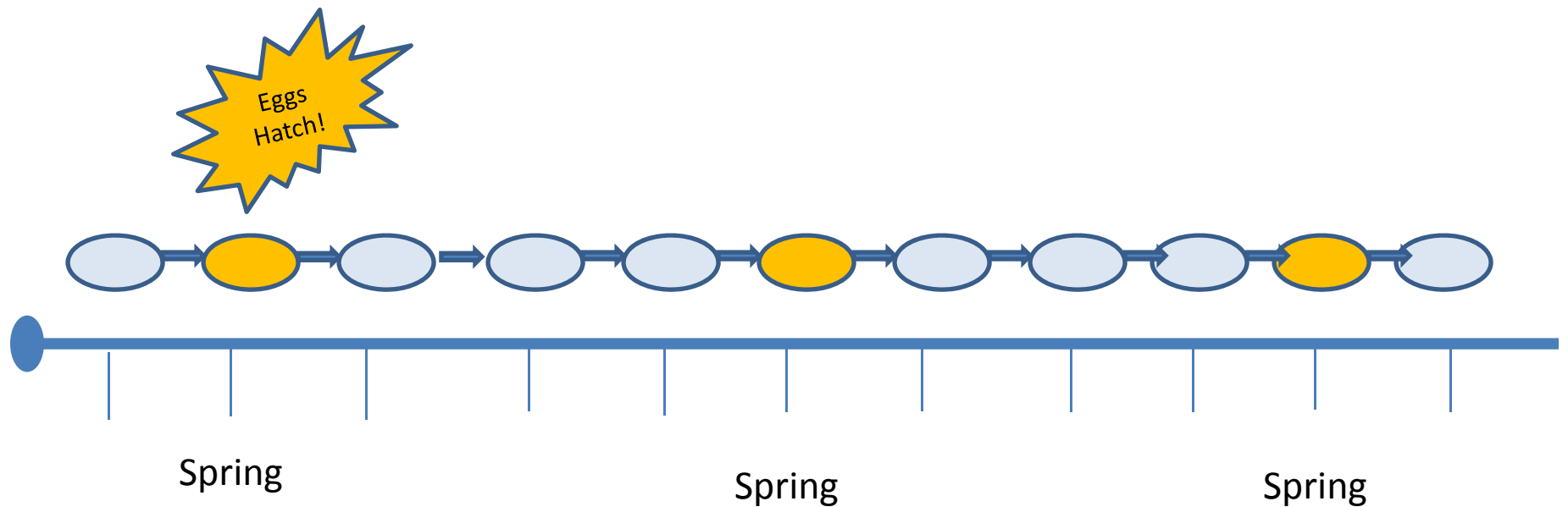
What are some **examples** of life cycles in nature?

Life cycle on a Time Line



Phenology

Looking at when important events in a life cycle happen year after year, (after year, after year)



Another way to think of phenology is as a calendar of events

MARCH 2013						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 Cardinal calling in morning!	2
3 daffodils coming up	4	5	6	7	8	9
10	11	12	13	14 Crocus Blooming!	15	16
17 Backyard pond completely unfrozen	18	19	20	21	22	23
24	25	26	27 Spring peepers calling	28	29	30

- Recording the date of a particular event year after year can help us learn about what environmental conditions are affecting an animal or plant.

- HOW?



MARCH 2013						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 Cardinal calling in morning	2
3 daffodils coming up	4	5	6	7	8	9
10	11	12	13 Spring peepers calling	14 Crocuses Bloom!	15	16
17 Pond no longer frozen	18	19	20	21	22	23
24	25	26	27	28	29	30

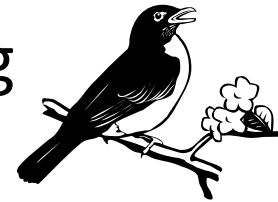
MARCH 2014						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Spring peepers calling	2	3 Daffodils in bloom	4	5
6	7 Pond no longer frozen	8	9	10 Crocuses bloom!	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	28	29	30

What are some life cycle events that we might want to keep track of?

– First daffodil blooming



– First bird call we hear in the spring



– Peepers calling

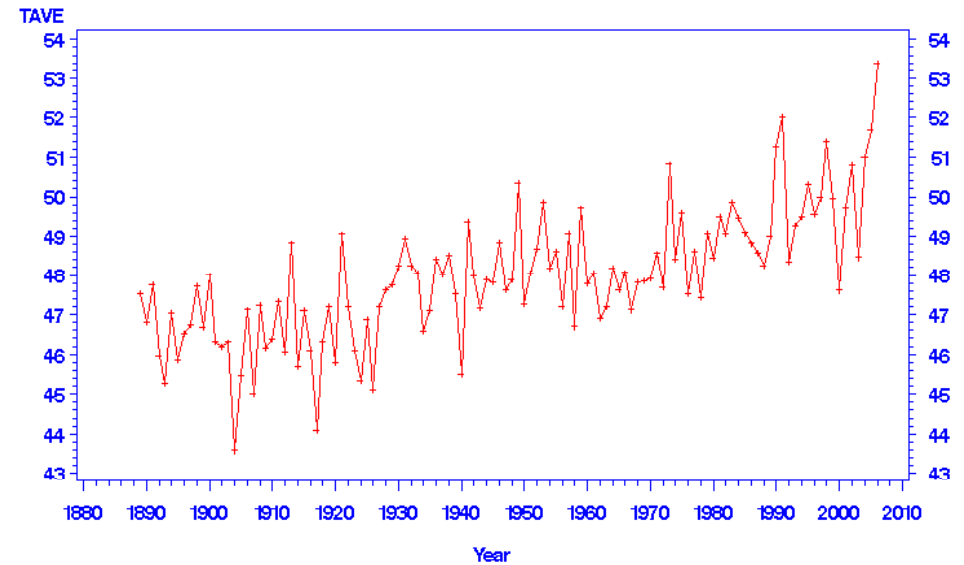


– First leaves start to turn in the fall



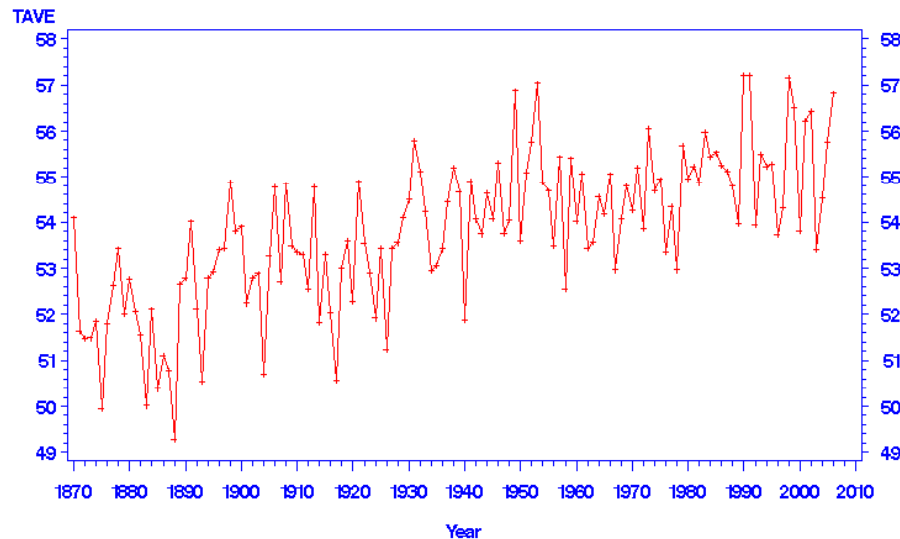
Local Air Temperature

USHCN 306820, POUGHKEEPSIE, NY
Annual mean of Monthly mean temperature (F) 1830 – 2006



Source: CN Williams Jr., MJ Menne, RS Vose, DR Easterling, NOAA, National Climatic Data Center, Asheville, NC

USHCN 305801, NEW YORK CENTRAL PARK, NY
Annual mean of Monthly mean temperature (F) 1835 – 2006

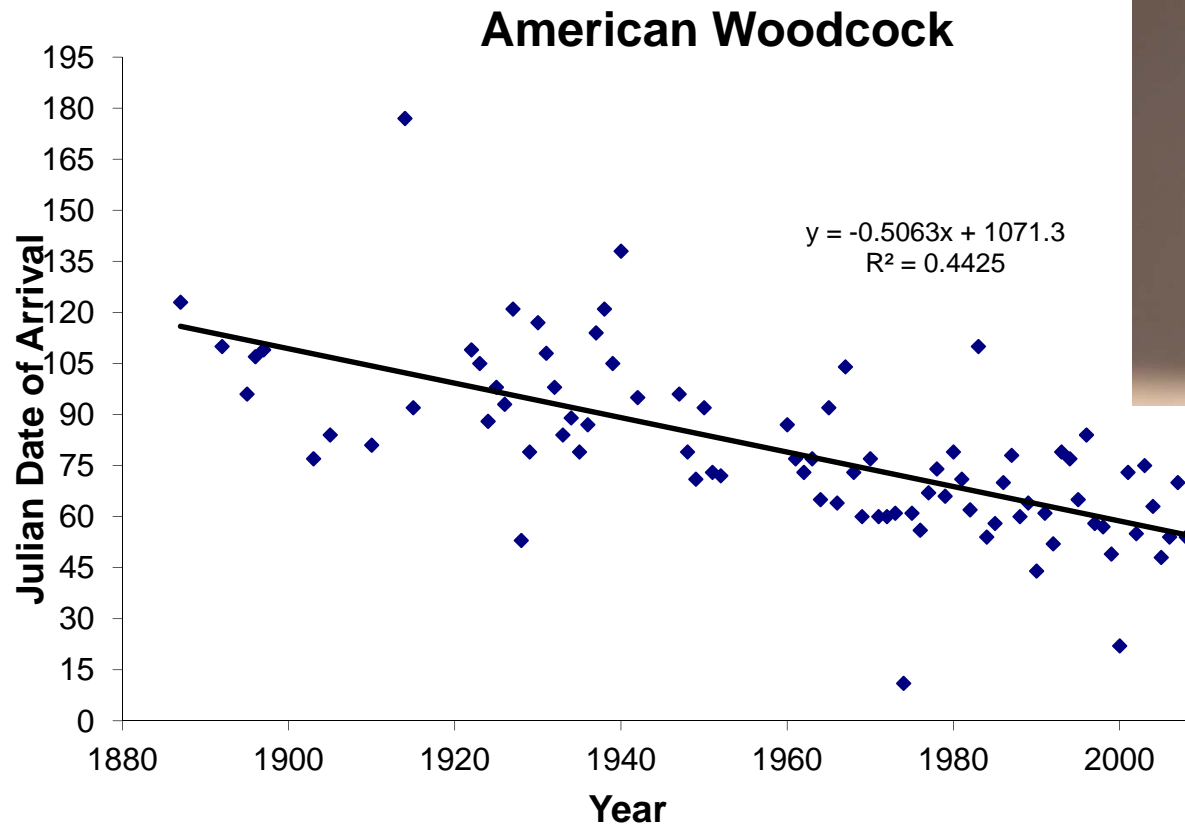


http://cdiac.ornl.gov/epubs/ndp/ushcn/ushcn_map_interface.html

United States Historical Climatology Network

Source: CN Williams Jr., MJ Menne, RS Vose, DR Easterling, NOAA, National Climatic Data Center, Asheville, NC

Birds Arriving Early to Dutchess County

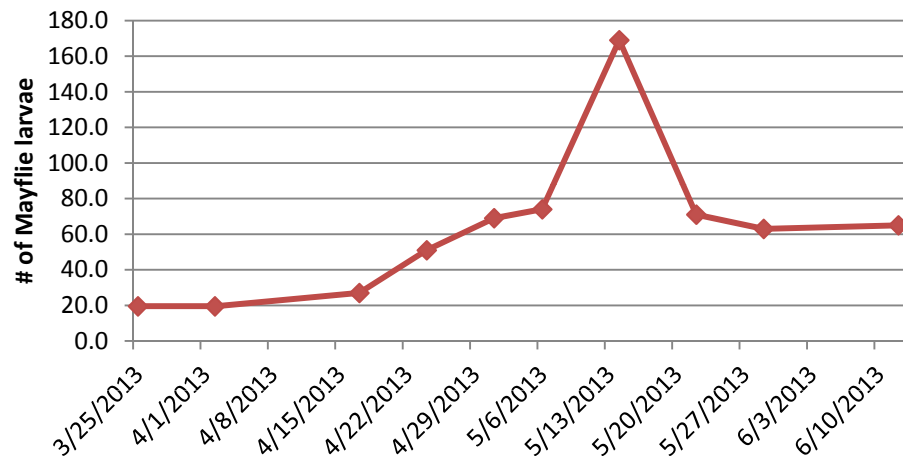


Data Source: Data were published in Vitale, J., & Schlesinger, W. H. (2011). Historical analysis of the spring arrival of migratory birds to Dutchess County, New York: A 123-Year record. *Northeastern Naturalist*, 18(3), 335-346.

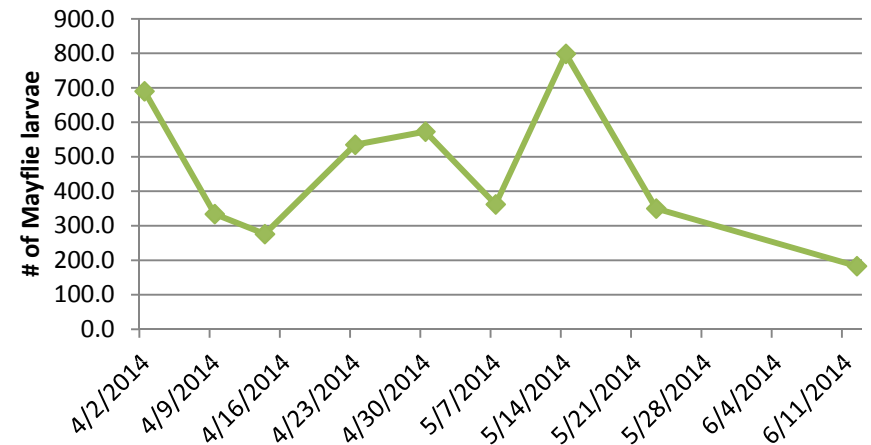
Photo By Matt MacGillivray (<http://www.flickr.com/photos/qmnonic/2497494899/>) [CC BY 2.0 (<http://creativecommons.org/licenses/by/2.0>)], via Wikimedia Commons

Let's think about our Stream

Mayflies in Pools and Riffles - 2013 leaf pack



Mayflies in Pools and Riffles - 2014 kick net



Let's think about our Stream

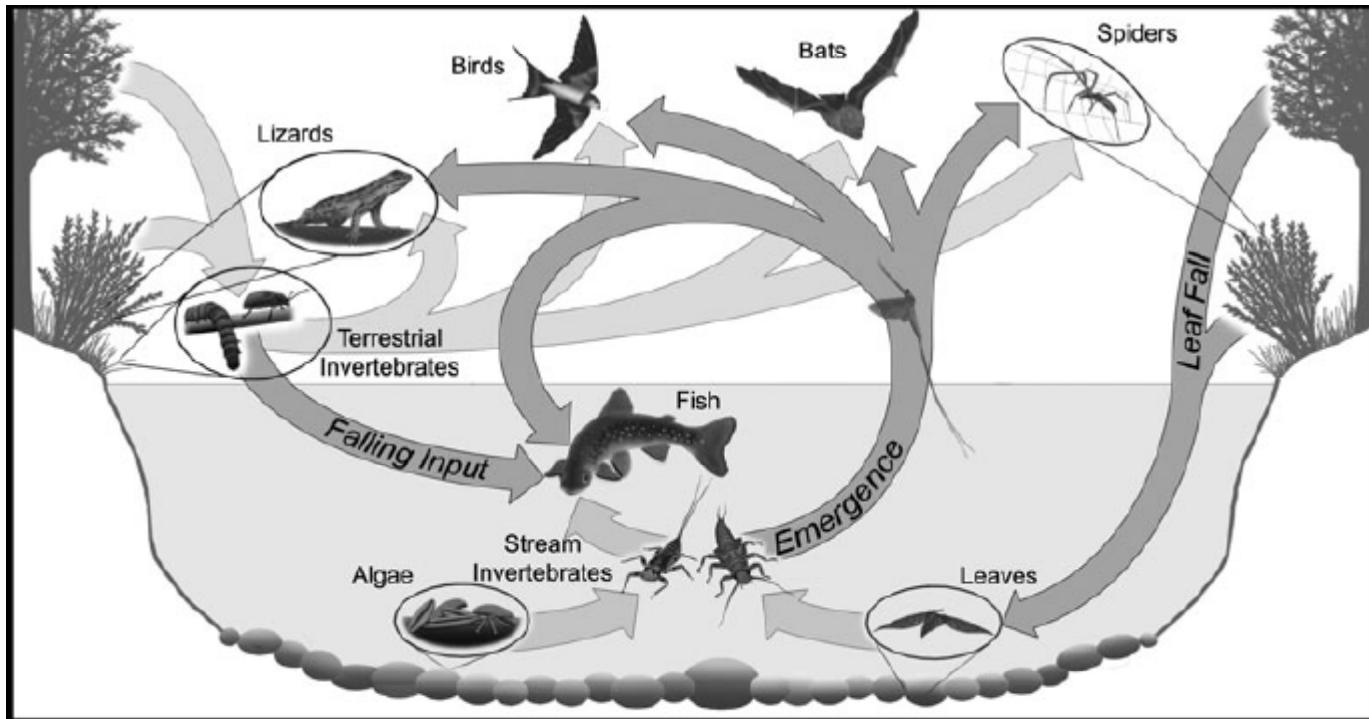
**What do you think will happen
to Mayflies as temperatures
increase?**

Let's think about our Stream

How might changes in the Mayflies populations affect other organisms that live in and around the stream?

On your paper draw a picture of a
stream ~~food~~ INTERACTION
web.

Include as many organisms as you can
think of – don't forget to include
abiotic factors!



Baxter et al. 2005