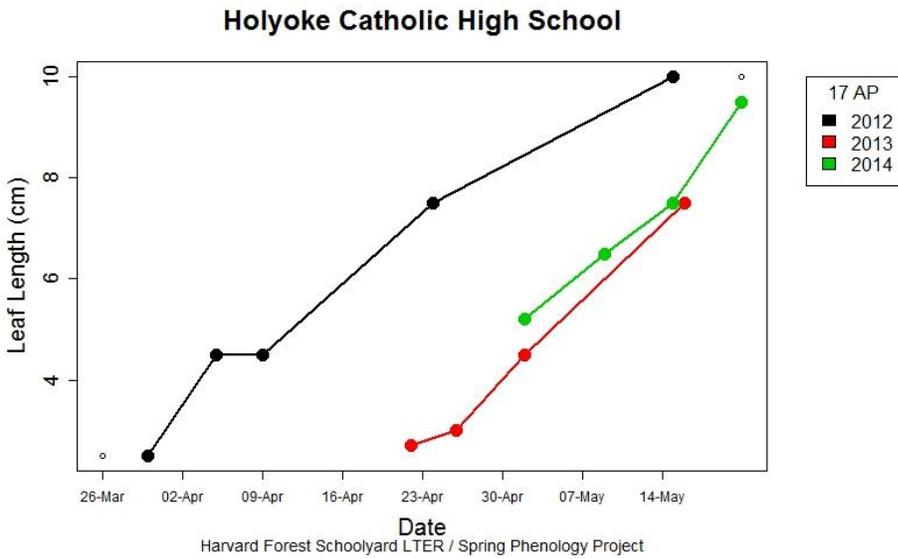
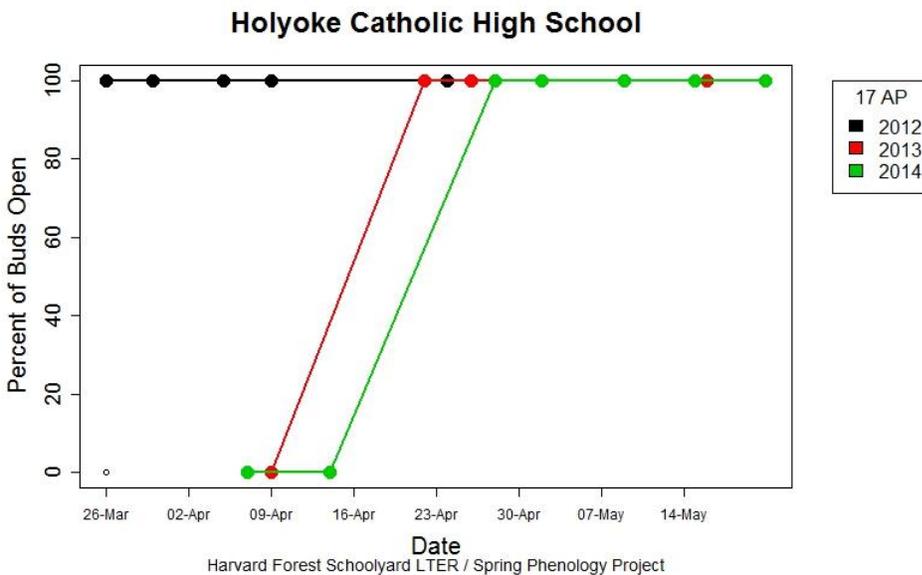


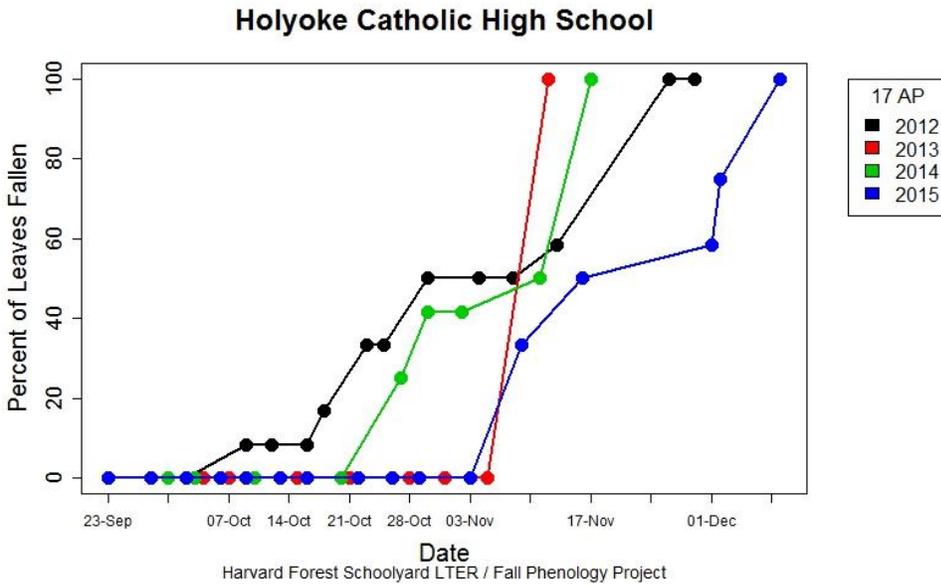
Student 4- Honors Student



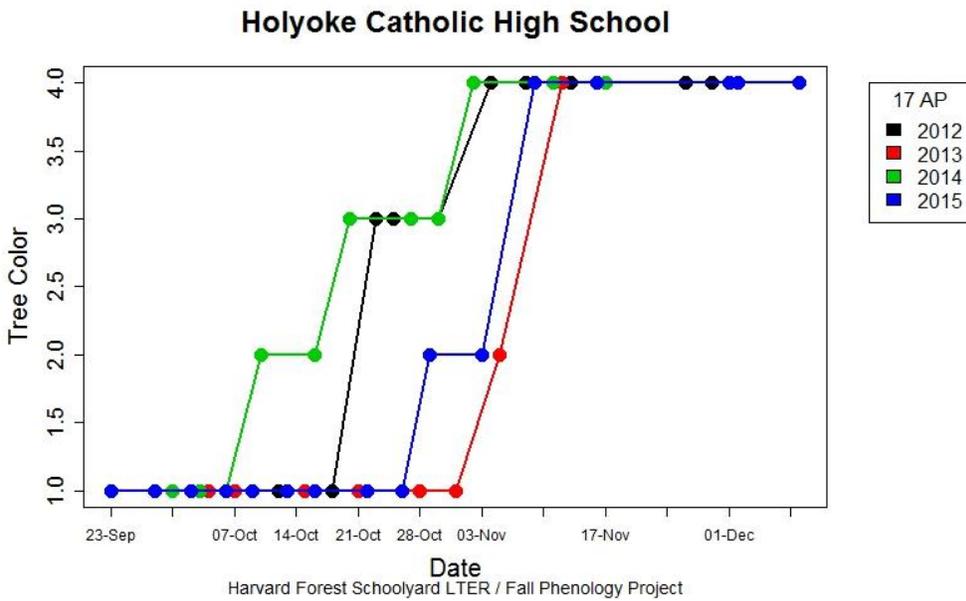
The leaves started growing earliest, had the longest leaves and achieved maximum leaf length earliest in 2012. In 2013, the leaves had the shortest maximum length. In 2014, the leaves started growing the latest and reached their maximum length the latest.



The leaves started budding the earliest in 2012 and were open before the observational study started. The leaves started budding the latest in 2014. In all years, the leaves had reached 100% growth by April 30.

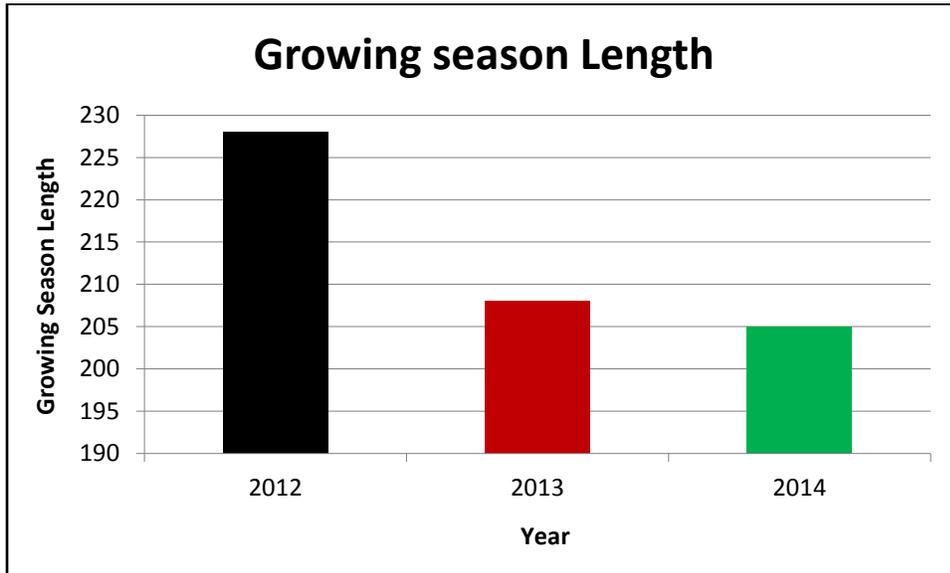


The leaves started to fall the earliest in 2012. In 2013, the leaves started to fall the earliest, reached 100% fallen the earliest and fell the quickest. In 2015, the leaves took the longest to reach 100% fallen.



The tree color started to change the earliest and reached the 100% not green the earliest in 2014. The tree started changing color and reached 100% not green the latest in 2013.

	Growing season Length
2012	228
2013	208
2014	205



The longest growing season was 2012, which was equal or greater than 228 days. 2014 had the shortest growing season with 205 days and the 2013 growing season was slightly longer than 2014 with 208 days.

Summary:

The purpose of these observations is to answer the questions of when the growing season starts and ends. It also answers how long the growing season is and if the length of the growing season is changing. In order to answer these questions data was collected on leaf growth and budburst in the spring and on the percent of leaves fallen and the tree color in the fall. This is the data collected for Tree 17. Tree 17 is a crabapple tree on Springfield Street.

Tree 17's growing season started the earliest in 2012. The leaves started growing the earliest and were the longest this year. The buds were 100% open before the observations started. In 2013, the leaves started growing later and took longer to reach their maximum length. In 2014, the leaves took the longest to start growing and reached 100% budburst the latest. This shows that the growing season has been starting later for Tree 17 over the years.

In 2012, the leaves started falling the earliest. In 2013, the leaves started to fall the latest, but 100% of the leaves were fallen the soonest. Also in 2013, the tree took the longest to start changing color and took the longest to reach 100% not green. In 2014, the tree color started changing the earliest and reached 100% not green the earliest. In 2015, the leaves took the longest to all fall off. As years have progressed, it has taken longer for all of the leaves to fall off, except for 2012, which was in between 2014 and 2015.

There was only enough data to calculate a definite growing season for 2013 and 2014. For 2012, only the minimum growing season could be calculated. There was no data for spring 2015 so no growing season could be calculated for that year. The growing season for 2012 is equal or greater to 228 days. This is the longest of the calculated growing seasons. The growing season for 2013 is 208 days, and the growing season for 2014 was 205 days. 2014 had the shortest growing season of the calculated years. The growing season of Tree 17 decreased over time. There was a large decrease between 2012 and 2013 and a smaller decrease between 2013 and 2014.

Tree 17's spring and fall data was compared to that of Tree 24. Both trees are crabapple trees. Both trees had their earliest budburst in 2012. In addition, for both trees, the year in which they took the longest to drop all of their leaves was 2015. Unlike Tree 17, Tree 24 started to lose its leaves earliest in 2013.

Tree 17's data was also compared to that of Tree 12. Tree 12 is an exotic cherry. In all years, the leaves on Tree 24 started falling earlier and reached 100% fallen sooner than the leaves on Tree 17. In 2012, the budburst for Tree 17 started earlier than the budburst for Tree 24. Both trees had very rapid budburst in 2013 and 2014. In 2013, the budburst for both trees started and ended on the same dates and in 2014 the budburst started on the same date for both trees.

Overall, Tree 17's data shows that the growing season has been starting later, ending later and that the overall growing season has been becoming shorter over time.