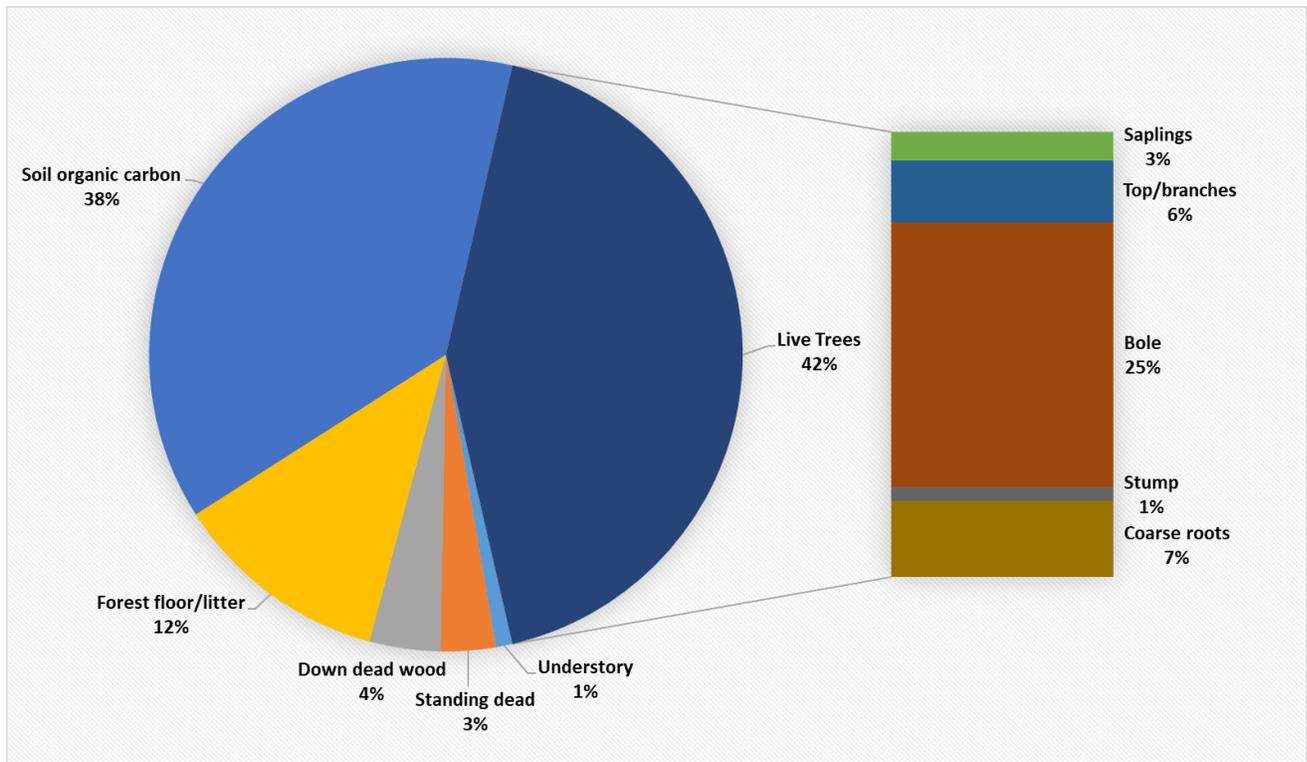


## Forest Carbon

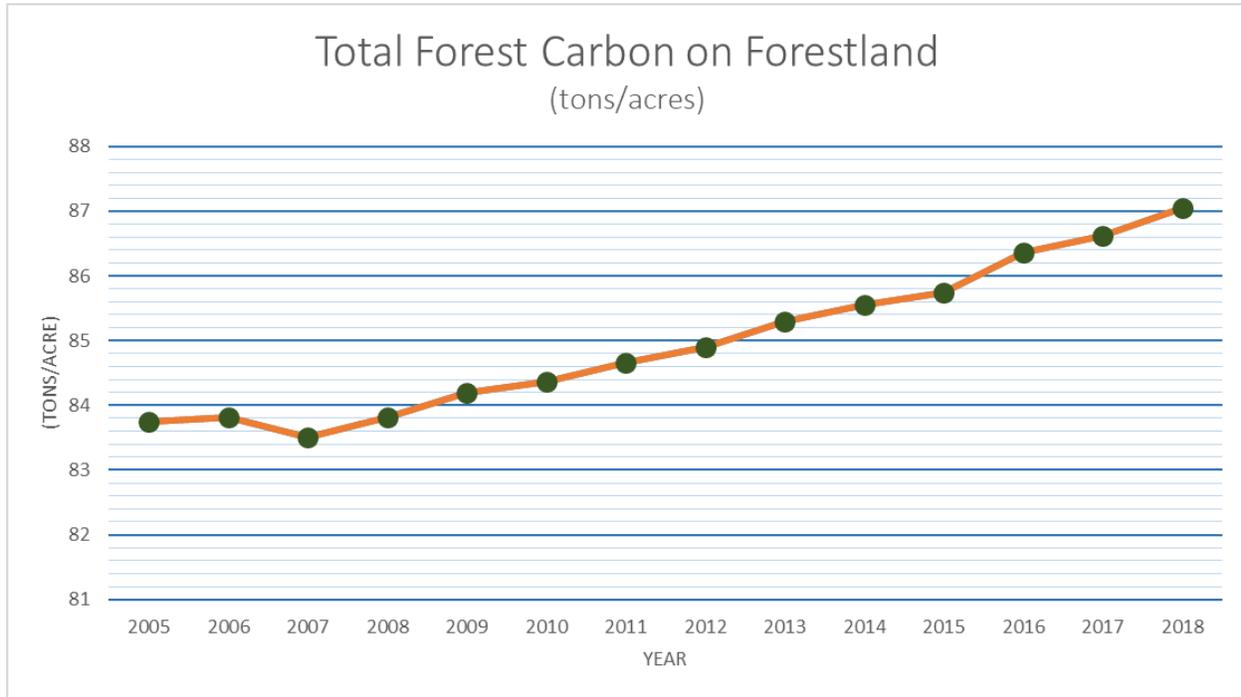
Forests are both a source and a sink for carbon. Forests remove carbon dioxide from the atmosphere through photosynthesis (sequestration) to create energy. Through this process they capture and store carbon in the form of wood, and other organic matter such as leaves, bark, and roots. In New Hampshire it is estimated that live trees account for 42 percent of forest carbon and soil organic carbon accounts for 38 percent of forest carbon (Figure 29).



**Figure 29 Percentage of forest carbon stocks within each forest ecosystem component for NH**  
*USDA Forest Service, Forest Inventory and Analysis, 2017*

Forests release carbon through respirations and through decomposition. Forest carbon can also be reduced due to land conversion or timber harvesting. When considering the loss of forest carbon due to timber harvesting, the type of forest products being removed from the site must also be taken into account. Durable wood products that are long lasting and are not burned or that do not decompose can store carbon for a long time. Veneer and high quality lumber are generally long-lived products that are maintained for a long period of time because of their high value. By-products of sawtimber such as sawdust, slabs and edgings are often re-processed as paper pulp or as biomass fuel. Biomass fuels also include chips and pellets made from low grade forest products which are burned for heating buildings or to produce energy, often in the form of steam for electrical production or municipal heating or optimally both products. The burning of biomass chips or pellets as a fuel does produce carbon dioxide that is released into the atmosphere. Biomass chips offset the use/burning of fossil fuels which would release in the atmosphere carbon products that otherwise have been stored and would continue to be stored for a

very long time out of the atmosphere. Figure 30 indicates that the ton of carbon per acre on forestland in New Hampshire has increased since 2005 (USDA FIA 2017).



**Figure 30 Total forest carbon per acre in New Hampshire 2005 to 2018.**

*USDA Forest Service, Forest Inventory and Analysis, 2017*

The rate at which a forest sequesters carbon generally peaks in young to intermediate-aged forests. Older forests continue to sequester carbon, but at a slower rate. The rate at which any given forest sequesters carbon is influenced by a variety of factors in addition to age including forest type and site condition (Catanzaro & D’Amato, 2019).

The amount of forest carbon being stored increases with age and in the northeast typically peaks at around 200 years. Although, as with carbon sequestration, the amount of forest carbon stored can vary by forest type and age class. Figure 31 shows the total carbon storage by forest type in New Hampshire, based on 2017 USDA Forest Inventory and Analysis data. Figure 32 shows tons of carbon by age class in New Hampshire Forests, figure 33 show tons of carbon per acre by age class. Figure 34 compares total tons of carbon on public vs private forest land.