

CES Notes, Summer 2013

Stormy Times in Hopkins Forest...

Whew, the last couple of years have certainly seen their share of weather tumult in Hopkins Forest. As we approach the latter days of summer it's hard not to be reminded of the destruction wrought on a late August Sunday afternoon two years ago when Tropical Storm Irene roared through and inundated Cole Field and much of the rest of the Hoosic River flood plain with several feet of water. Kayakers could be seen paddling over the flooded soccer fields of Cole Field. The elevated slopes of The Forest, however, meant that most of the Forest was spared the brunt of the storm, except for its eastern edge where the property drops down to the Hoosic River.

As many people were still recovering from Irene on the 29th of October 2011, an early season snowstorm hit the area, covering the wooded hillsides with nearly a foot of fresh, soggy snow. As the temperatures returned to more typical fall levels, the snow was soon gone. Had it arrived just a little earlier in the season this storm could have wreaked serious destruction on the trees (as with the notorious October 1987 storm), but as most of the trees had already lost their leaves the snow loading and destruction were held to a minimum.

Fast forward to May 29th 2012 when a band of violent late-afternoon thunderstorms roared through the area. Unlike 'more typical' thunderstorms that might drop a few trees and perhaps knock out power for an hour or so, this event leveled hundreds of large trees in Hopkins Forest in a swath that ran from the far side of the Upper Loop Trail, through the Moon Lot all the way to the canopy walkway (where one of the severed trees came to rest on its footbridge). Meteorologists classify this type of storm as a "straight line" wind or "Derecho". Whatever you want to call it, this was the largest disturbance to hit the forest in my 14 years as Manager.

While the winds and rain of Hurricane Sandy (October 29th 2012) largely spared Williamstown and Hopkins Forest, directing much of their energy toward the Atlantic coast instead, we did receive the brunt of a different, more locally violent rain event just six months later. Indeed, just as evening approached, a year to the day after the powerful "Derecho", Hopkins Forest was bombarded by the most intense rain event that it has endured in recorded history. The Hopkins Forest weather station recorded a record 1.78 inches

of precipitation -- an amount that normally takes half a month or more to fall -- in a 20 minute period (<http://web.williams.edu/weather/>). That immense amount of water dropping upon an already saturated landscape (May and June had had near record rainfall totals), overwhelmed the land's ability to protect itself -- reducing many roads to washed-out detour zones and foot trails to gullies. Hopkins Forest caretakers have spent a good part of the summer repairing the damage.



Jamie Dickhaus surveys erosion damage 2013.



Ryan Buchannon surveys red oak blowdown, 2012.

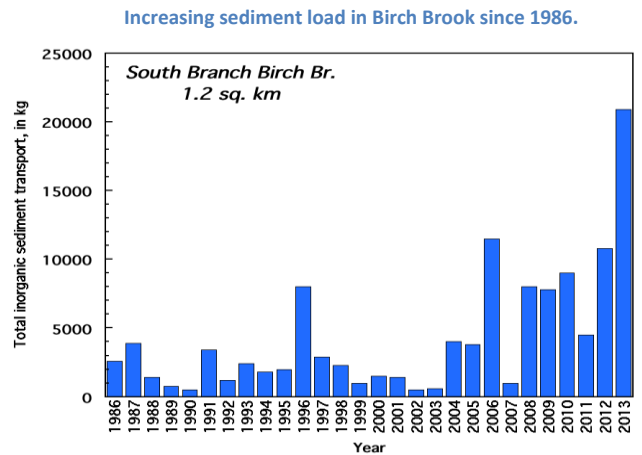
So what does this all mean? Random events or another sign of the world’s increasingly volatile and unpredictable climate? Answers take time, but events like these do give us the opportunity to document and describe the interaction between weather, climate and ecology. David Dethier and Jay Racela, with their many years of geosciences monitoring, have detected a recent trend toward increasingly wet years. Sediment loads from Birch Brook, seem to reflect the increased amount and severity of rainfall. Indeed, the nearly 22,000 kilograms of sediment removed from Birch Brook’s South Branch weir this summer easily surpassed the previous high mark established in 2006 and was approximately three times the 27 year average. It is hardly coincidental that this historic sediment removal occurred within seven weeks of May’s record cloud burst.

Meanwhile, Hank Art and his student researches are developing tree diameter distribution curves that demonstrate a correlation between violent weather events and forest structure, renewal and succession. Certainly, forests have been responding to storms, fires and other natural disturbances since the last glacial ice sheet receded about 15,000 years ago, and the trees and plants on today’s landscape are products of the pressures exerted by such events over the millennia. The question is: how will this flora respond to what appears to be the increasing frequency and intensity of these natural barrages in the decades ahead?

--Drew Jones, HMF Manager

Photos: Hank Art

Chart: Jay Racela



Student researchers summer 2012