On Hairston, Smith, and Slobodkin (1960) Community structure, population control, and competition. American Naturalist 94: 421-425.

Written by **Lisa Couper,** December 4, 2018

The dudes behind the Etude

Now this is a story about 'the etude'
A classic paper written by 3 white dudes
And I'd like to take a minute with this rap as an aid
To tell you about the champions of the trophic cascade

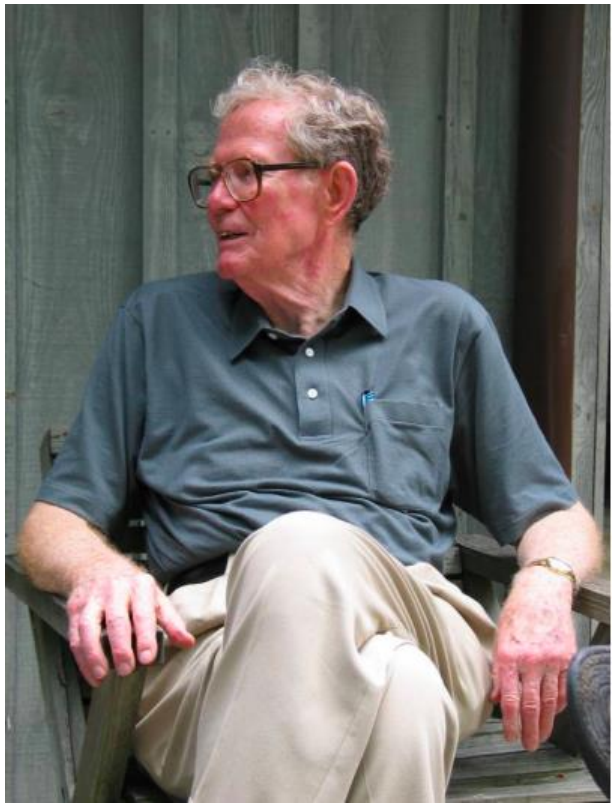
In North Carolina, Hairston was born and raised
On the family plantation, he spent most of his days
Then off to Northwestern, for his phd
[Pause WWII - he got deployed overseas
Developing treatments for malaria infection
Launching him in a parasitology direction]
Now back at school, studying salamander guilds
Just before the niche partitioning hype builds
Then a faculty in Zoology at Michigan
Where an accomplished career, he did begin
In epi, ecology, and with the WHO
But did he stop there? Oh certainly no!
After 27 years, it's back to UNC
To take up a professorship in Biology
Studying community ecol, having a grand ol time
And spreading the word about experimental design

Now on to Fred Smith, an eclectic man
Springfield, Masschusetts's where his life began
Went and studied entomology at UMass
Then briefly to med school, and was the top of his class
Dropped out over the lack of curiosity
And went to work with Hutchinson for his phd
Then hired by UM to teach zoology,
Making 3500 annual salary,
But rose through the ranks, became department chair
In wildlife and fisheries, but a brief affair
Then on to Harvard, where he could opine
On the role of ecology in urban design
But 2 years there is all he stays,
Then he windsurfed and chilled for the rest of his days

And last but not least, is our homie Larry
Who accomplished so much, it's a little bit scary
Finished a phd at Yale by age 23
Studying age-structured growth of the water flea (Daphnia)
Then on to work for US fish and wildlife
Uncovering the origins of red tides
That took 2 years, then he said see ya later
And launched his career combining models with data
At the zoology department at UM
In the field of pop bio, he was truly a gem
After writing the book on animal populations
And what controls their growth and regulation,
He then bounced to Stony Brook, a pretty new institution
And founded the department of ecology and evolution

This dream team united, with great success
To publish a paper, nicknamed HSS
Where they tackled the debate on what limits populations
In a 4 page note, with 3000 citations
They took the observation that the world is green
And translated for us, what this should mean
Herbivores can't be limited by food sources,
They must be controlled by top-down forces,
But the predators, decomposers, and producer levels
Are limited by the amount of food or energy available
A powerful insight, that's been hotly debated
Regardless, these three deserve to be celebrated

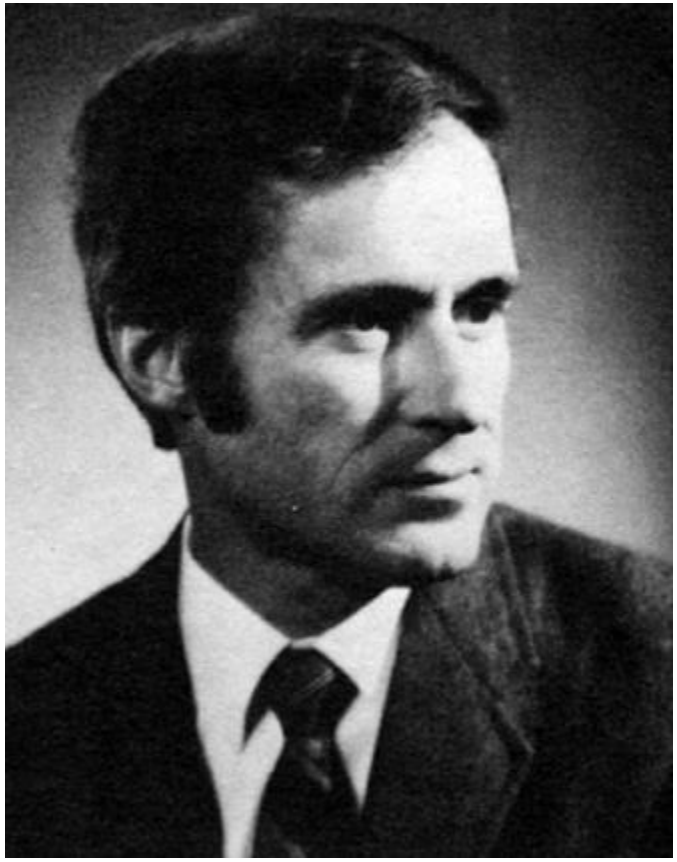
Nelson Hairston (1917-2008)



- Phd at Northwestern studying salamander niche partitioning -- interrupted by WWII
- Zoology professor at Michigan - parasitologist, epidemiologist, WHO
- 27 years later - became a professor at UNC and finished work on salamander community ecology
    - Published all possible outcomes before experiment
- Retired and published: Ecological Experiments: Purpose, Design, and Execution
- Son = Nelson Hairston Jr faculty in Eco/Evo at Cornell

“If p is less than 0.01, you worked too hard.”
“The problem with a natural experiment is that you don’t know what experiment nature ran.”

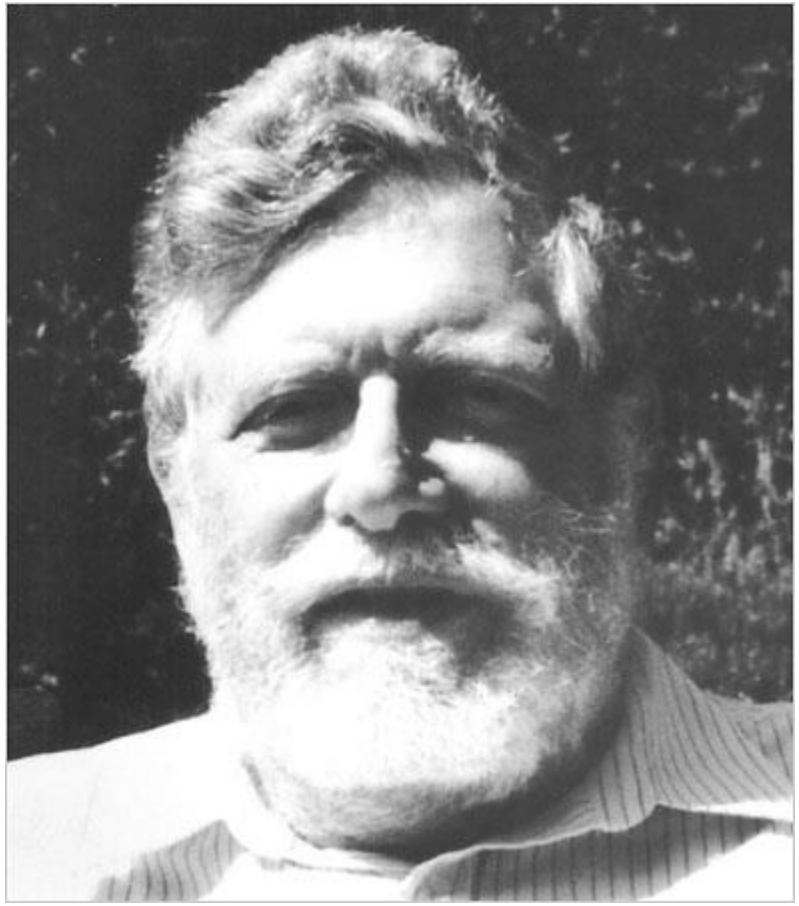
Frederick Smith (1920-2012)



- Entomology → med school → phd with Hutchinson
- Zoology instructor at U Michigan
  - Interested in models of population growth
- Chair in the School of Natural Resources
  - Interests switched to ecosystems
  - Continued advocating for models
  - Diversity begets stability not supported by models
- Left for Harvard school of design - chair of Landscape Architecture
- Retired at 62 and took up windsurfing

“I had my hip boots and he had none, so he took off his pants and waded in wearing a pair of bright print boxers. He said something to the effect that no one passing would see anything out of the ordinary. Typical Fred.”

Lawrence Slobodkin (1928- 2009)



- Grew up in Bronx, parents were both artists
- Phd with Hutchinson on Daphnia population growth
- Worked at US fish and wildlife on the origins of red tides
- Zoology faculty at UM
    - Combining math models with empirical data
    - Calorimetry
- Founded Ecology & Evolution department at Stony Brook

Advice to students:
“Take the most advanced math courses you can still pass. Really know some group of organisms and some landscape…. Be as broad in your interests as you can be. Be outside the classroom as much as you can, teaching yourself.”