F-Statistics

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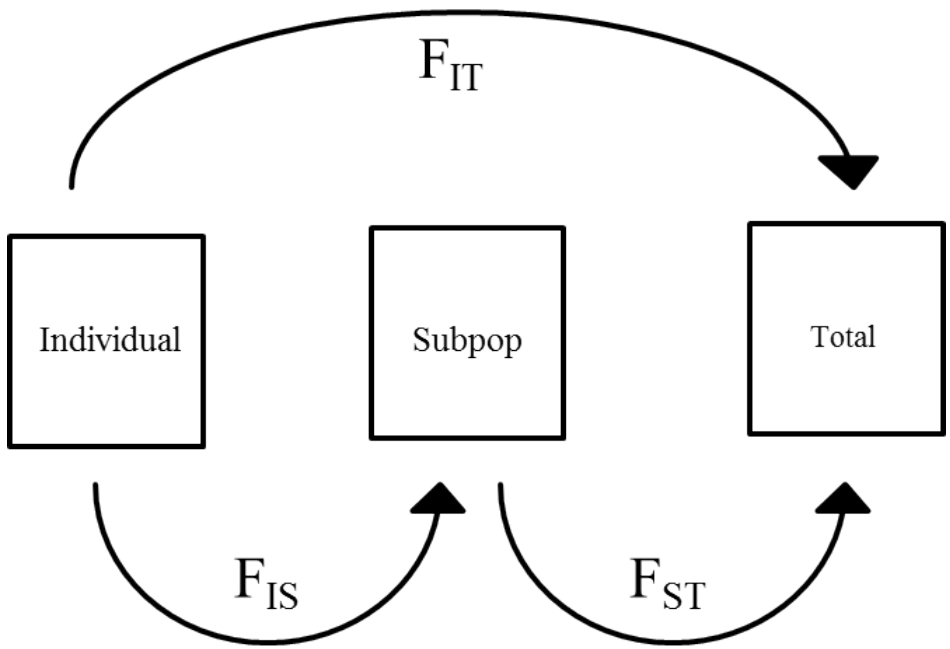
Goals for Today's Lab

- Install R packages *hierfstat* and *adegenet*
- Work through tutorial
- Work through example

Variance Components

In R, the packages *adegenet* and *hierfstat* can be used to compute F_{IS}, F_{ST}, and F_{IT} using variance components.

$$(1 - F_{IS})(1 - F_{ST}) = 1 - F_{IT}$$



Hierarchical F-Stat

Install the R packages *adegenet* and *hierfstat*!

Tutorial

Work through the Jombart (2015) tutorial parts 1, 2.1, 3, 4.1, 4.2, and 5 on your own / with partner

Practice problem

This dataset takes 7 microsatellite loci from 16 North American populations (516 individuals) of the invasive plant *Polygonum cespitosum* found in two different habitats from Matesanz et al. (2014)

Practice problem

To do:

1. Download "polygonum.stru"'
2. Test for HWE
3. Compute hierarchical f-stats
4. Add level for habitat and compute f-stats again

Next Week

Individual Assignment in Structure!

Project # 2!

Works Cited

- Matesanz, S., K. E. Theiss, K. E. Holsinger, and S. E. Sultan. 2014. Genetic Diversity and Population Structure in *Polygonum cespitosum*: Insights to an Ongoing Plant Invasion. PLoS One 9:e93217.
- Pritchard, J. K., M. Stephens, and P. Donnelly. 2000. Inference of population structure using multilocus genotype data. Genetics 155:945-959.