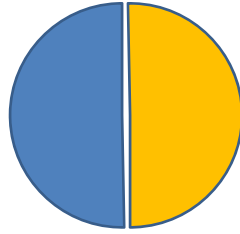


## Increasing Capacity for Genetic Analysis at SUNY ESF

Existing ½ time position with other projects

- Cottontail genetics – Cohen/Ryan/Whipps
- Aquatic Animal Health – Whipps



Fulfill other ½ with needs of DEC

- Cottontail rabbit genetic ID
- Population genetics
- Genetic ID other animals



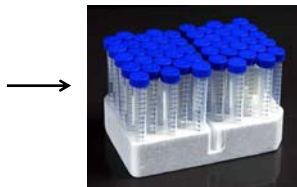
Corinne Michaud

## Cottontail rabbit genetic ID (25%) - with Paul Novak (DEC)

- Genetic differentiation of Eastern (EC) and New England (NEC) Cottontails
- Planned to process 1,000 rabbit pellets
- Ran 1183 over 2 years (89% EC, 10.5% NEC, 0.7% failed, 1 squirrel)

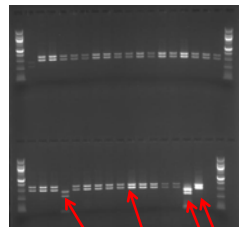


Photo: H. Kilpatrick  
<http://newenglandcottontail.org/natural-history/telltale-signs>



DNA extraction

PCR of mtDNA  
 Restriction digest  
 Nla III from Kovach et al. (2003)



Confirmation of any NECs  
 Restriction digest  
 Bfa I from Litvaitis and Litvaitis (1996)  
 DNA sequencing

## Landscape Genetics of White Tailed Deer

- with Krysten L. Schuler (Cornell)

Goal:

Measure gene flow with southern states to get some idea of when CWD would "walk in" to NY

ESF role: Genotyping deer lymph node samples

- 116 samples w/ DNA
- ~100 genotyped at 5 loci

Data to be shared with collaborators in PA to evaluate genetic connections between states

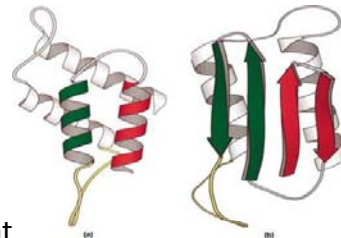


## Landscape Genetics of White Tailed Deer

- with Krysten L. Schuler (Cornell)

Spin-off work (undergraduate research)

Genotyping Prion protein gene sequence



Different genotypes place individual deer at lesser/greater risk of developing CWD if exposed

## Predator Scat Genetic ID

- with Jacqui Frair



<http://urbancoyoteresearch.com/coyote-signs>

When scat collected, how reliable is field ID?  
Need to know for diet analysis

Table 1. Genetic identification relative to presumptive field identification.

Presumptive ID	GENETIC ID		
	<i>Canis latrans</i>	<i>Vulpes vulpes</i>	<i>Urocyon cinereoargenteus</i>
<i>Canis latrans</i> (n=25)	24	0	1
<i>Vulpes vulpes</i> (n=20)	11	2	7

## Predator Scat Genetic ID

- with Jacqui Frair

Julia Williamson  
Undergraduate honors project



- Determined best methodology/extraction method
- Genotype 150+ scats
- Compare field and genetic ID
- Compare storage methods (frozen vs. ethanol)

## Other Kinds of Work possible:

### Population genetics of other species

- Population structure
- Units of Conservation
- Movement/translocation
- Hybridization

### Species ID

- Confirmation
- Unusual morphs
- Museum/collection specimens
- Etc.

### Identification of unknowns

- Hairs
- Scats
- Other?

### Genomics

- Diet analysis
- Fine scale analysis

### Pathogen diagnostics

- Development
- Processing