

### Example 3 Diversity and evenness

The following small mammals were captured at a site

Deer mouse	37
Hispid cotton rat	28
Western harvest mouse	53
Prairie vole	9
Hispid pocket mouse	2
Thirteen-lined ground squirrel	1
Short-tailed shrews	6

#### Diversity

$n$  = number of individuals in the sample

$f_i$  = number of observations in category  $i$

$$H' = \frac{n(\log n) - \sum_{i=1}^k f_i \log f_i}{n}$$

$$\sum_{i=1}^k f_i \log f_i = 203.8$$

$$H' = \frac{136(\log 136) - 203.8}{136} = 0.635$$

$$H' = 0.635$$

## Evenness

$K$  = number of categories (species)

$$J' = \frac{H'}{H_{\max}}$$

$$H_{\max} = \log K = \log 7 = 0.845$$

$$J' = \frac{H'}{H_{\max}} = \frac{0.635}{0.845} = 0.752$$

$$J' = 0.752$$