

TUESDAY APRIL 11TH

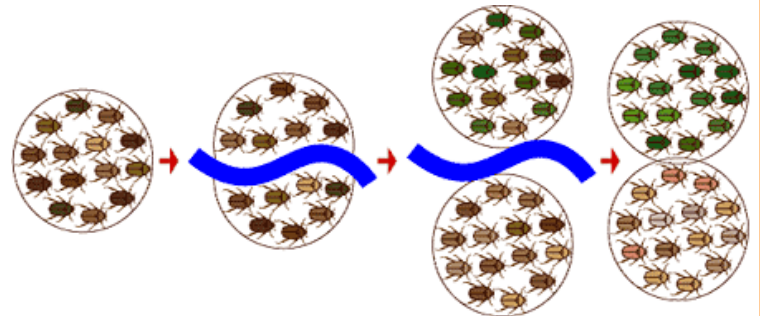
QUIZ 6.2 TODAY!

REVIEW FROM YESTERDAY IS DUE TOMORROW!

STARTER:

OBSERVE THE DIAGRAM TO THE RIGHT.

DESCRIBE WHAT YOU THINK IS HAPPENING
IN THIS DIAGRAM. WHAT DOES IT MEAN?



6.3 MECHANISMS OF EVOLUTION

SURVIVAL OF THE FITTEST

WHAT DOES THIS MEAN TO YOU?



6.3 MECHANISMS OF EVOLUTION

SURVIVAL OF THE FITTEST

FITNESS:



6.3 MECHANISMS OF EVOLUTION

SURVIVAL OF THE FITTEST

FITNESS:

- ABILITY OF AN INDIVIDUAL TO SURVIVE AND REPRODUCE IN ITS ENVIRONMENT
 - * THE MOST FIT WILL SURVIVE TO REPRODUCE



6.3 MECHANISMS OF EVOLUTION

SURVIVAL OF THE FITTEST

LOW FITNESS = LOW SURVIVAL RATE → LOW REPRO RATE

HIGH FITNESS = HIGH SURVIVAL RATE → HIGH REPRO RATE

MOST FIT = MOST SURVIVAL → SURVIVAL OF THE FITTEST

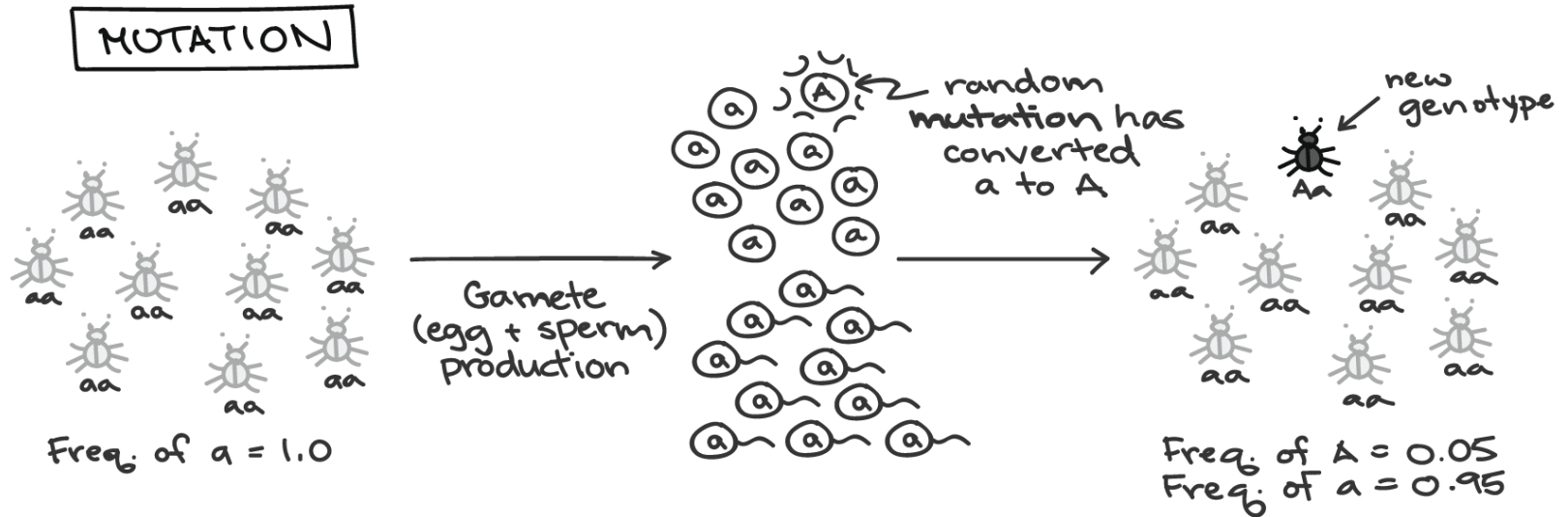
6.3 MECHANISMS OF EVOLUTION

FOUR MECHANISMS OF EVOLUTION:

1. MUTATION
2. MIGRATION/ISOLATION
3. NATURAL SELECTION
4. SEXUAL SELECTION

6.3 MECHANISMS OF EVOLUTION

MUTATION



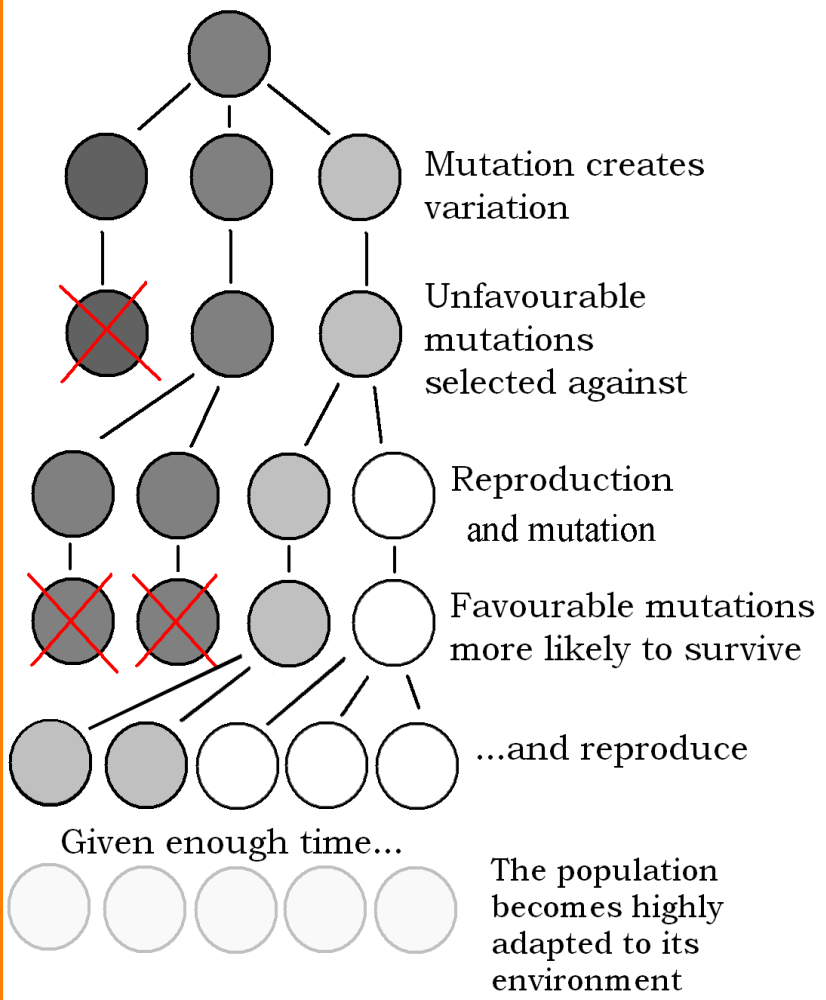
6.3 MECHANISMS OF EVOLUTION

MUTATION

- RANDOM OR ENVIRONMENTALLY CAUSED MUTATIONS CREATE VARIATION IN OFFSPRING
- MUTATION MAY GIVE COMPETITIVE EDGE FOR SURVIVAL



6.3 MECHANISMS OF EVOLUTION



WEDNESDAY APRIL 12TH

QUIZ 6.3 NEXT TUESDAY!

END OF YEAR REVIEW #1 IS DUE *RIGHT NOW!*

STARTER:

HOW DOES "SURVIVAL OF THE FITTEST" APPLY TO THE ORGANISMS IN THIS VIDEO?

HOW COULD THE SNAKES BECOME "MORE FIT"?

HOW COULD THE IGUANAS BECOME "MORE FIT"?



WEDNESDAY APRIL 12TH

QUIZ 6.3 NEXT TUESDAY!

END OF YEAR REVIEW #1 IS DUE *RIGHT NOW!*

STARTER:

THIS IS A HOGNOSE SNAKE. THEY ARE VENOMOUS BUT HAVE VERY SMALL FANGS AND CANNOT BITE TO PROTECT THEMSELVES. INSTEAD, THEY PLAY DEAD TO PROTECT THEMSELVES. HOW IS THIS AN EXAMPLE OF "SURVIVAL OF THE FITTEST"?



6.3 MECHANISMS OF EVOLUTION

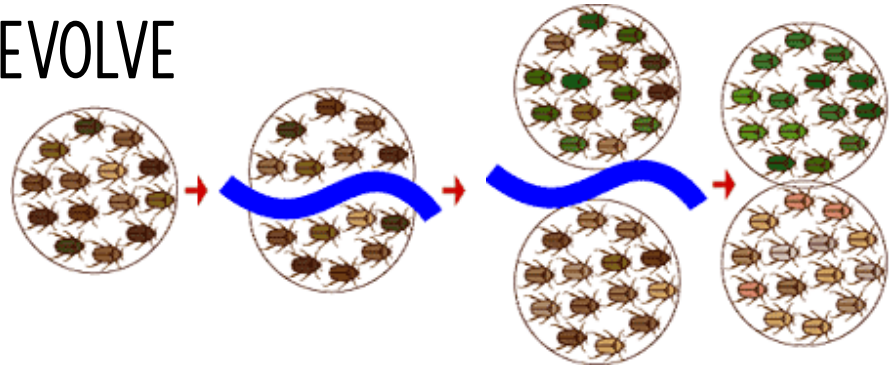
STANDARD OBJECTIVES:

- LIST AND DESCRIBE THE FOUR MAJOR MECHANISMS OF BIOLOGICAL EVOLUTION
- FOR EACH, PROVIDE AN EXAMPLE
- IDENTIFY AND DESCRIBE THE THREE TYPES OF NATURAL SELECTION

6.3 MECHANISMS OF EVOLUTION

MIGRATION/ISOLATION

- POPULATION OF SAME SPECIES BECOME SEPARATED DUE TO MIGRATION OR ISOLATION
- TWO SEPARATE POPULATIONS EVOLVE SEPARATELY & DIFFERENTLY



6.3 MECHANISMS OF EVOLUTION

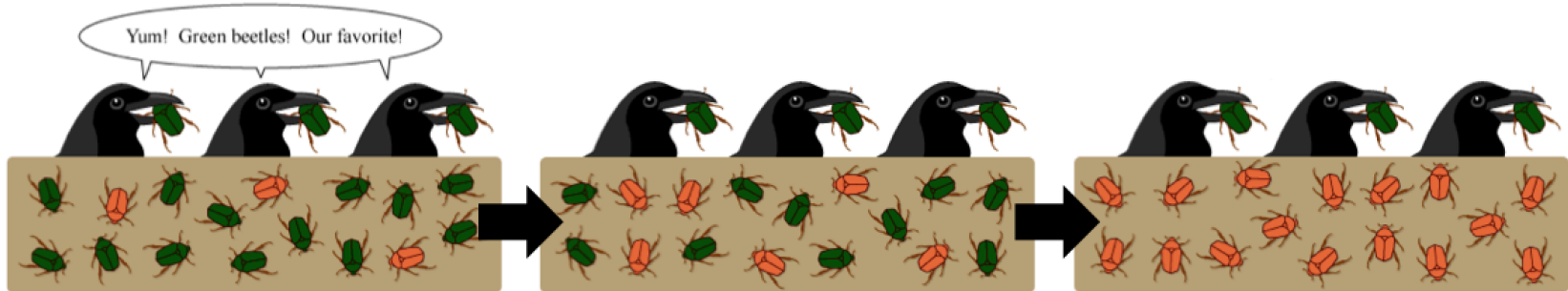


Figure 18-3 A Brief Guide to Biology, 1/e
© 2007 Pearson Prentice Hall, Inc.

6.3 MECHANISMS OF EVOLUTION

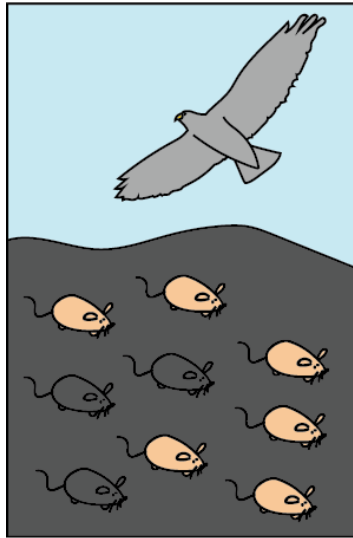
NATURAL SELECTION

- "SELECTION" OF MOST FIT ADAPTATIONS BY ENVIRONMENT
- SELECT AGAINST LESS FIT TO DIE
- SELECT FOR MOST FIT TO SURVIVE & REPRODUCE



6.3 MECHANISMS OF EVOLUTION

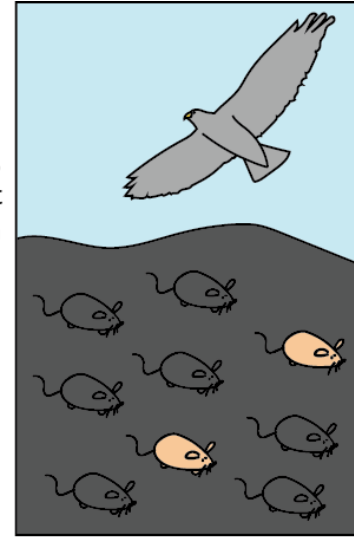
NATURAL SELECTION



Some mice are eaten by birds

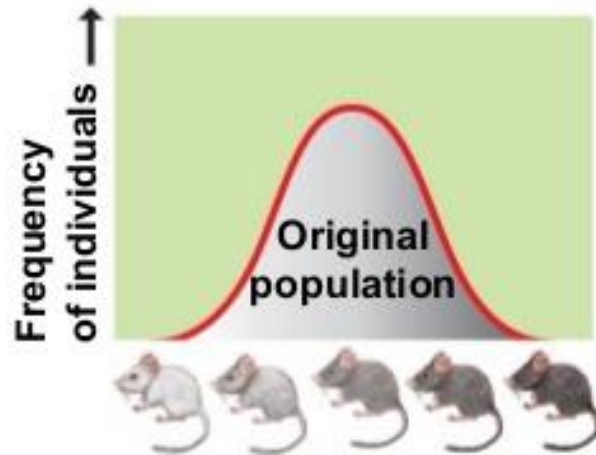


Mice reproduce, giving next generation



6.3 MECHANISMS OF EVOLUTION

THREE TYPES OF NATURAL SELECTION

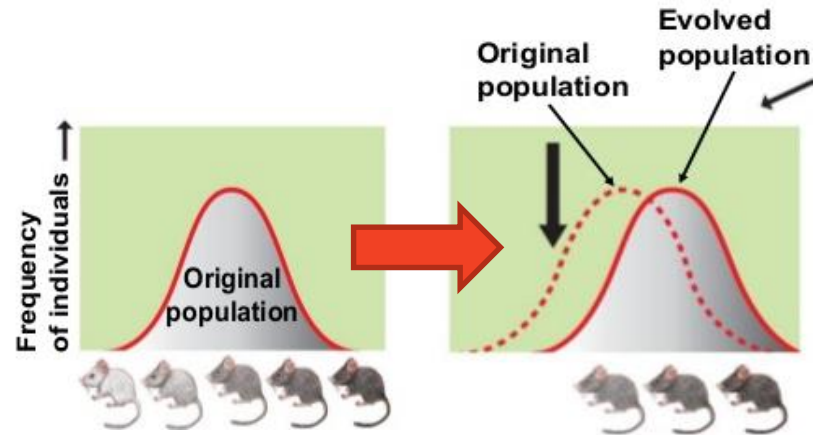


6.3 MECHANISMS OF EVOLUTION

THREE TYPES OF NATURAL SELECTION

DIRECTIONAL SELECTION:

- SELECTION OF ONE "EXTREME" OF ALL POSSIBLE ALLELES

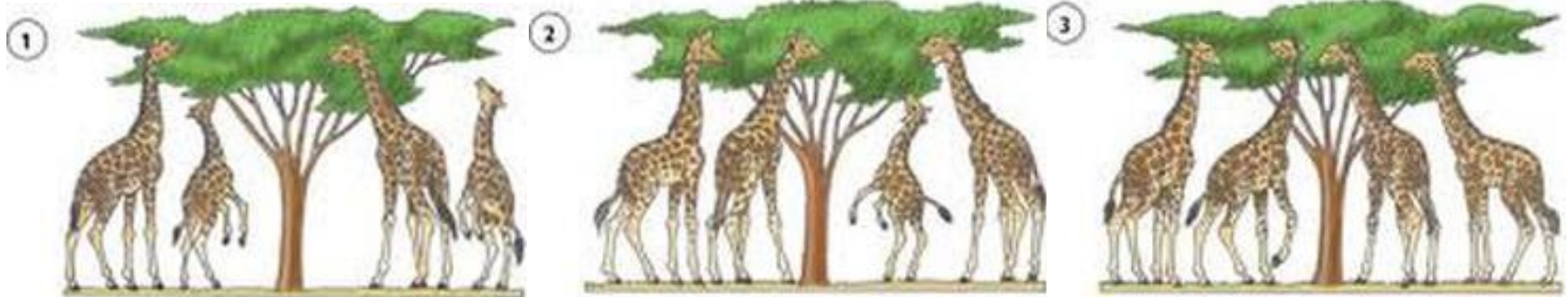


6.3 MECHANISMS OF EVOLUTION

THREE TYPES OF NATURAL SELECTION

DIRECTIONAL SELECTION:

- EXAMPLE: GIRAFFES

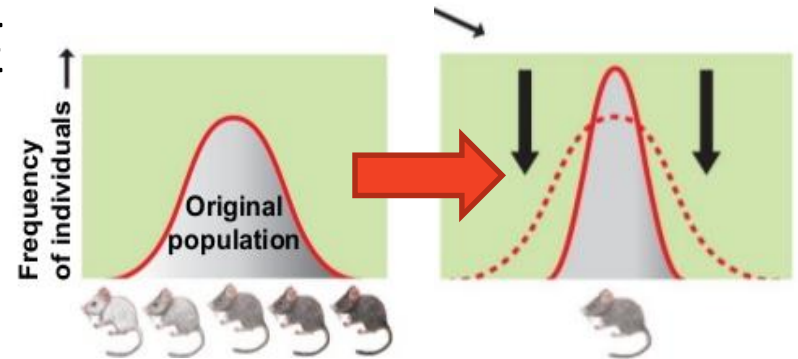


6.3 MECHANISMS OF EVOLUTION

THREE TYPES OF NATURAL SELECTION

DISRUPTIVE SELECTION:

- SELECTION OF TWO "EXTREME" ALLELES,
SELECT AGAINST MODERATE ALLELE



6.3 MECHANISMS OF EVOLUTION

THREE TYPES OF NATURAL SELECTION

DISRUPTIVE SELECTION:

- EXAMPLE: HUMMINGBIRDS

LONG BEAKS TO DRINK
NECTAR FROM DEEP
FLOWERS



SHORT BEAKS TO
DRINK NECTAR FROM
SHALLOW FLOWERS

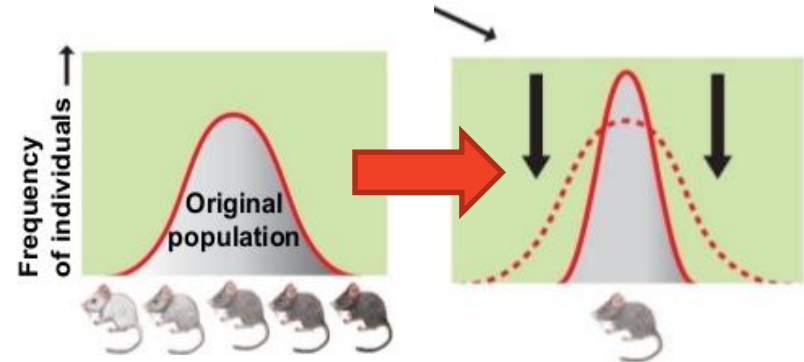


6.3 MECHANISMS OF EVOLUTION

THREE TYPES OF NATURAL SELECTION

STABILIZING SELECTION:

- SELECTION OF TWO MODERATE ALLELE,
SELECT AGAINST "EXTREMES"



6.3 MECHANISMS OF EVOLUTION

THREE TYPES OF NATURAL SELECTION

STABILIZING SELECTION:

- EXAMPLE: ROBINS' EGGS & BIRTHWEIGHT



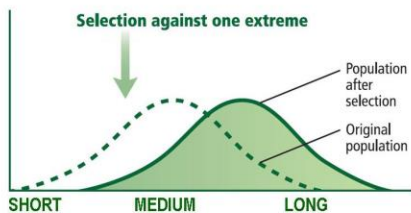
- ROBINS TEND TO LAY 4 EGGS
- MORE IS TOO MANY CHICKS
- LESS MAY NOT LEAD TO ENOUGH HEALTHY OFFSPRING

Human babies with average birth weight tend to be healthier than their extreme counterparts - an example of '**Stabilizing Selection**'.

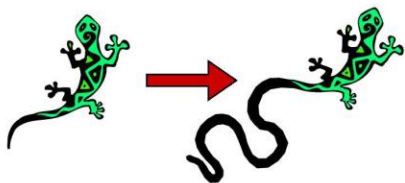


HOW does the trait change?

Directional Selection

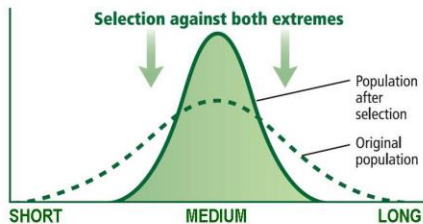


FOR: one extreme trait
AGAINST: the other extreme

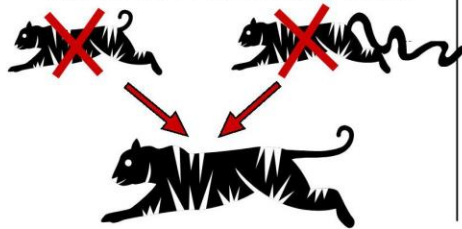


EX. Long wiggly tails look like a snake and scare predators. The longer the tail, the more it looks like a snake.

Stabilizing Selection

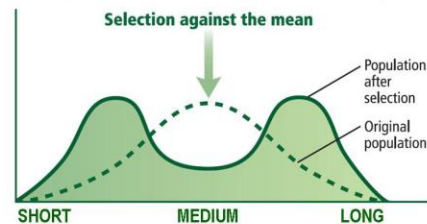


FOR: moderate traits
AGAINST: both extremes

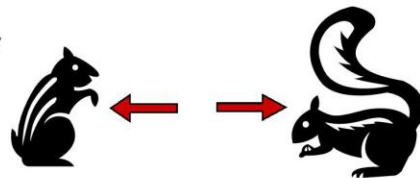


EX. Short tails mess up the cat's balance. Long tails drag on the ground. Medium tails are best.

Disruptive Selection



FOR: both extremes
AGAINST: moderate traits



EX. Short tails help keep predators from catching you on the ground. Long tails are good for balance in the trees. Medium tails don't help.

6.3 MECHANISMS OF EVOLUTION

SEXUAL SELECTION...IMPRESSING THE LADIES



6.3 MECHANISMS OF EVOLUTION

SEXUAL SELECTION

- FEMALE ORGANISMS' ABILITY TO CHOOSE WHICH COMPETING MALE TO REPRODUCE WITH
- CAN BE POWERFUL ENOUGH TO RESULT IN FEATURES THAT ARE HARMFUL TO SURVIVAL



6.3 MECHANISMS OF EVOLUTION

SEXUAL SELECTION

- EXAMPLE: EXTINCT IRISH ELK
SEXUAL SELECTION FOR LARGER
ANTLERS LED TO SURVIVAL CHALLENGE.
STRUGGLED TO FORAGE FOR FOOD IN
FORESTS, STRUGGLED TO CONSUME
ENOUGH CALCIUM TO MAKE ANTLER SIZE.

