

Bases de la ecología de aves acuáticas

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Manejo de humedales para técnicos en México II
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CHARACTERISTICS OF WATERFOWL

WATERFOWL

- ADAPTED TO WETLAND ENVIRONMENTS WORLDWIDE
- LARGE BODY SIZE
- MIGRATORY
- HIGHLY MOBILE
- GREGARIOUS
- PRECOICIAL YOUNG

ADAPTED TO WETLANDS

- **USE MANY DIFFERENT WETLANDS TO MEET ANNUAL CYCLE REQUIREMENTS**
- **USE WETLANDS ACROSS A LARGE SCALE**

Wetland Ecological Niches and Waterfowl

- Our globe has a high degree of variability in which the same condition is unlikely to occur in the same way ever again.
- Wetlands have a wide diversity of niches because of climatic, geomorphic, hydrologic, topographic, and elevational, settings
- These niches shape the morphology, behavior, and bioenergetics of waterfowl and thus their wonderful diversity

**WATERFOWL BREED
OVER A WIDE AREA**

**WATERFOWL WINTER ON A
RELATIVELY SMALL AREA**

WATERFOWL DISTRIBUTION

TUNDRA 15 SPECIES BREED

BOREAL FOREST 25 SPECIES BREED

PRAIRIE POTHOLE 12 SPECIES BREED

HARDWOOD FORESTS

4 SPECIES BREED

COASTAL MARSHES

3 SPECIES BREED

WINTER



PRAIRIE POTHOLES





GREGARIOUS

- FORM LARGE FLOCKS DURING THE NONBREEDING SEASON
- ENABLES USE OF SITES WITH CONCENTRATIONS OF FOOD OR OTHER CONDITIONS TO MEET LIFE HISTORY NEEDS

LARGE BODY SIZE

- THERMOREGULATE EFFECTIVELY UNDER HARSH CONDITIONS
- CARRY LARGE ENDOGENOUS RESERVES
- LAY LARGE EGGS

MIGRATORY

- **EXPLOIT SEASONAL ENVIRONMENTS EFFECTIVELY**
- **DIFFERENT SPECIES ADAPTED TO AND MOVE TO DIFFERENT WETLAND HABITATS**

HIGHLY MOBILE

- MOVE LONG DISTANCES QUICKLY
- READILY MOVE TO FIND OR TO AVOID UNSATISFACTORY CONDITIONS
- SHIFT SITES OF USE DEPENDING UPON LIFE HISTORY NEEDS

PRECOCIAL

- **MOBILE AT HATCH**
- **FEATHERED AND CAN THERMOREGULATE AT HATCH**
- **CAN FORAGE AT HATCH**
- **LARGE YOLK SAC**

PRECOCIAL YOUNG

**CAN MOVE LONG DISTANCES AT
HATCH**

**CAN DIVE FOR FOOD OR ESCAPE
PREDATORS AT HATCH**

**LARGE YOLK SAC PROVIDES THE
ENERGY**

MAJOR ENERGETIC EVENTS DUCKS

SPRING MIGRATION

BREEDING

MOLT

FALL MIGRATION

MOLT

MAJOR ENERGETIC EVENTS GEESE

SPRING MIGRATION

BREEDING

MOLT

FALL MIGRATION

FALL STAGING AND MOLT

FALL MIGRATION AND MOLT

FEMALE

PAIR FORMATION

AND

OFFSPRING

MOLT

SURVIVE

RESERVE DEPOSITION

FEMALE

SPRING MIGRATION

SURVIVES

EGG LAYING

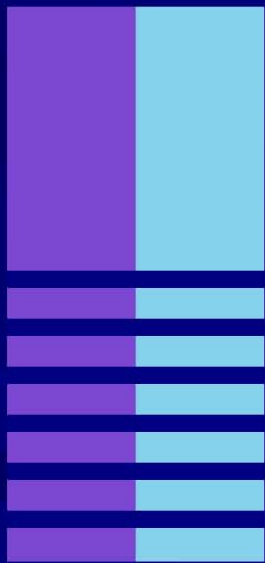
INCUBATION

SUCCESSFUL

UNSUCCESSFUL

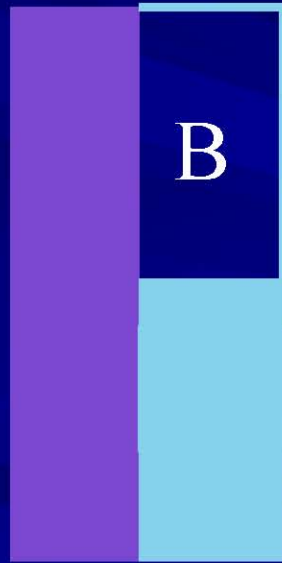
GENERAL BIOENERGETIC STRATEGIES

SNOW
GOOSE



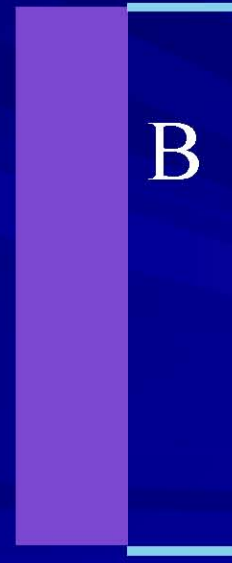
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MALLARD



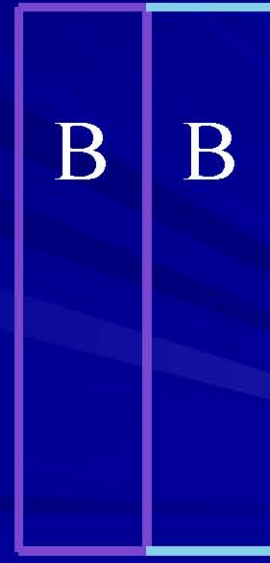
L P

WOOD
DUCK



L P

COMMON
EIDER



L P

WATERFOWL HABITAT STRATEGIES

BREEDING



TERRESTRIAL

FRESH

MORE CARNIVORIOUS

LAYING FEMALES AND YOUNG

MORE OMNIVORIOUS

SUBADULTS AND ADULTS

SALINE

WINTER



AQUATIC
AND
MARINE

WATERFOWL BIOENERGETICS

- **SPRING MIGRATION - ENERGY**
- **BREEDING – PROTEIN AND ENERGY**
- **PREALTERNATE MOLT – PROTEIN**
- **FALL MIGRATION – ENERGY**
- **PREBASIC MIGRATION - PROTEIN**

ANIMAL PROTEIN SOURCES

■ SMALL COLD BLOODED VERTEBRATES

–FISH

–SALAMANDERS

■ INVERTEBRATES

PLANT PROTEIN SOURCES

■ NATIVE PLANTS

- LEAVES/STEMS OF ANNUALS OR PERENNIALS
- ROOTS/TUBERS OF PERENNIALS

■ FORAGE CROPS

- EARLY GROWTH SEASONALLY
- NEWLY PLANTED

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PLANT ENERGY SOURCES

■ SEEDS

- NATIVE WOODY PLANTS
 - SOFT MAST
 - HARD MAST
- NATIVE ANNUAL PLANTS
- ROWCROPS

■ TUBERS

- NATIVE PERENNIAL PLANTS
- SOME COMMERCIAL CROPS

ANIMAL ENERGY SOURCES

■ INVERTEBRATE

– FORMS WITH HIGH LIPID
CONTENT

– LARGE GRAVID FEMALES