

WLF 419 - Waterfowl and Wetlands Ecology and Management
Lecture 3 - Courtship and Timing of Pair Formation
Next Time - Nutritional Ecology

Brief History

Lorenz, Delacour, Mayr

Displays as taxonomic characteristics

Further refined by Johnsgard

Anatidae - at a time, one of the best studied family of birds

Displays - postures, movements, and vocalizations that appear to function as social signals

Fixed Action Patterns (FAPs)

Lorenz

Mallard grunt-whistle

? stereotype/reflexlike

? invariant

Mostly Avoided Now - action patterns or behavior patterns

Motivational Conflicts

Displacement Behavior

Evolutionary Origins of Displays

Displays as Taxonomic Characters

Lorenz - homologous displays

Isolating Mechanisms

Mayr

Prevent Interbreeding

Johnsgard - displays important for pair formation more divergent than displays used for pair maintenance

Island vs. Mainland Species

Displays as Social Signals

Social vs. non-social signals

? Situational

? Characteristics

? Orientation

? Effects

Selfish Signalers

Courtship

Activities associated with development, testing, and maintenance of pairs or liasons

What is a pair

mates in close proximity

duration of the association

cooperation between mates

preferentially direct certain behaviors towards one another

aggressive towards conspecifics

Pairing Process

Effects of early experiences (imprinting)

Pair formation (e.g., geese)

? Interest (mate searching)

? Attracting attention (herding)

? Fostering relationship (mock attacks and triumph displays)

? Countering rivals (mutual and prolonged triumph displays)

Mate Choice

? Familiarity

? Early experience

? Morphological features

? Age

? Male dominance rank

? Courtship motivation and abilities

? Competence in copulation

Courtship Displays

Anseranatidae

Provisioning Young

Trios - polygamous relationships

Dendrocygninae

Distinct whistling call performed even in flight

Courtship behaviors are poorly described

Anserinae

Triumph Display

Head-dipping

Anatini

Displays for walking, swimming, and flying

grunt-whistle

down-up

head-up-tail-up

Inciting Female

threats to others males

nod-swimming to mate

Mutual - pumping

Post-cop - bathing and bridling

Aythini

kinked-neck call

neck-stretch

head-throw

sneak

Inciting Female

threats to other male

neck stretch to mate

Mergini

Diverse male vocalizations

eider cooing

long-tailed bugling

scoter whistling

goldeneye buzzing

wing noises (e.g., whistlers)

head-throw-kick

head-throw

masthead

Oxyurini

Sound production

bubbling

? threat to competing males and

? courtship display

ring-rush

Timing of Pair Formation

Some pairs reform late in the summer

Extreme intra- and inter-specific variation, but generally earlier than other birds (Overhead of Table 3-3)

Various hypotheses

Weller

early nesting - early pairing

Dabblers earlier than divers

“Diet-quality hypothesis”

Male/male competition

Energetics

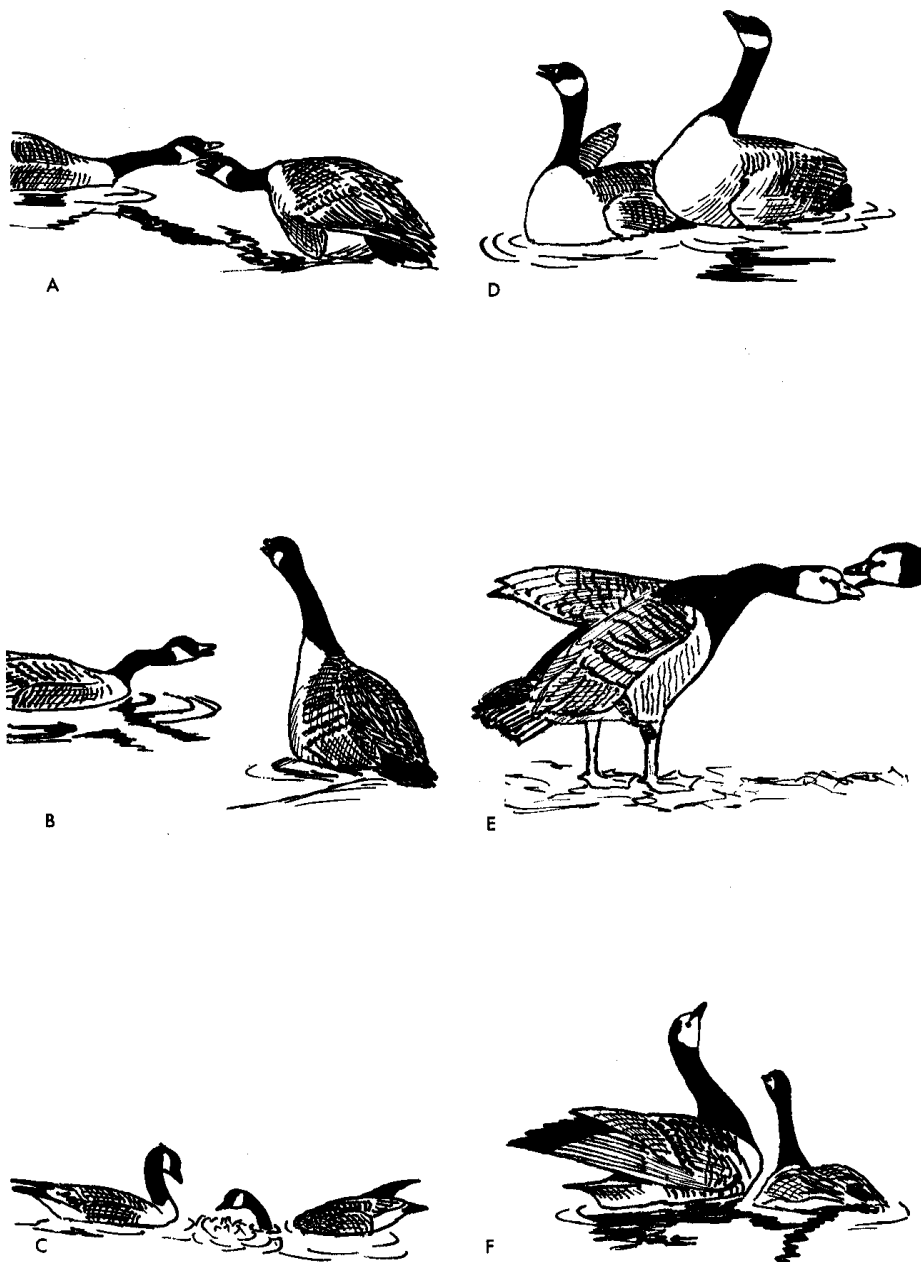


Figure 16. Canada Goose, Barnacle Goose

A, B. Canada goose Triumph Ceremony. Note neck-waving and calling by both birds.

C. Precopulatory Head-dipping by Canada geese (*male on left*).

D. Postcopulatory display by Canada geese (*male on right*).

E. Barnacle goose Triumph Ceremony, with alternate Wing-flicking.

F. Barnacle goose postcopulatory display (*male on left*).

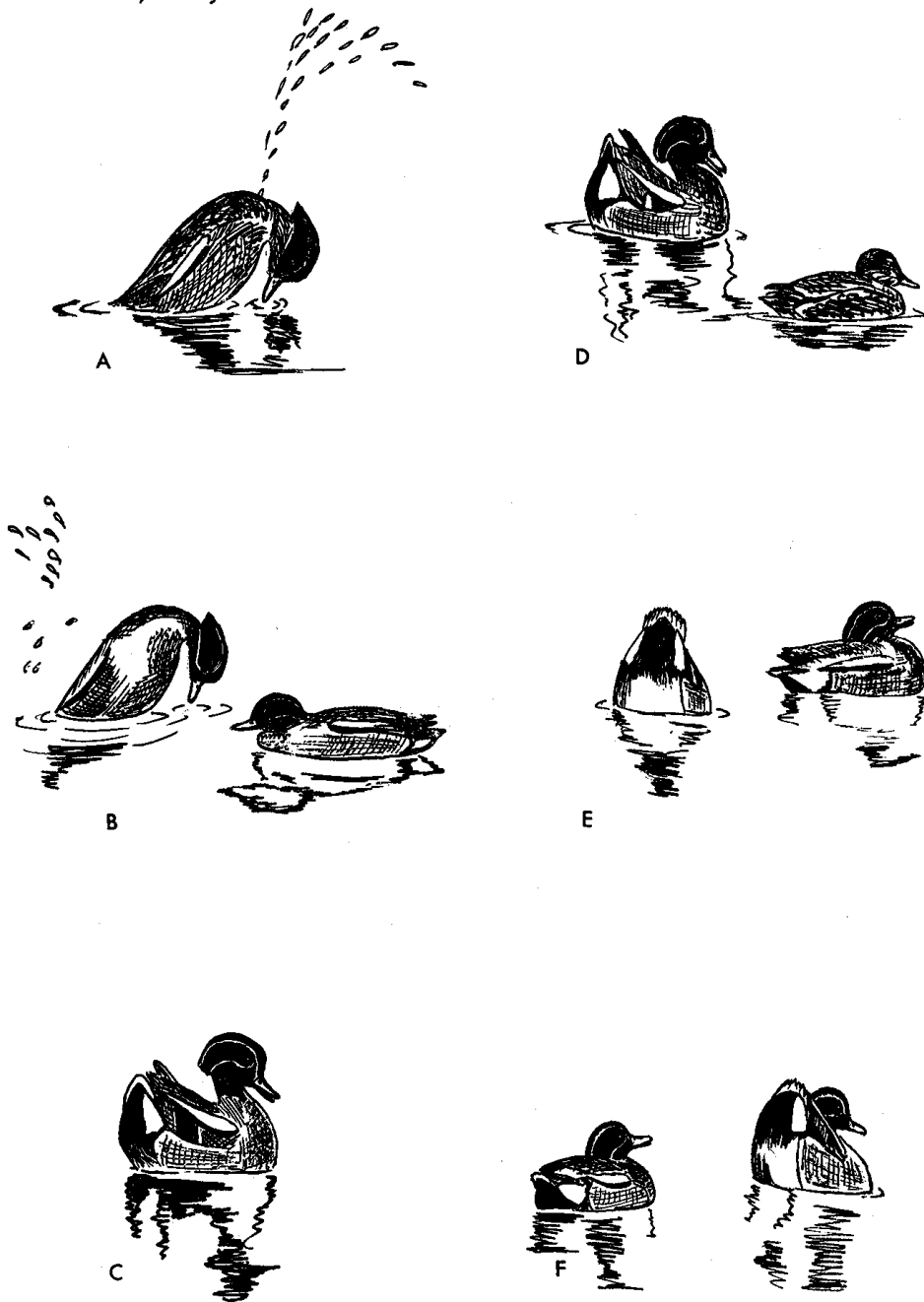


Figure 42. Common Teal

A, B. Grunt-whistle. Note arc of water droplets thrown up by bill.

C, D. Head-up-tail-up. Note how under-tail coverts are exhibited during display.

E, F. Down-up. The male on the left is just completing a Down-up in E, while the male on the right begins a Down-up in F.

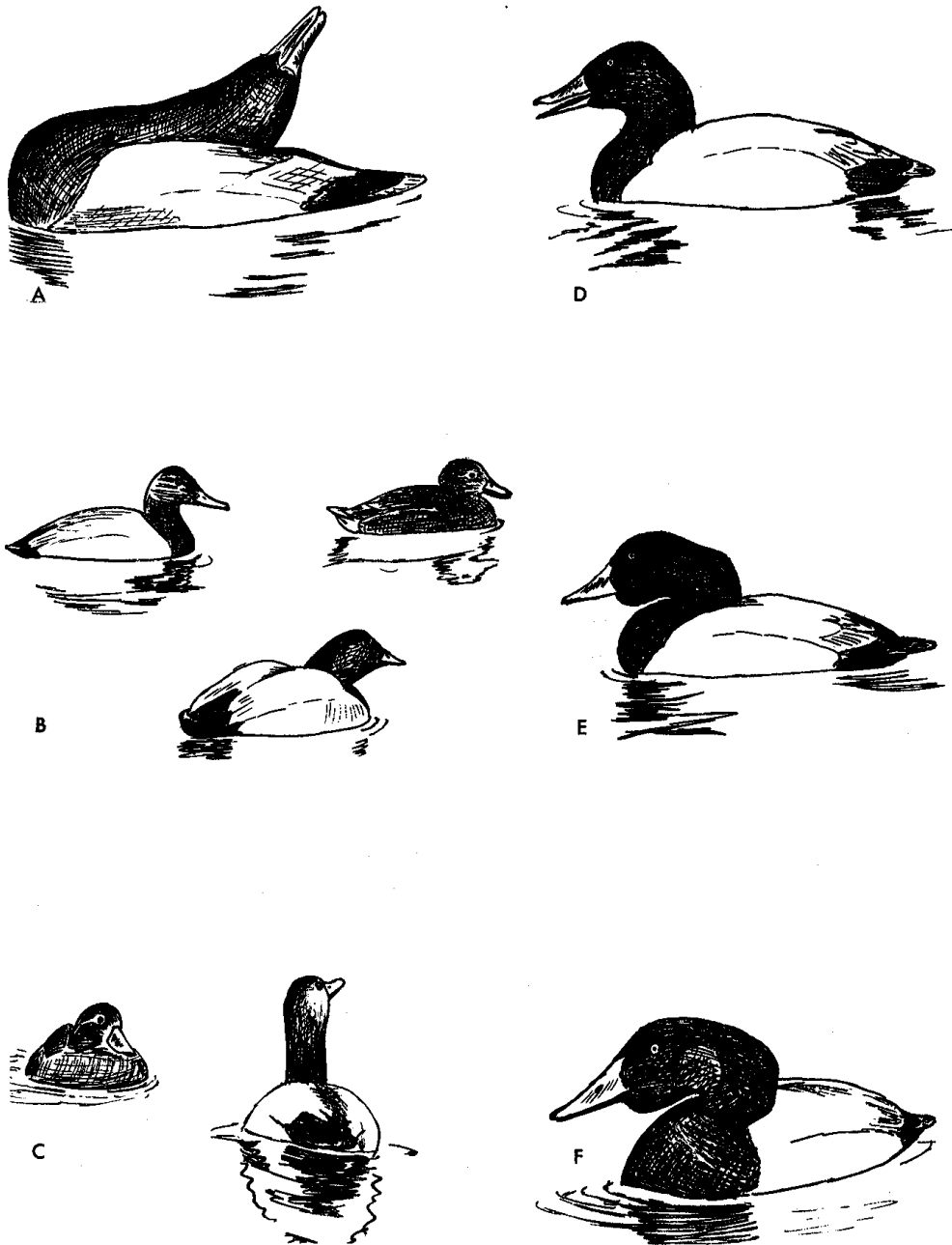


Figure 62. Canvasback

- A. Head-throw by male canvasback.
- B. Sneak posture performed by male canvasback (*foreground*) to female redhead (*right background*).
- C. Neck-stretching by male canvasback to female redhead.
- D, E. Two phases of the Kinked-neck call in male canvasback. Note bulge in throat, probably produced by lowering the tongue.
- F. Close view of the Kinked-neck call.

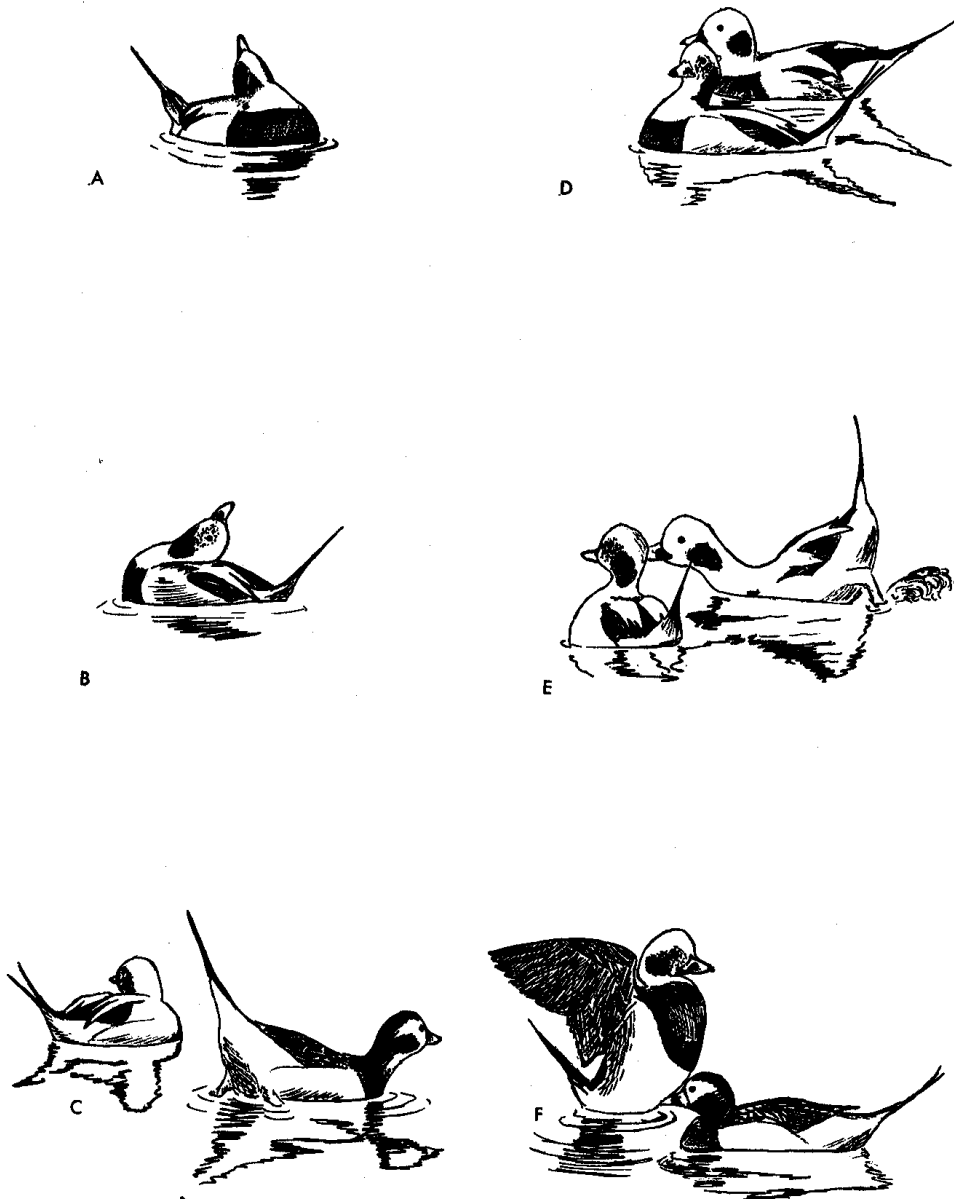


Figure 77. Long-tailed Duck

- A, B. Two views of Bill-toss by male long-tailed duck while uttering the Ah-har-lik call.
- C. Turning-the-back-of-the-head by one male (*left*) as the other performs the Rear-end display.
- D. Turning-the-back-of-the-head by one male to another (apparently a homosexual pair), combined with Neck-stretching.
- E. Rear-end display by male just assuming winter plumage. Note white cheeks.
- F. Wing-flapping (possibly a display) by male in full winter plumage. The male on the right is just molting out of its summer plumage.

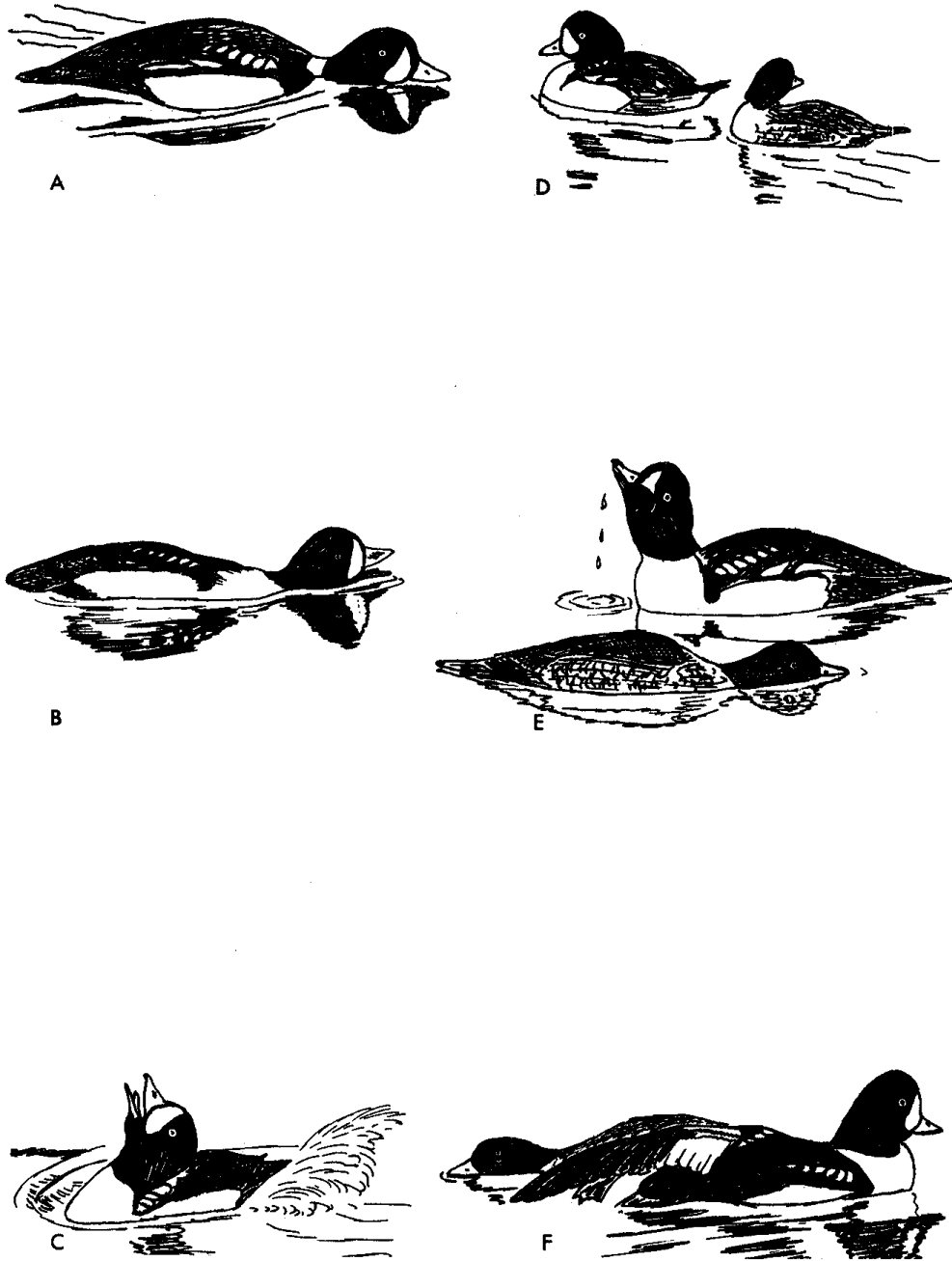


Figure 81. Barrow's Goldeneye

- A. Male Barrow's goldeneye in Laying-the-neck-on-the-water aggressive posture.
- B. Crouched posture of male Barrow's goldeneye. Compare with A.
- C. Head-throw-kick display of male Barrow's goldeneye.
- D. Inciting by female Barrow's goldeneye and lateral Head-turning by male.
- E. Female Prone, male performing display Drinking.
- F. Precopulatory Wing-and-leg-stretching by male Barrow's goldeneye.

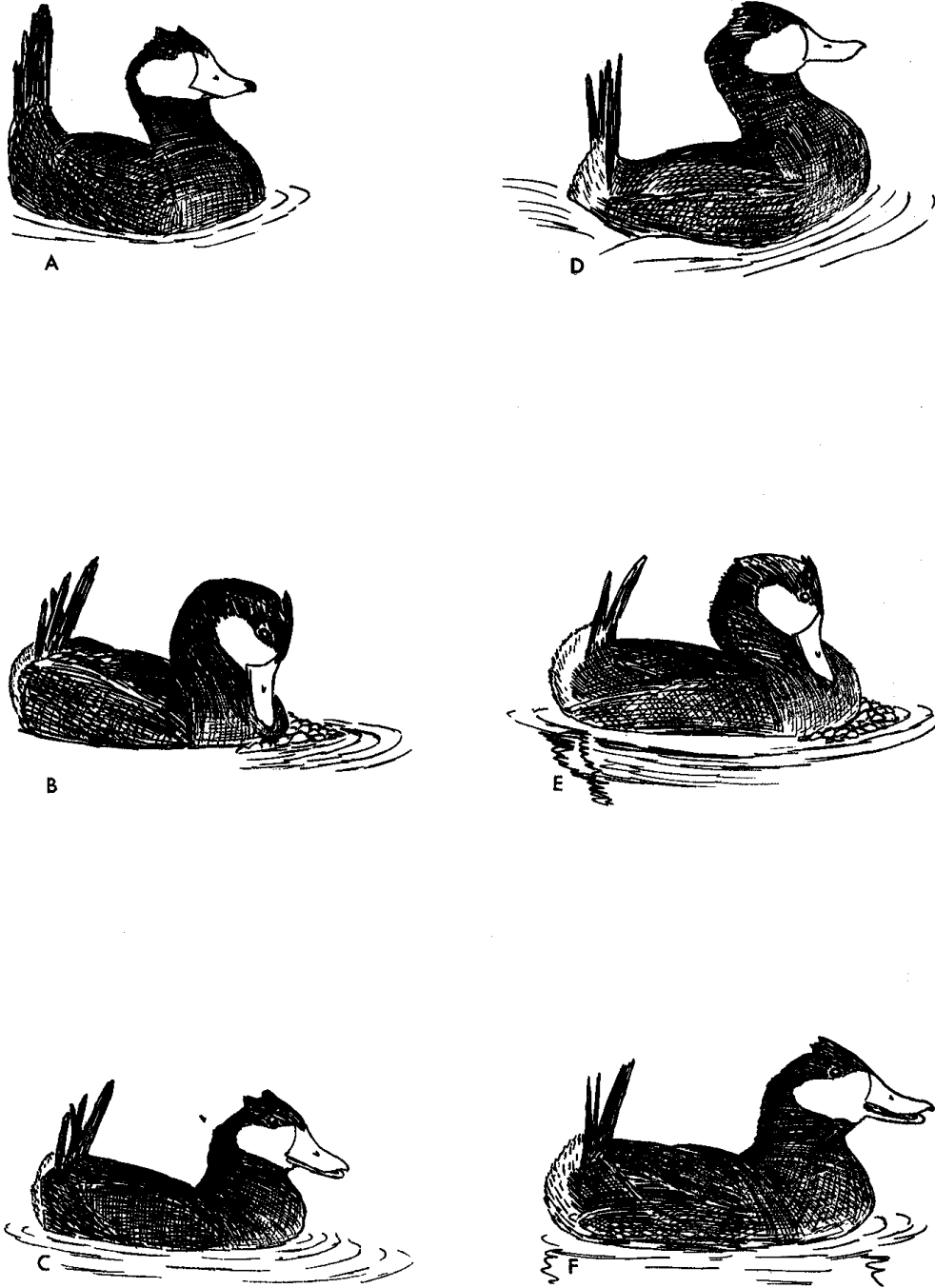


Figure 95. North American Ruddy Duck

A-C. Stages in the Bubbling display.

A. Starting posture.

B. Bill-drumming on breast. Note bubbles produced.

C. Termination of display by calling.

D-F. Same as A-C.

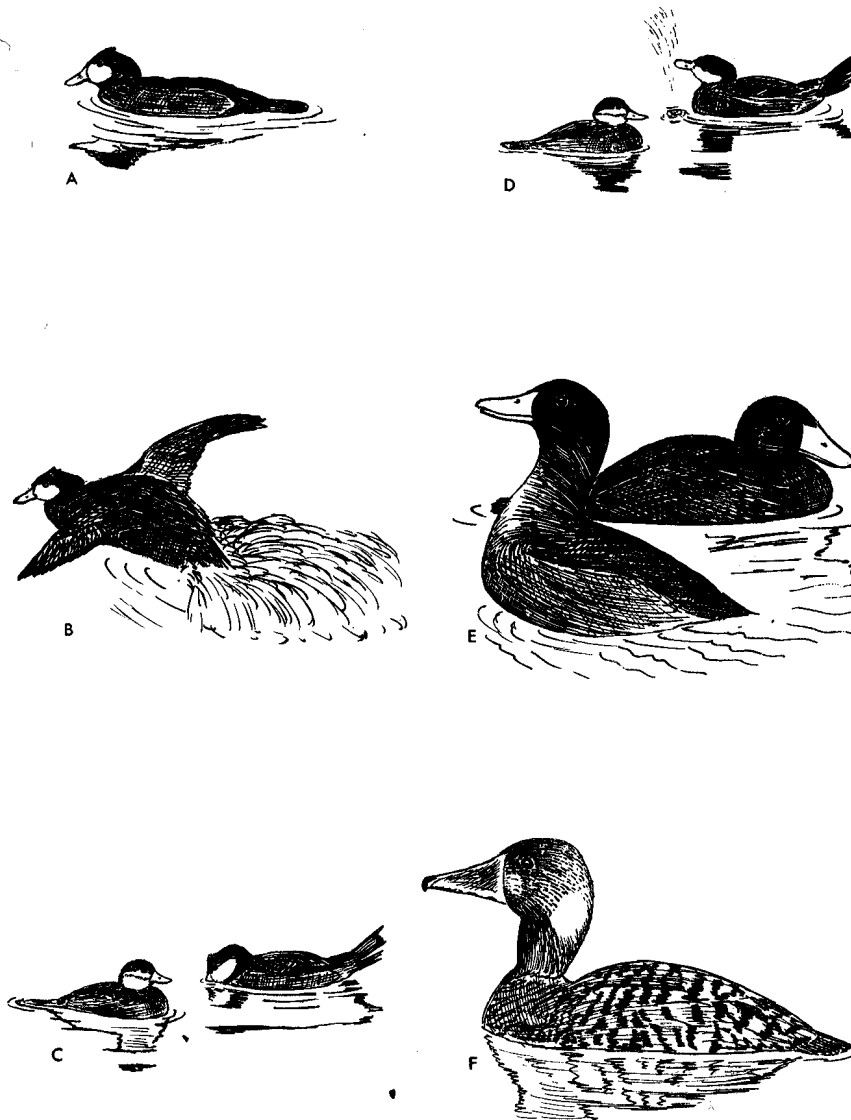


Figure 96. North American Ruddy Duck, Argentine Ruddy Duck, White-backed Duck

- A, B. Ringing Rush by male ruddy duck.
- C. Precopulatory Bill-dipping, which alternates with D.
- D. Precopulatory Bill-flicking.
- E. Male Argentine ruddy duck performing Head-jerking (*male behind in normal swimming posture*).
- F. White-backed duck, swimming posture.

Literature Cited

Johnsgard, P. A. 1965. Handbook of waterfowl behavior. Cornell Univ. Press, Ithaca, N.Y. 378pp.