32. Behavioral Ecology: Territoriality and Communication *(Chapter 56)*

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I. Territorial Behavior *(1349-1349)*

A. Function and Evolution of Territoriality

-Shape

-Area is proportional to benefit

-Perimeter is proportional to the cost of defense

1. Pressures from population ecology

2. Environmental characteristics

### B. Behavioral Components

1. Identification of "territory"

2. Repulsion of intruders

3. Self‑advertisement

-Make itself obvious to others know territory it taken

4. Ritualization of combat

C. Territory Configuration and the Economics of Defense

II. Territoriality in Red‑Winged Blackbirds

-Polygamous

-More territory/more vegetation 🡪 more females/offspring

-Song spread display (image below)

-Females are inconspicuously colored for camouflage

A. Natural History of Red‑Winged Blackbirds

B. Descriptive Analysis of Territorial Behavior

1. Territory establishment in early spring

2. Arrival of females

3. Courtship

4. Female territories

C. Experimental Analysis of Territorial Behavior

1. Components of displays

2. Questions suited to experimental investigation

3. Experimental methods and results

-Some birds were muted having a visual display but no vocal display

-Come birds had a vocal display but were painted all black (no visual)

-Results: if alter before mating activity, all lost territories

-Muted males had more trespassers but they could repulse them

-Painted males had few trespassing but could not repulse them

-Conclusions: display is more important before mating than after

-Vocal part of the display is the first line of defense (long distance signal)

-Visual part of the display is a second line of defense (short distance signal)

III. Animal Communication *(1349-1352)*

A. Functions

B. Vocal Communication

1. Occurrence and importance

2. Advantages and disadvantages

C. Visual Communication

1. Occurrence and importance

2. Advantages and disadvantages

D. Chemical Communication

1. Pheromones

-most common

-glands secrete volatile chemicals

-good in dark, around barriers, potent, inexpensive to produce

-last through time

-slow because chemicals must diffuse through air

2. Occurrence and importance

3. Diversity within each species

4. Advantages and disadvantages

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