



# Introduction to Birds

**Southwest Natural History  
Bio 109**



# Introduction to Birding

- ✦ What makes a good guide book
  - ✦ Pictures
    - ✦ Points out diagnostic field marks
  - ✦ Range Map on the same page
  - ✦ Description on the same page
  - ✦ Description of voice / calls
  - ✦ Easy indexing

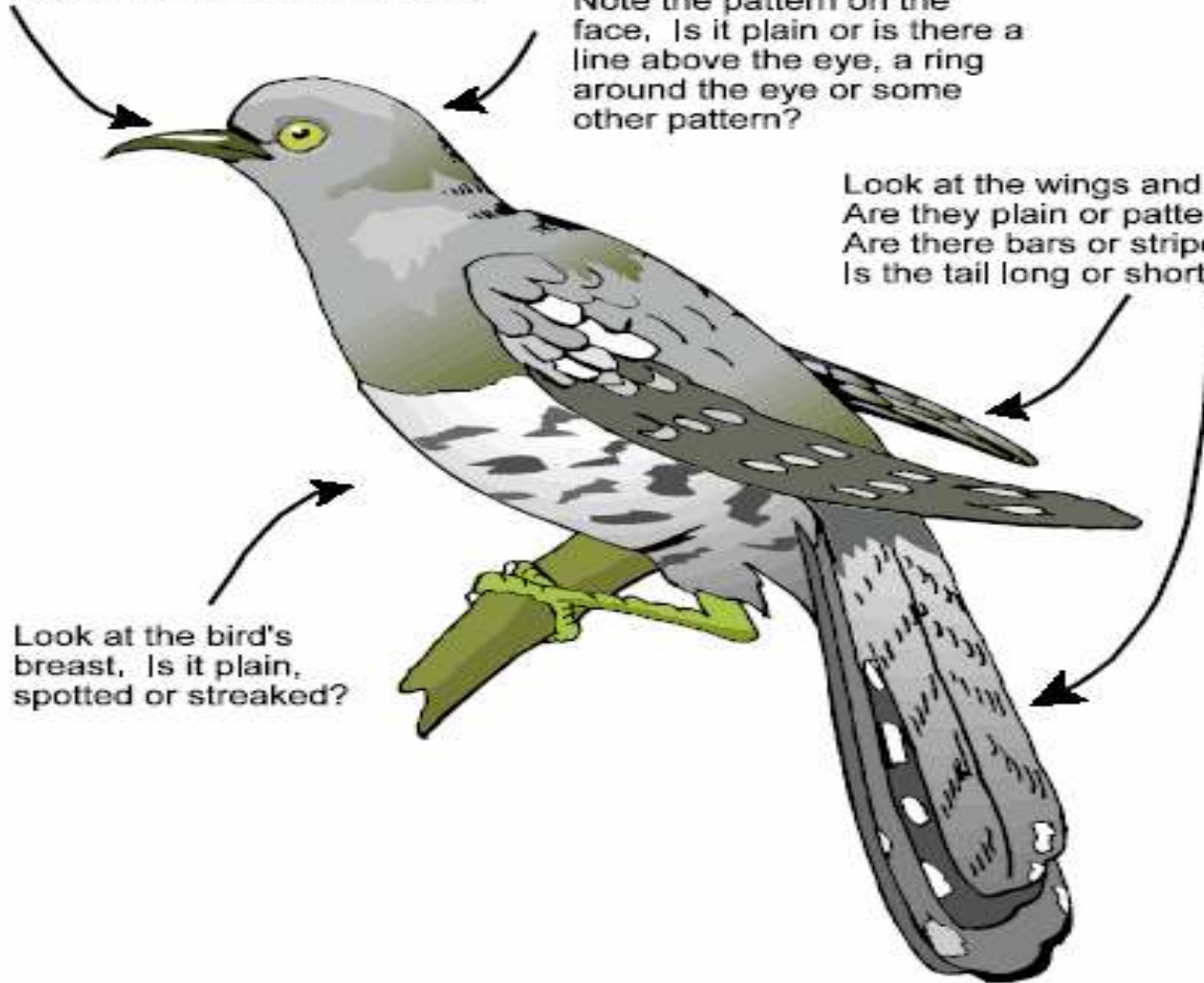
# Introduction to Birding

Bill size and shape is usually a very good clue to the bird's family and should be the first thing you note on every bird,

Note the pattern on the face. Is it plain or is there a line above the eye, a ring around the eye or some other pattern?

Look at the wings and tail. Are they plain or patterned? Are there bars or stripes? Is the tail long or short?

Look at the bird's breast. Is it plain, spotted or streaked?



# Introduction to Birding



✦ AOU Order



✦ American Ornithologists' Union

✦ Water birds

✦ Raptors

✦ Land birds



✦ Warblers

✦ Sparrows



# Introduction to Birding



## ✦ Range Maps

✦ Summer Range

✦ Winter Range

✦ Migration

✦ Scarcity

✦ Species are often found out of range







✦ Flip through your bird book and investigate.

✦ Become familiar with local species

✦ Learn how to use the guide

✦ Range maps

✦ In the back or next to the bird species

✦ “At a glance”





✦ Three colors within range maps

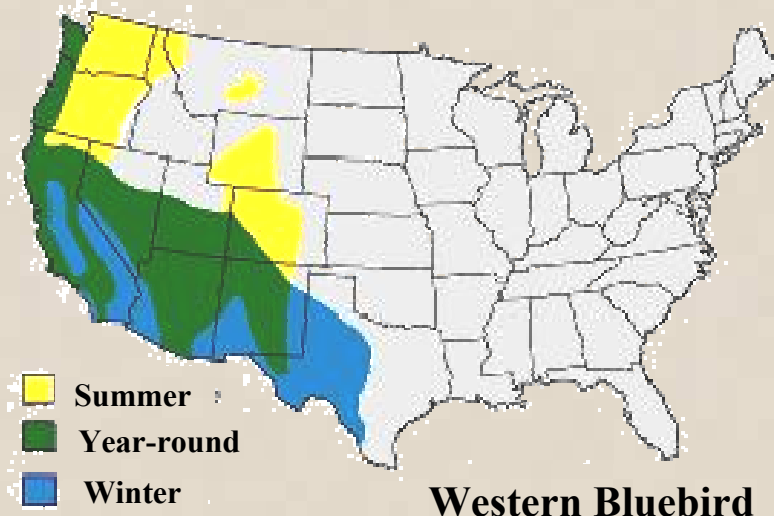
✦ Summer or breeding = YELLOW

✦ Wintering = BLUE

✦ Year round = GREEN

✦ Check the color-coding when birding to validate if the bird is local at the time of birding.

✦ Example: western bluebirds are found in AZ year round but in most of TX only in the winter.

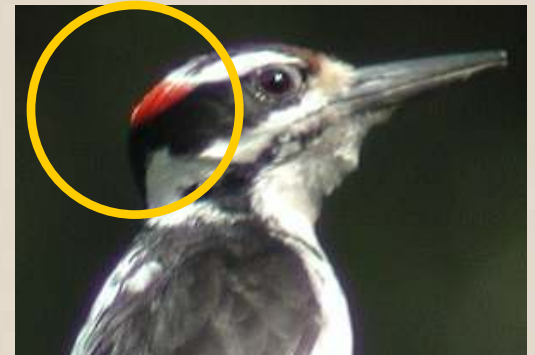


# FEATHER TOPOLOGY

- ✦ Special regions
  - ✦ Pointed to in pictures or noted in the description

- ✦ Example: the red nape of the hairy woodpecker distinguishes it from the three-toed woodpecker whose nape is yellow.

- ✦ But what is the nape, or the speculum?







# Regions of feathers on the bird's body

A.k.a field marks

Eye line

Crown

Lore

Moustache

Breast

Crest

Eye ring

Cheek

Rump

Flank

Wingbar

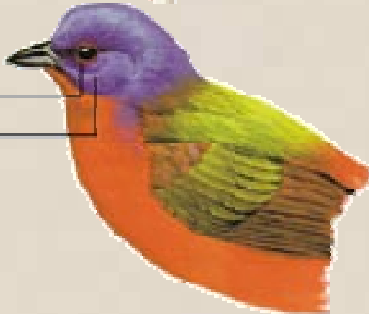
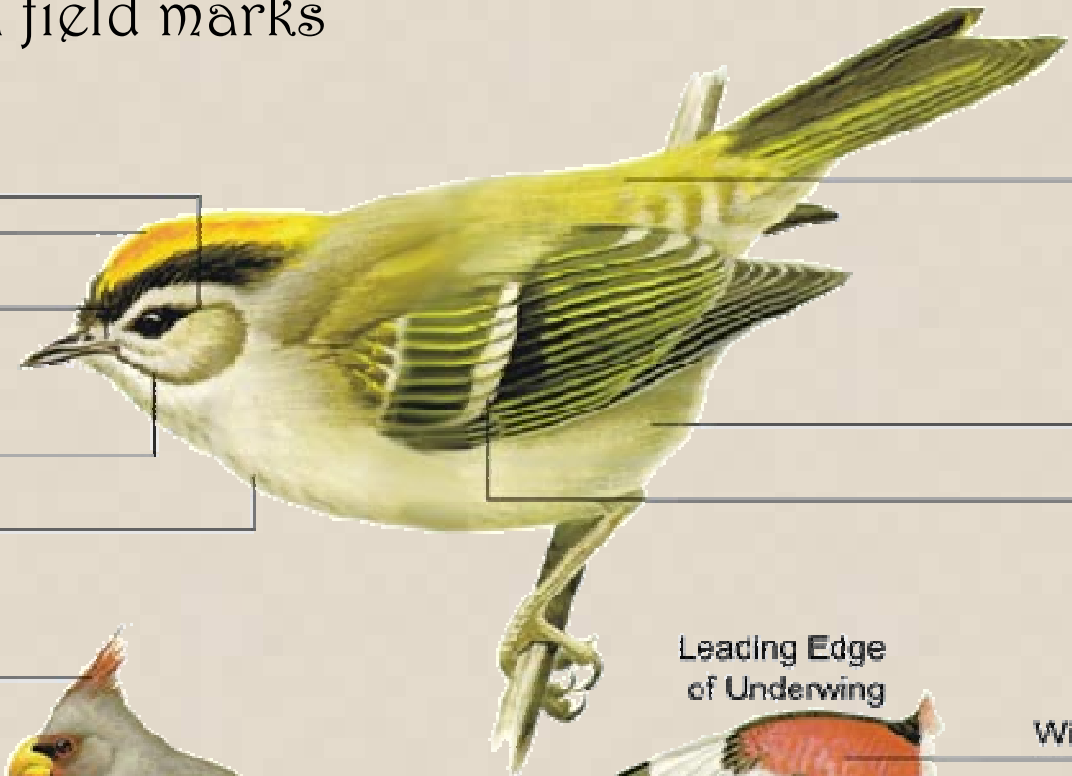
Leading Edge of Underwing

Wing Lining

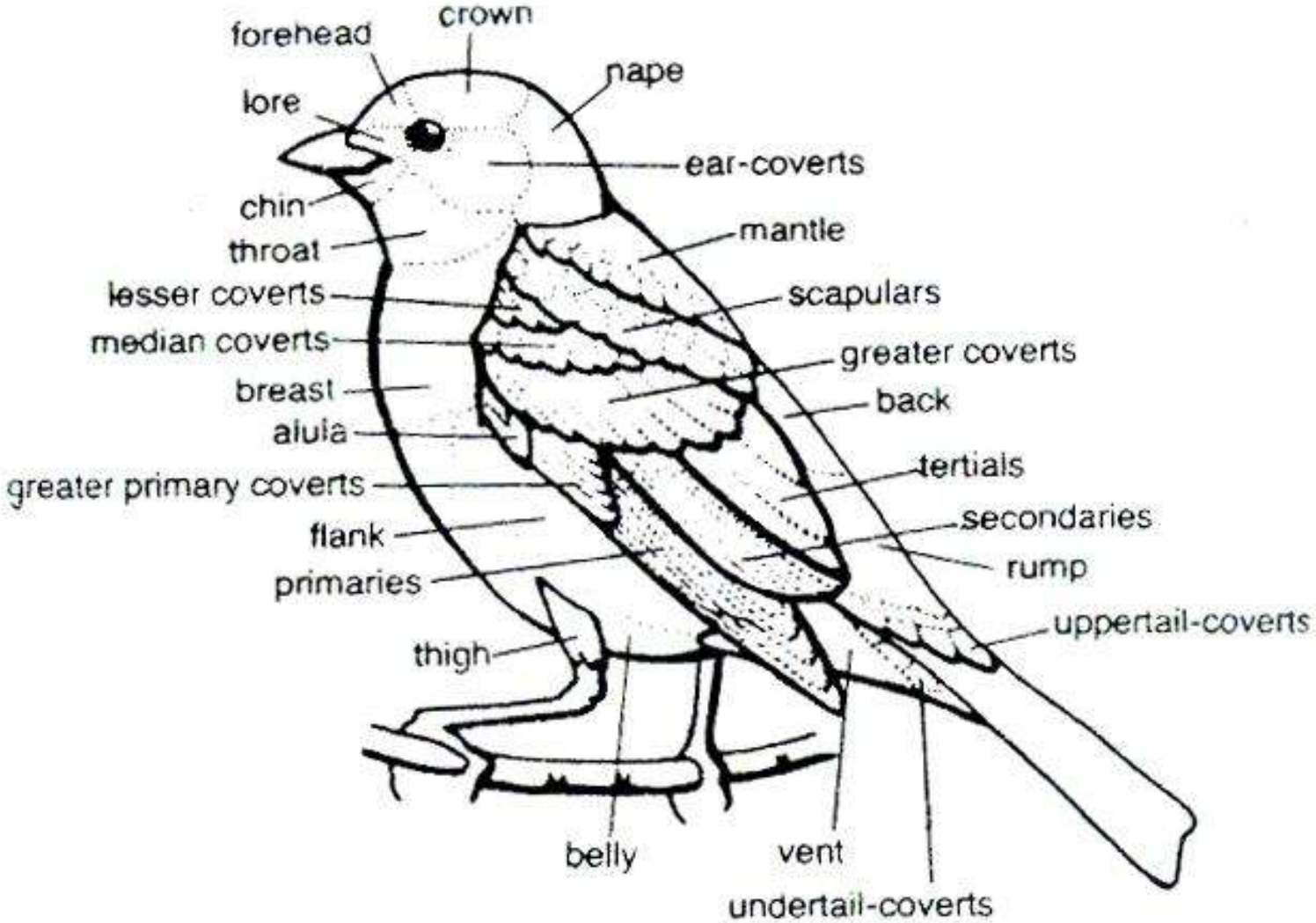
Primaries  
Secondaries

Scapulars  
Speculum

Trailing Edge of Underwing

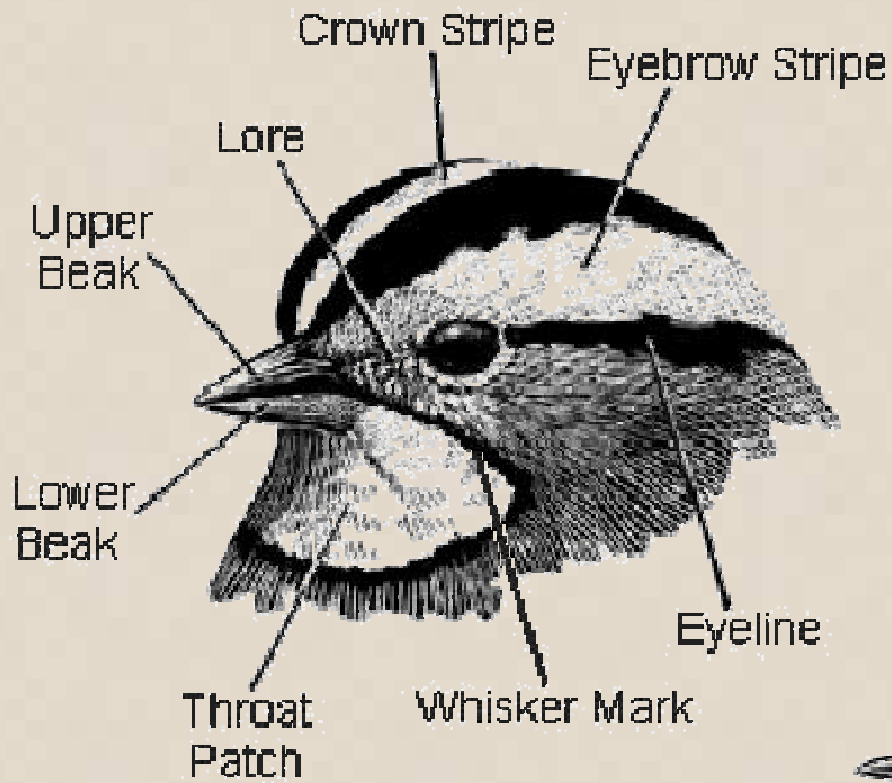


# Introduction to Birding



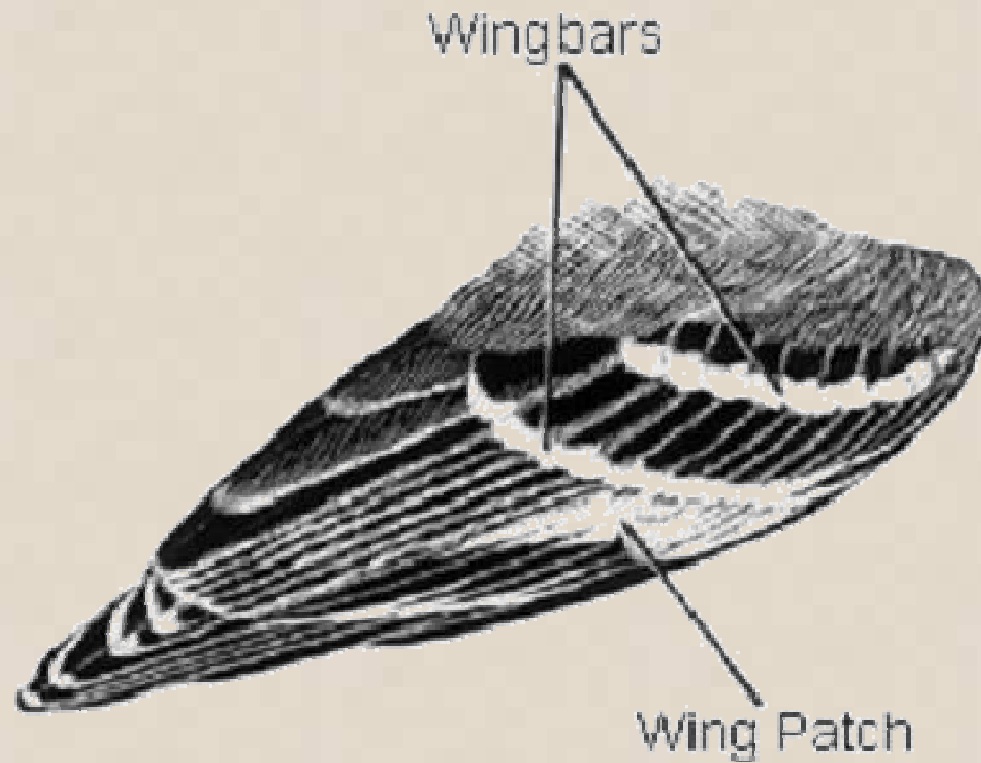


✈ Pay particular attention to the field marks of the head





✈ Pay particular attention to the field marks of the wing





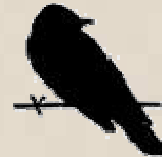


## ✦ Why understand groups?

- ✦ Reduces the possibilities from over 800 species to just 22
- ✦ Field guides divided by groups reflect similar characteristics

## ✦ In your guide, each bird is described with some of the following characteristics

- ✦ Body shape
- ✦ Bill
- ✦ Color palette
- ✦ Wing markings
- ✦ Behavior



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# Characteristics

✦ Groups of birds are distinguished by their shared characteristic

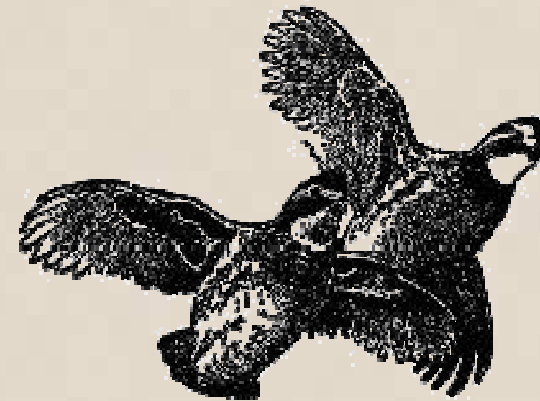
✦ All woodpeckers have chisel shaped bills

✦ All finch have forked tails

✦ Some characteristics are associated

✦ Example: short, stout, and plump birds often have round wings

✦ Quail





# BODY

- ✦ Overall body shape
  - ✦ general level
- ✦ Give it an associated shape
  - ✦ Round
  - ✦ Oval
  - ✦ Stick-like
- ✦ Ask questions
  - ✦ Is the bird long and skinny like a kingbird
  - ✦ stocky like a woodpecker
  - ✦ or plump like a quail?
- ✦ Some birds have a distinct shape
  - ✦ identifiable by silhouette
  - ✦ HANDOUT ~ common silhouettes



# POSTURE

✦ Give the shape a position

✦ Vertical

✦ Horizontal

✦ At an angle

✦ Example: an American robin

✦ Takes several steps

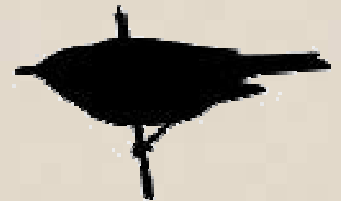
✦ Then stands alert

✦ Upright stance

✦ Breast forward.



Walt Disney Animation Studios



Walt Disney Animation Studios







# SIZE

✦ Field guides will tell you the actual size

✦ Size is good but size is tricky!

✦ Size comparisons are most useful

✦ Use the sizes of well-known birds

✦ House Sparrow

✦ American Robin

✦ American Crow

✦ Remember a bird far away is probably a lot smaller than you think!



House Sparrow



Downy Woodpecker



American Robin



American Crow



Pileated Woodpecker

# COLOR

- ✦ Most of the species in a group can be identified by their overall color
- ✦ NOT necessarily true for all birds in each category
  - ✦ Do not use as the only characteristic to identify!
- ✦ Be careful of lighting affects such as backlight
- ✦ At the least... color can help you get to the right group in your field guide.



Same species!  
Eastern bluebird



# Blue

✈ Jays



# Yellow

✈ Warblers, Orioles







# Black

## ✦ Corvids and Blackbirds



# Brown

## ✦ Sparrows





# WINGS

✦ Describe the shape

✦ Wide

✦ Round

✦ Slotted feathers at the tips

✦ Soaring wing

✦ High-speed wing

✦ Pointed

✦ Crooked

✦ Narrow

✦ Elliptical wing

✦ Circular

✦ Stout





# BILL

✦ Evolved different shaped bills depending on the food they eat

✦ Seed eaters

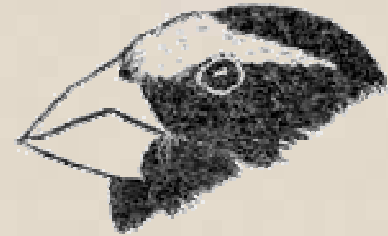
✦ thick bills

✦ crack open hard seeds

✦ Insect eaters

✦ Slender bills

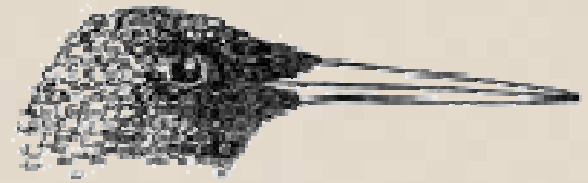
✦ Remove bugs leaf surfaces





## ✦ Nectar Feeders

- ✦ tubular bills
- ✦ sip nectar from flowers



## ✦ Predatory feeders

- ✦ Sharp, hooked bills
- ✦ Tearing flesh



## ✦ Bark Excavators

- ✦ Strong, long, and chisel-like bill
- ✦ Remove prey from within bark





# TAIL

- ✦ Distinguishes species within groups
- ✦ Tails
  - ✦ Provide lift
  - ✦ Balance for flight
  - ✦ Used as a rudder
    - ✦ Turning
    - ✦ Brake for landing







## ✦ Long

- ✦ Longer than the body of the bird
- ✦ Provide good steering or mate attraction



## ✦ Short

- ✦ Approximately the length of
- ✦ or shorter than the trunk
- ✦ Other flight parts are more relied on



## ✦ Round

- ✦ Tail feathers shorten successively from the inside to the outside, in slight gradations
- ✦ Aid in soaring





## ✦ Graduated

- ✦ Tail feathers shorten successively from the inside to the outside, in abrupt gradations.
- ✦ Used as a rudder and mate attraction



## ✦ Forked

- ✦ Tail feathers increase in length successively from the middle to the outermost pair, in abrupt gradations.



# BEHAVIOR

- ✦ Amazing behaviors!
- ✦ Are distinct to certain groups
- ✦ Examples:
  - ✦ Flycatchers pump their tails
  - ✦ Towhees eat seeds off the ground while warblers pick insects off of leaves
  - ✦ Woodpeckers climb up tree trunks while nuthatches climb down
- ✦ Remember too, behaviors will fit the morphology of the bird
  - ✦ Seed eaters on the ground should have fat stout bills for cracking those tough seeds



# Introduction to Birding



## Beaks



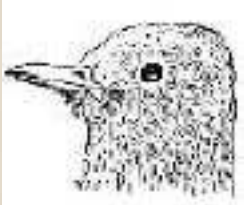
Chisel



Cracker



Funnel



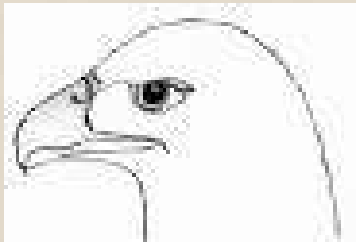
Twizzlers



Probe



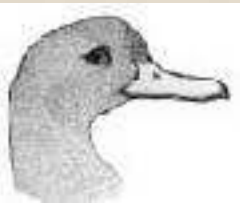
Tearing



Spear



Straining



Burrowing





# Introduction to Birding



## ✦ Field Marks



✦ Markings

✦ Color

✦ Shape



# Introduction to Birding

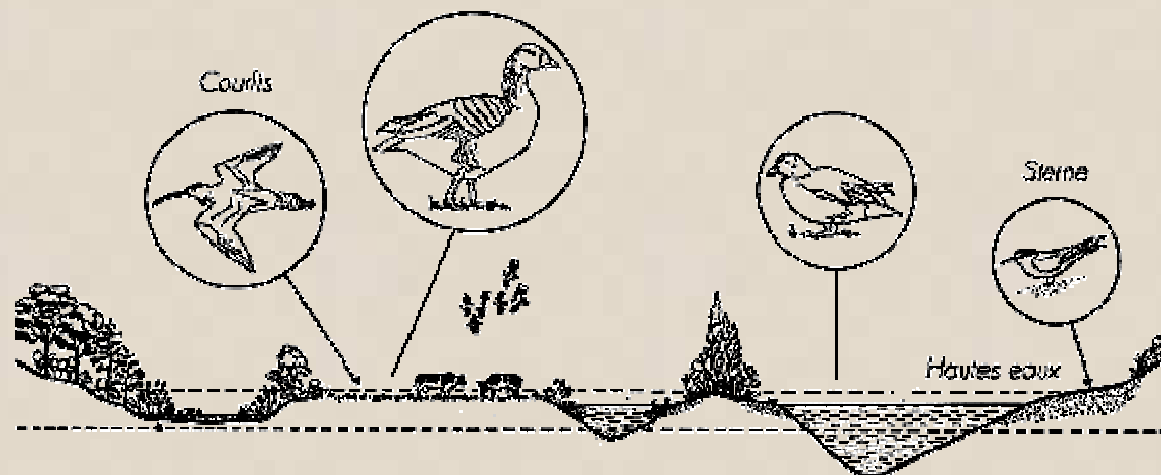


# Introduction to Birding



# Habitat

- ✦ Birds are associated with habitat types
  - ✦ preferred areas for different activities
    - ✦ breeding
    - ✦ foraging.
  - ✦ Example: hepatic tanagers are found in woodlands not mesquite scrub
- ✦ Field guides drawings may show selected habitat
  - ✦ specialists or obligates
  - ✦ Example: willow flycatchers are riparian obligates





# Micro-habitat feature

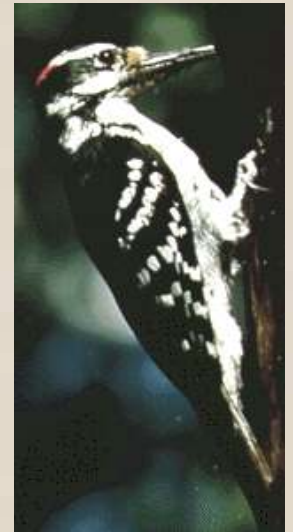
✦ Associations with particular habitat features

✦ Example: some birds forage on the ground while others focus on leaves or bark.

✦ Adapted to those environments

✦ Example, a woodpecker's chisel-like bill is adapted for excavating wood. Look on the tree trunks and branches.

✦ Example: a warbler's thin spear-like bill is adapted for picking bugs off of leaves. Look for them on leafy plants.



# Identifying birds by their characteristics

## ✦ Groups

✦ Based on similar characteristics

## ✦ Examples

✦ Hummingbirds

✦ Woodpeckers

✦ Sparrows

✦ Blackbirds



# Introduction to Birding

Swift / Hummingbird



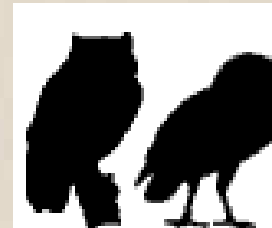
Woodpecker



Vulture



Owls



Falcon



# Introduction to Birding



## ✦ Bird Identification



✦ Markings

✦ Color

✦ Shape

✦ Behavior



✦ Flight Pattern





# Introduction to Birding



## ✦ Flight Pattern

✦ Wingbeat Speed

✦ Rhythm

✦ Continuous or Intermittent

✦ Flight Path

✦ Straight or Looping

✦ Flapping Style

✦ Wings Stiff or Bent

✦ Depth of Wingbeat

✦ Shallow

✦ Above or below the body



# Introduction to Birding



## ✦ Bird Identification



✦ Markings

✦ Color

✦ Shape

✦ Behavior



✦ Flight Pattern

✦ Habitat



# Introduction to Birding



## ✦ Possible Species (2004)

### ✦ In North America

✦ AOU Checklist: 2,038

✦ Includes Central America & Caribbean

✦ ABA Checklist: 932

✦ Includes only US (X HI) and Canada

### ✦ In US: 1,037

### ✦ In Arizona: 531 – 3<sup>rd</sup> Highest State

✦ Highest State: Texas 626

✦ California: 621

### ✦ In Maricopa County: 427



# Introduction to Birding



## ✦ Things to List

### ✦ Species

- ✦ Female / Male

- ✦ Plumage

  - ✦ Breeding or Standard

### ✦ Where you saw the bird

### ✦ Date of sighting

### ✦ Field Notes - Optional

- ✦ Weather Conditions

- ✦ Note habitat

- ✦ Note plants or trees

- ✦ Note number of individuals

- ✦ Number in your group





# Introduction to Birds

## Water Birds

Mallard



# Introduction to Birding



🦆 Cinnamon Teal



# Introduction to Birding



🦆 Ruddy  
Duck



# Introduction to Birding



✈ Canada  
a  
Goose





# Introduction to Birds

✈ Pied-  
billed  
Grebe



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# Introduction to Birding



© Cindy Marple

✦ Double-  
crested  
Cormor  
ant

✦ Neo-tropic



# Introduction to Birding



✈ Western  
n  
Grebe



# Introduction to Birding



© Cindy Marple

✦ Great  
Blue  
Heron







# Introduction to Birding



✈ Great  
Egret



# Introduction to Birding



✦ Cattle  
Egret



# Introduction to Birding



✈ Snowy  
Egret





# Introduction to Birding



✦ Black-crowned Night Heron



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# Introduction to Birding



🦋 Killdeer



# Introduction to Birding



✦ Black-necked Stilt



# Introduction to Birding



✦ Greater  
Yellowleg  
s



# Introduction to Birding Raptors & Owls



🦅 Bald  
Eagle





# Introduction to Birding



🦅 Osprey



# Introduction to Birding



© Cindy Marple

Red-tailed Hawk



# Introduction to Birding



✈ Harris  
Hawk



# Introduction to Birding



✈ Cooper's  
Hawk





# Introduction to Birding



✦ Zone-tailed Hawk



# Introduction to Birding



✦ American  
Kestrel





# Introduction to Birding



✦ Northern  
Harrier  
Hawk



# Introduction to Birding



✈ Great-horned Owl





# Introduction to Birding



🦉 Burrowing Owl





# Introduction to Birding



✈ Western  
Screech  
h-owl





# Introduction to Birding



- ✦ Whisker  
red  
Screech  
-Owl



# Introduction to Birding Hummingbirds



✦ Anna's  
Humming  
bird





# Introduction to Birding



✦ Broad-tailed Hummingbird



# Introduction to Birding



## ✈ Costa's Hummingbird



# Introduction to Birding



✦ Broad-billed Hummingbird



# Introduction to Birding



✦ Black-  
chinned  
Humming  
bird





# Introduction to Birding Woodpeckers



✦ Gila  
Woodpecker



# Introduction to Birding



✈ Gilded  
Flicker



# Introduction to Birding



✈ Northern  
Flicker



# Introduction to Birding



✈ Acorn  
Woodpecker





# Introduction to Birding



✦ Red-  
naped  
Sapsuc  
ker



# Introduction to Birding



✦ Hairy  
Woodpecker





# Introduction to Birding



✦ Ladder-  
backed  
Woodpecker





# Introduction to Birding Swallows & Swifts



✈ Northern  
Rough  
~  
winged  
Swallow  
🔊





# Introduction to Birding



✈ White-  
throated  
Swift





# Introduction to Birding



✈ Violet-  
green  
Swallow





# Introduction to Birding



✈ Cliff Swallow





# Introduction to Birding



🦋 Barn  
Swallow  
OW







# Introduction to Birding Flycatchers



✦ Vermillion  
n  
Flycatcher  
r



# Introduction to Birding



✦ Ash-  
throated  
Flycatcher



# Introduction to Birding



✦ Gray  
Flycatcher



# Introduction to Birding



✦ Western Kingbird





# Introduction to Birding



✦ Say's  
Phoebe



# Introduction to Birding



✈ Black  
Phoebe  
☞



# Introduction to Birding



✦ Black-tailed Gnatcatcher



# Introduction to Birding



Blue-gray Gnatcatcher







# Introduction to Birding Songbirds



✈ Rock  
Wren





# Introduction to Birding Songbirds



✦ Canyon  
Wren



# Introduction to Birding Songbirds



✦ Bewick's  
Wren



# Introduction to Birding



✈ Hermit  
Thrush





# Introduction to Birding



↳ Le  
Conte's  
Thrasher





# Introduction to Birding



✦ Loggerh  
ead  
Shrike





# Introduction to Birding

✈ Western  
Meadowlar  
k





# Introduction to Birding



✈ Eastern  
Meadowlark







# Introduction to Birding



■ Bridled  
Titmouse





# Introduction to Birding



✈ White-  
breasted  
Nuthatch





# Introduction to Birding



✦ Ruby-  
crown  
ed  
Kinglet





# Introduction to Birding



🦅 Bell's  
Virgo







# Introduction to Birding



Yellow  
~  
rumped  
d  
Warbler





# Introduction to Birding



✈ Orang  
e-  
crown  
ed  
Warbl  
e



# Introduction to Birding



✈ Lucy's  
Warbler





# Introduction to Birding



✈ Painte  
d  
Redst  
art







# Introduction to Birding

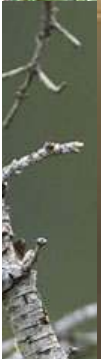
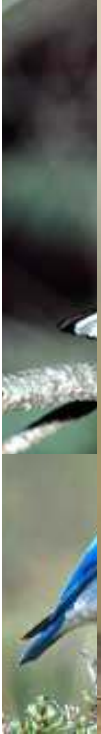


Yellow  
~  
breasted  
Chat



# Introduction to Birding Tanagers

✦ Western  
Tanager



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# Introduction to Birding



✈ Summer  
Tanager





# Introduction to Birding Sparrows



🐦 Song  
Sparrow





# Introduction to Birding



🐦 Lincoln's  
Sparrow



# Introduction to Birding



✈ Vesper  
Sparrow



# Introduction to Birding



✈ Black-  
chinn  
ed  
Sparr  
ow





# Introduction to Birding



✦ Brewe  
r's  
Sparr  
ow





# Introduction to Birding



✈ Cassin's  
Sparrow





# Introduction to Birding Songbirds



✈ Chipping  
Sparrow



# Introduction to Birding Songbirds



🐦 Lark  
Sparr  
ow





# Introduction to Birding Songbirds



✦ Five-  
striped  
Sparro  
w





# Introduction to Birding



✈ Lesser  
Goldfin  
ch



# Introduction to Birding



Lawrence  
's  
Goldfinch



# Introduction to Birding



Red-  
winged  
Blackbird





# Introduction to Birding



✦ Yellow-headed Blackbird







# Introduction to Birding



✈ Brewer's  
Blackbird





# Introduction to Birding



✈ Bullock's  
Oriole





# Introduction to Birding



■ Hooded Oriole





# Introduction to Birding



✈ Scott's  
Oriole





# Introduction to Birding



✦ Black-  
headed  
Grosbe  
ak







# Introduction to Birding



✦ Blue  
Grosbeak





# Introduction to Birding Birding Organizations



✦ National Audubon Society

✦ [www.audubon.org](http://www.audubon.org)

✦ Nationwide Conservation Issues

✦ Lobbyists in Washington

✦ Grassroots support

✦ ANWR



✦ Conservation Education

✦ Audubon Adventures

✦ Summer camps

✦ Interpretive Centers



# Introduction to Birding



## ✦ AZ Field Ornithologists

✦ [www.azfo.org](http://www.azfo.org)

✦ Arizona Field Ornithologists is an organization of birders and ornithologists dedicated to increasing the knowledge of the identification, status, and distribution of Arizona's birdlife.

✦ Keep Records of reported sightings

✦ Photo Gallery

✦ Scientific



# Introduction to Birding



✦ American Birding Association



✦ Conventions

✦ Birding Festivals

✦ Workshops

✦ List Archives



✦ Membership \$45



# Introduction to Birding



✦ AOU



- ✦ American Ornithologist Union
- ✦ Dedicated to the study of Ornithology
- ✦ Determine species

- ✦ Combine

- ✦ Split

- ✦ Rename




- ✦ Determine Genus Order



- ✦ [www.aou.org](http://www.aou.org)





# Introduction to Birding Urban Birds

Great-  
tailed  
Grackle  
Male





# Introduction to Birding

## Urban Birds



Great-  
tailed  
Grack  
le  
Female





# Introduction to Birding



European  
Starling



# Introduction to Birding



✈ Northern  
Mockingb  
ird



# Introduction to Birding

✈ Mourning  
Dove





# Introduction to Birding



✦ White-winged Dove





# Introduction to Birding



✈ Inca  
Dove



# Introduction to Birding



✦ Eurasian  
Collared-Dove



# Introduction to Birding



🐦 House  
Finch





# Introduction to Birding



🐦 House Sparrow





# Introduction to Birding

## Desert Birds



✈ Cactus  
Wren





# Introduction to Birding



✦ Abert's  
Towhee

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www.birdnut.smugmug.com



# Introduction to Birding



✦ Greater  
Roadrun  
ner





# Introduction to Birding



✦ Curved-  
billed  
Thrasher





# Introduction to Birding



✈ Phainopepla  
pla







# Introduction to Birding



✈ Gambel's  
Quail



# Introduction to Birding



🦅 Verdin



# Introduction to Birding



🦅 White-crowned Sparrow



# Introduction to Birding



✦ Black-throated Sparrow



# Introduction to Birding



✦ Anna's  
Humming  
bird





# Introduction to Birding



✈ Pyrrhulo  
xia



# Introduction to Birding



Cardinal  
(Female)



# Introduction to Birding



✦ Gila  
Woodpecker





# Introduction to Birding



## ✦ Assignment

✦ Make a list of the birds that you see in your yard and note:

✦ Color

✦ Markings

✦ Song

✦ Behavior

✦ Flight



## Sound & Photo Credits

Cindy Marple

Paul Watson

ASU -Ask.a.Biologist



# Introduction to Birding



- ✦ Binoculars are essential for getting a close up look at birds.
- ✦ There are hundreds of choices available.
- ✦ Price varies from \$10 to \$1,600.

# Introduction to Birding



✦ Power of magnification

✦ The first number in the 8 X 42

✦ Objects will appear 8 times closer

✦ Higher powers give the closest look

✦ Difficult to hold steady

✦ Show a smaller field of vision

✦ Recommendation for birding 7 or 8



# Introduction to Birding



## ✦ Light Gathering Ability

- ✦ The second number
- ✦ Measurement of the width of each lens in millimeters
- ✦ Wider lens makes the image brighter, but the binoculars heavier.
- ✦ Recommendation for birding:
  - ✦ 35 or 42
- ✦ Exit Pupil = Lens Diameter / Power
  - ✦ Larger Exit Pupil the brighter the image.



# Introduction to Birding



## ✦ Other considerations

✦ Adjust the binocular tubes to fit your eyes. You should see only one circle.

## ✦ Prism Type

✦ Roof Prism – two straight tubes

✦ More expensive

✦ Sealed against water & dust and lighter.

✦ Coating that is used is a factor.

✦ Porro Prism

✦ Traditional

✦ Less expensive





# Basic Binocular Types

## ✦ Swift Ultra Lite

✦ 8x42

✦ Porro prisms

✦ On-line cost was \$205



## ✦ Swarovski's

✦ 10x42

✦ Roof prism

✦ \$1300



## ✦ Cheapies

✦ 7x35

✦ Porro prism

✦ \$60







✦ Move your head so you are looking straight at the bird.





✈ Next, bring the binoculars up to your eyes without looking away from the bird!





✦ Focus the binoculars for better image.



✦ Identify the bird, and voila, you are now a successful birder!

