Birding for Naturalists

Presenter (insert name)
Based on Module developed by San Diego Naturalists

March 8, 16, and 30, 2013

Outline of Birding for Naturalists Course

I. Importance of Birds
II. How to Think Like a Bird
III. Bird Basics
IV. The Tools of Birding
V. Bird Identification
VI. Birding as part of Nature Walks

Goals of Birding for Naturalists Course

- What are learning tools/objectives unique to birding:
  - Share passion for learning about birds
  - Surprises, build on daily conditions
  - Tell stories, engage
  - (It’s a secret, you don’t have to name each bird you see)

Objectives of Birding for Naturalists Course

- Content learning objectives
  1. Establish why birds are important in nature and to humans
  2. Identify how birds feed, reproduce, and survive
     - Why and how birds fly and migrate
     - Forms and purposes of bird vocalization
     - How and why birds differ in size, shape, features
     - How and why beaks and feet differ
     - Basic ways to identify birds
     - How to include birding principles in nature walks
I. Importance of Birds

Key concepts:
- Why birding? Why are birds important?
  - Role in nature
  - Importance to humans
- Unique traits
  - Master of flight—we’re still learning from them!
  - They have feathers, they sing, and they migrate

Why are birds important in nature?
- Birds are part of many food chains
- Birds perform essential functions for other plants and animals, such as pollination
- Birds connect habitats globally in their migrations

Why are birds important to humans? (1 of 6)
- Activity #1:
  - Turn to your neighbor, share with each other two ways that birds are important to you.
  (This connects the nature walk participants with each other and their previous experiences, one minute maximum.)

Why are birds important to humans? (2 of 6)
- Birds have provided services to humans for centuries
  - Warning for the presence of predators
  - Canary in the coal mine detecting poor air quality
  - Homing pigeons delivering messages
  - Food – eggs and meat
Why are birds important to humans? (3 of 6)

“We put our minds together as one and thank all the Birds who move and fly about over our heads. The Creator gave them beautiful songs. Each day they remind us to enjoy and appreciate life. To all the Birds – from the smallest to the largest – we send our joyful greetings and thanks.”

From the traditional Haudenosaunee [Pronounce: ode deh neh show nee] Iroquois Thanksgiving Address

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Why are birds important to humans? (4 of 6)

- Birds perform economic services
  - Pollinate orchards
  - Control insects
- Birds have stimulated scientific inquiry
  - Flight (how airfoils work)
  - Biomimicry (woodpecker impacts for helmet design)

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Why are birds important to humans? (5 of 6)

- Hobby of “learning birds” and keeping lists
- Ecotourism
  - More than 500 species in San Diego County
  - Many birds migrate on Pacific flyway

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Why are birds important to humans? (6 of 6)

- Stimulate children’s natural curiosity
  - All birds are descendants of dinosaurs
  - Lead to broader interest in nature
- Bird houses and baths viewed from the windows of “shut-ins” and others
How can humans help or hurt birds? (1 of 5)

- **Field Activity #2:**
  - Where do you see or hear birds, in this natural area?
  - Where do you see or hear birds, in your neighborhood or yard?
  - Is there a difference? why?
  - What kind of birds are absent? This may say something about the condition of the site and whether it has been impacted.

How can humans help or hurt birds? (2 of 5)

- **Field Activity #3:**
  - How do animals respond when we enter the territory that they live in? Discuss.
  - What do animals do to hide or protect themselves from danger? (Freeze, flee, take flight, take an aggressive posture, make a noise, attack, spray, crouch down, etc.) Act out behaviors.
  - To see more animals/birds, how should we act when we are out in nature wanting to observe birds/animals?

How can humans help or hurt birds? (3 of 5)

- **Some human activities affect birds**
  - Urbanization
  - Climate change

How can humans help or hurt birds? (4 of 5)

- **Birds try to adapt to human activity**
  - Some species adapt much better than others
  - Some birds thrive in cities
How can humans help or hurt birds? (5 of 5)

- Actions to help birds adapt and survive
  - Protect breeding areas
  - Protect resources along migration routes
  - Maintain bird-friendly backyard habitats

Review: Importance of Birds

1. How are birds important in nature?
   - Part of food chain; pollinate flowers

2. Name 3 ways birds are important to humans.
   - Food: eggs and meat
   - Human services: canary in coal mine & homing pigeons delivering messages
   - Economic services: crop pollination, eat insects

3. How can birds get people connected to nature?
   - Bird lists, bird houses, ecotourism, …

II. How to think like a bird!

Key concepts:

- Motivation #1: Self-preservation
- Motivation #2: Food
- Motivation #3: Reproduction

Think Like a Bird – Basic Motivation for Self-Preservation (1 of 2)

- Camouflage
  - Blend into the background
- Distract and fool predators
Think Like a Bird – Basic Motivation for Self-Preservation (2 of 2)
- Some birds adapt well to urban environments
  - These birds use urban food sources and nesting sites
  - They notice there is less predation (snakes, foxes)

Think Like a Bird – Basic Motivation for Food (1 of 6)
- Birds specialize in the kind of food they eat
- All birds eat more than one food
- Look at beak for clues

Think Like a Bird – Basic Motivation for Food (2 of 6)
- What does a bird eat? Look at its beak.
  - Is it small and fine like a warbler?
  - Stout and short like a seed-cracking sparrow?
  - Dagger-shaped like a tern?
  - Hook-tipped like a bird of prey?

Think Like a Bird – Basic Motivation for Food (3 of 6)
- Field Activity #4:
  - What kinds of food do birds eat? Point to and describe places you see that may have food for birds.
  - What kind of beaks would be needed for that food? Match types of beaks to the foods you see. Make beak shapes with your hands.
  - What types of foraging behaviors might you see? (Eating insects from plants, hiding acorns, digging for animals in the sand, a raptor hovering, etc.)
  - Have a container of some samples of food types, such as acorns, berries, seeds, insects, pictures of aphids.
Think Like a Bird – Basic Motivation for Food (4 of 6)

- Habitats: many sources of food/vegetation are near water, creeks, wetlands
- Birds eat flower nectar, fruit, and seeds

![Anna's Hummingbird](image1)
![Northern Mockingbird](image2)

Think Like a Bird – Basic Motivation for Food (5 of 6)

- Birds eat insects on leaves, under bark, and in the air around vegetation
- Birds eat other fish, lizards, mammals, and other birds!

![Vermilion Flycatcher](image3)
![Great Blue Heron](image4)

Think Like a Bird – Basic Motivation for Food (6 of 6)

### Field Activity #5:

- From this point on the trail, where would we expect to find birds looking for food? Show photo in the classroom or ask participants to think about familiar areas.

![Field Activity Image](image5)

Think Like a Bird – Basic Motivation to Reproduce (1 of 4)

- Nests
  - Hidden or open, depends on defensive strategies for their young

![Cattle Egret](image6)
![Brandt's Cormorant](image7)
Think Like a Bird –
Basic Motivation to Reproduce (2 of 4)

- In trees and bushes, on rocks and the ground
- Some birds use nests made by other birds!
- Nest types vary widely by species and habitat

Think Like a Bird –
Basic Motivation to Reproduce (3 of 4)

- Near protection and food sources
  - See Motivations #1: Survival and #2: Food
- Seasons
  - Resident birds usually breed earlier, with local food supplies and favorable climate

Think Like a Bird –
Basic Motivation to Reproduce (4 of 4)

Field Activity #6:
- From this point on the trail, where would we expect to find nests? Show photo in the class-room or ask participants to think about familiar areas.
- What other features do you see that birds might take advantage of (rock outcrops, fences, fence posts, utility wires, poles, etc.)?

Review: How to Think Like a Bird!

1. What 3 things motivate birds?
   - Self-preservation
   - Food
   - Reproduction
2. Birds with thick, stout bills mostly eat what kind of food?
   - Seeds
3. Where can you find bird nests?
   - Trees, bushes, on the ground, in cliffs, along the shore, ...
III. Bird Basics

Key concepts:
- Flight
- Feathers
- Migration
- Vocalizations

Bird Basics – Flight (1 of 4)

- Basics of flight (birds and airplanes)
  - Air moving over a curved surface (top of wing) is lighter than air moving past a straight surface (bottom of wing)
  - [Link to Ask a Biologist website](http://askabiologist.asu.edu/how-do-birds-fly)

Bird Basics – Flight (2 of 4)

- Elements of avian flight
  - Thermals
  - Maneuverability
  - Hovering
  - Some are flightless!

Bird Basics – Flight (3 of 4)

- Field Activity #7:
  - Look around for a hawk or other flying bird. Are they flying to get somewhere?
  - ACT OUT — What would you look like if you were: Flying to get from one place to another? Catching prey on the ground? Enjoying thermals and getting some exercise?
  - Are they flying to catch prey on the ground? How can you tell?
Bird Basics – Flight (4 of 4)

- **Field Activity #8:**
  - Hold your arms out and flap as fast as you can (perhaps 1x per second). Hummingbirds wings beat at 60 time per second.
  - Birds have strong muscles, hollow bones, and light feathers.
  - If a human arm were a bird wing, we’d only have bone to the elbow. The remainder of the “arm” would be feathers.

Bird Basics – Feathers (1 of 3)

- Flight
- Warmth
- Camouflage (self-preservation)

Bird Basics – Feathers (2 of 3)

- Sexual attraction
  - Males and females may have similar coloration...
  - ...or be hugely different

Bird Basics – Feathers (3 of 3)

- Sexual attraction
  - Why are male birds generally more colorful?
    - To distract predators
    - To attract females

March 8, 16 and 30, 2013
Why do birds migrate?
- They breed in the Arctic or northern forests, then leave because there is little food in winter.
- They come to San Diego in the winter, because food and climate are more favorable.
- Other birds come to San Diego in the spring, because nest sites or food are favorable.

Field Activity #9:
- Why do you think birds migrate? Use humor or absurdity to engage students.
  - Why would they come to San Diego? To go to the zoo? To sunbathe? More abundant food, warmer climate.
  - Why would they spend part of the year away from San Diego? They like snowboarding? Mild weather, food sources, fewer predators to endanger their eggs and young.

Common Qs & As about migration:
- How do they know where to go?
  - Follow visual, solar and magnetic cues
- How do they know when to come back?
  - Longer day length, warmer temperatures
  - Favorable winds
- How far do they fly? In a day?
  - Could be 400-1000 miles!

Understanding flyways
- Four main ones: Pacific, Central, Mississippi and Atlantic
- All areas in the U.S. are a flyway for some birds (There are no empty places!)
- Birds seek favorable winds along the way
Bird Basics – Migration (5 of 5)

- Odd ways of migrating
  - Vertical (elevations)
  - Walking
  - Swimming

Bird Basics – Vocalizations (1 of 6)

- Why do birds sing?
  - Vocalizations have different purposes!
    - Songs
    - Calls
    - Notes
    - Alarms
  - These are human categories, birds think differently!

Bird Basics – Vocalizations (2 of 6)

- Songs
  - House finch

Bird Basics – Vocalizations (3 of 6)

- Calls
  - Red-shouldered hawk
Bird Basics – Vocalizations (4 of 6)

- Notes
  - Black phoebe

Source for audio recordings: Petersen

Bird Basics – Vocalizations (5 of 6)

- Alarms
  - American Crow

Source for audio recordings: Petersen

Bird Basics – Vocalizations (6 of 6)

- Activity #10:
  - Why do birds sing?
  - Whistle or call to me:
    - Tell the others, “everything’s okay!” (Just saying hello.)
    - Ask “where are you?”
    - Warn me that a hawk is flying overhead
    - Tell me there are insects and berries over here
    - Praise my good looks
  - Make a fist with each hand. Right hand will count sounds of nature; left hand will count sounds made by humans. Talk about the sounds you might hear, and then silently listen and count. After a minute, have children share what they heard.

Review: Bird Basics (1 of 2)

1. How do birds (and planes) stay in the air?
   - Air moving over the curved surface of the top of the wing creates lift
2. Name 3 physical adaptations birds have for flight.
   - Hollow bones, strong muscles, light feathers
3. Name 3 uses of feathers.
   - Flight, warmth, camouflage
Review: Bird Basics (2 of 2)

4. Why are male birds usually more colorful than females?
   - To attract females

5. Why do some birds migrate?
   - Better weather, better food supplies

6. Name 4 types of bird vocalizations.
   - Songs, calls, notes, alarms

IV. The Tools of Birding

Key concepts
- Tools of birding and how to use them
  - Binoculars
  - Field guides
  - Checklists
  - Electronic applications

Tools of Birding – Binoculars (1 of 3)
- Binoculars
  - Best to get 8-10 x power
  - Always test before buying

Tools of Birding – Binoculars (2 of 3)
- How to use binoculars (demonstrate)
Field Activity #11: Pre-activity Introduction to Binoculars — Use motions to show how to use binoculars. Everybody show me what you do with the strap. How will you hold the binoculars to not frighten the birds? How will you adjust the binoculars and pass the binoculars?

- Divide into pairs, give one set of binoculars to each pair
- Take turns, telling to other person exactly how to use the binoculars. Adjust width of binoculars to fit your eyes.
- Use focusing ring to sharpen image. Pull eye cups out for no glasses; cups in for glasses. Look at your target with your naked eye, bring your binoculars up to your eyes.

Tools of Birding – Field Guides

Field guides
- Bird families
- Range maps
- Sizes and silhouettes

Tools of Birding – Checklists

Checklists (arranged by families and coded for rarity)

This checklist is available for free on the San Diego Field Ornithologists site www.sandiegofieldornithologists.org
Tools of Birding – Checklists (2 of 2)

- Bird walks and events
  - Christmas Bird Count (national)
  - San Diego Bird Festival (each February)
  - San Diego Audubon Society (weekly bird walks)

Tools of Birding – Apps (1 of 1)

- Electronic applications
  - Bird identification—Visual
  - Bird identification—Audio
    - Do not use audio in breeding season
    - Do not use audio in habitats with endangered species
  - Record observations

Review: Tools of Birding

1. Name two essential tools for birding.
   - Binoculars and field guide
2. What part of field guides can reduce the number of options for identifying a bird?
   - Range maps
3. Playing bird calls outside is never a good idea in what circumstances?
   - During breeding season or in habitats with sensitive species

V. Bird Identification

Key concepts:

- Birding by sight
- Birding by sound
- Noticing habits
- Better birding techniques
Bird ID – Birding by Sight (1 of 8)

- Size
- Shape
- Beaks
- Wings
- Tails
- Plumage

Bird ID – Birding by Sight (2 of 8)

- What is the bird’s size?
  - Compare with common species.
    (smaller than a house sparrow, a mockingbird, a crow, etc.)

Bird ID – Birding by Sight (3 of 8)

- What is its body shape?
  - Is it plump like a pigeon or slender like a grackle?

Bird ID – Birding by Sight (4 of 8)

- What shape is its beak?
Bird ID – Birding by Sight (6 of 8)

- What shape are its wings?
  - Are they rounded like those of a quail or sharply pointed like those of a swift?

California Quail

White-throated Swift

Bird ID – Birding by Sight (5 of 8)

- What shape is its tail?
  - Is it deeply forked (1) like a Barn Swallow’s?
  - Square-tipped (2) like a Cliff Swallow’s?
  - Notched (3) like a Tree Swallow’s?
  - Rounded (4) like a jay’s?
  - Or pointed (5) like a Mourning Dove’s?

Bird ID – Birding by Sight (7 of 8)

- Plumage patterns
  - Age of bird
    - Juvenile, mature
  - Gender
  - Vary with season
    - Breeding, non-breeding

Breeding Caspian Terns

Non-breeding Caspian Tern

Parents & Nestlings Ospreys

Male & Female House Finch

Bird ID – Birding by Sight (8 of 8)

- **Field Activity #13: Hints to ID a bird.**
  - Is it’s tail long, short or uniquely shaped?
  - Compare the bird’s size to your hand’s size.
  - What type of bill does it have?
  - Where did you see the bird?
  - Are there markings on the wings?
  - How does it use its wings? Flapping or gliding?
Bird ID – Birding by Sound (1 of 2)

- Vocalizations
  - Songs, calls, notes, alarms

- Advantages
  - Identify birds you can’t see

- Disadvantages
  - Bird calls vary more than plumages
  - Some birds mimic!

Bird ID – Birding by Sound (2 of 2)

- Field Activity #14:
  - Close your eyes, stand still and listen
  - What do you hear?
  - Point to where the sound is coming from
  - What kind of sound do you hear?
    - Songs, calls, notes, alarms
  - If you were a bird, what would you want to communicate?

Bird ID – Noticing Habits (1 of 6)

- Habits of individual species
  - Robins cock their head and probe for worm

- Habits of families
  - “Flycatcher habit” - flitting to catch bugs and return to perch
  - Starlings flock, hummingbirds don’t.

Bird ID – Noticing Habits (2 of 6)

- Where does the bird spend most of its time?
  - In the air?
  - In a tree or shrub
  - On the ground (Swallows are never on the ground. Quail are usually on the ground.)

March 8, 16 and 30, 2013
Bird ID – Noticing Habits (3 of 6)

- How does it fly?
  - Does it swoop up and down? Fly fast and straight? Or hover? Does it glide or soar?

Bird ID – Noticing Habits (4 of 6)

- How does it swim?
  - Does it sit low or high in the water? Does it dive or bob for food?

Bird ID – Noticing Habits (5 of 6)

- Does it wade?
  - Does it have long legs, or short legs? Does it probe the mud or pick at things?

Bird ID – Noticing Habits (6 of 6)

- Flight patterns of flocks
  - Some fly in a straight line and some fly in a “V”
Better Birding Techniques (1 of 4)

- Bird from a place of cover and shade
  - Get in the shade to be less visible to birds
  - Bring binoculars up slowly to eyes
  - Move to position bird in front of a dark background for better viewing

Better Birding Techniques (2 of 4)

- Be quiet so you can hear the birds
  - Stand or sit still (watch for poison oak!)
  - Train your eye (or ear) to spot “something different” that could be a key identifier
    - (red forehead on Anna’s hummingbird)

Better Birding Techniques (3 of 4)

- Two important birding adages:
  - You never saw a bird that didn’t see you first (you can’t “sneak up” on them!)
  - No one identifies every bird they see, so don’t worry about it!

Better Birding Techniques (4 of 4)

- Field Activity #15:
  - How can we position ourselves, to best hear and see birds, right now in this place in nature?
    - If possible, sit or stand still
    - Be quiet
    - With a group of birders, don’t all look in the same direction.
**Review: Bird Identification**

1. What features are important in birding by sight?
   - Size, shape, beak, wings, tails, plumage
2. What are disadvantages to birding by sound?
   - Bird calls vary more than plumage; some birds mimic
3. Give 3 tips for being more successful watching birds.
   - Bring binoculars up slowly to eyes
   - Get the bird in front of a dark background
   - Get in shade to be less visible

**VI. Bird-focused Nature Walks**

- **Key Concepts**
  - Know your audience
  - Scout the location
  - Gather your resources

**Know your Audience (1 of 2)**

- Age, experience, interests
- Structure your nature walk accordingly

**Know your Audience (2 of 2)**

- Learn to pace the talk (or walk), activities, and class input to finish on time!
  - Don’t try to tell them everything you know
  - Focus on what you see and hear

March 8, 16 and 30, 2013
Teachable Moments

- Bird signs
  - Bird scat on the ground
  - Look up—Where was the bird sitting?
  - Notice prints in the sand and mud
- Dead bird
  - What story does it tell?

Too Much Information (1 of 3)

Too Much Information (2 of 3)

Too Much Information (3 of 3)
Preparing for Bird-focused Walk

- Select and scout location
  - Many species
  - Ease of viewing
  - Few other people and dogs
- Describe habitat and species expected
- Use sight, sound, and habits

Preparing for Bird-focused Walk

- **Field Activity #16:**
  - Where do you commonly lead nature walks or field trips?
  - Where have you seen or heard birds, in this area?
  - What are three interesting ways that birds live in this natural area?

Preparing for Bird-focused Walk—Gather Resources

- Bring resources
  - Binoculars, perhaps spotting scope
  - Field guides
  - Provide list of species sighted (after walk)

Preparing for Bird-focused Walk

- **Field Activity #17:**
  - How I’m going to incorporate birding into my nature walk?
    - Location or section of trail
    - Habitats, and where birds will be in those areas
  - Theme or interesting story from the ways that birds live in this natural area
Review: Birding in Nature Walks

1. What aspects of your audience are important to consider in planning your walk?
   - Age, experience, interest

2. What is the benefit of scouting locations?
   - Find places with many species, easy viewing, and few other people and dogs

3. What “teachable moments” might there be on a bird walk?
   - Scat, tracks, dead bird, feathers, egg shells, ...

References

- Local field guides
- Checklist of the birds of San Diego County
  - [http://www.sdnhm.org/research/birds/sdbirds.html](http://www.sdnhm.org/research/birds/sdbirds.html)
- San Diego County bird descriptions
  - [http://www.sdnhm.org/research/birdatlas/species-accounts.html](http://www.sdnhm.org/research/birdatlas/species-accounts.html)
- The Great Backyard Bird Count
  - [http://www.birdsource.org/gbbc/](http://www.birdsource.org/gbbc/)
- Christmas Bird Count
  - [http://birds.audubon.org/christmas-bird-count](http://birds.audubon.org/christmas-bird-count)

Contacts

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    - Vic Murayama for his copyrighted bird photography
      - [http://vtm.smugmug.com/](http://vtm.smugmug.com/)
    - Don DesJardin for his video [http://birdsdesjardin.com](http://birdsdesjardin.com)
    - Liz Paegel for her artwork
  - To arrange for this training to be given at your organization/training:
    - Contact Brian Moehl, 858-273-7800, moehl@sandiegoaudubon.org

Discussion

- What worked?
  - What three things do you remember from this presentation?
  - How will the activities work in the field, for naturalists leading nature walks?

- What didn’t work?
  - What concepts or slides are not effective?
  - How can we change them?