BINOCULARS 4 BIRDING

For SCHHBC New Member Orientation.
April 3, 2022, Dave Davis

☆WHY DO YOU NEED BINOCULARS?

- **To bring the bird closer**—To identify and observe
- To sort out **details of appearance at a distance**.
    - **Plumage colorations** streaks, spots, bands, bars, checks, rings
    - Plumage **topography**--12 areas of feathers on the head of a sparrow; also, tail patterns
- To see **bill and leg** coloration; relative lengths
- To observe **stance, behaviors, habitat**

☆HOW TO USE, ADJUST, CARE FOR: INFO ON THE WEB

- Search "How to focus/clean/store/etc…" Lots of sites. Ex: bestbinocularsreviews.com
- YouTube videos.

☆BINOCULAR TOUR

- **Ocular** lens: nearest the eye; does the magnification
- **Objective** lens: gathers light
- Internal **Prisms**: prisms erect & reverse the image; also "fold" the light path. = shorter barrels
- Lens & prism **Coatings**: optimize light transmission & image quality.
    - Better binoculars have coatings on all inside and outside lens surfaces
- **Better binoculars are Waterproofed** (to 3-10 ft)**, Gas Filled** (usually nitrogen), and Rubber **Armored**
- One **Focus Adjusting Wheel**; fiddle with the wheel to get a sharp image
- Adjustable **Eye cups** for eye relief. In for glass wearers, out for no glasses. Best may not be all in or all out.
- **Diopter** adjustment dial. Usually on right ocular lens. Used to focus the binocular barrels separately
- Very good resource is the Nikon.com download of "Complete Binocular Handbook"

☆BINOCULAR TYPES—INTERNAL PRISMS

- **Porro prism:** Wide stance, offset eyepieces
    - typical binoculars in past; Wider field of view, brighter image
    - At lower end of binoculars cost, Porro type can produce a better-quality image
    - Heavy, less compact
- **Roof prism:** Simple, straight barrels
    - Most popular now; easier to hold; Tougher, simpler internally--less to go wrong, easier to seal
    - At higher end of cost, roof prism binoculars produce almost perfect images
- **Both types come in compact, mid-sized, & full-size**
- **You will see both types used by experienced birders**

☆BINOCULAR TYPES—SIZE CATEGORIES

- **Full**=8x42, 8.5x44, 10x50, 7x50. Birding, boats.
- **Mid**=7x35,8x32,10x32. Mid-sized are becoming popular. Lighter, comfortable. Help w/ fatigue on long days
- **Compact**=8x20,10x25. For use in daytime in good light. Backpack size & weight. In my opinion-too limiting.

☆WHAT DO THE NUMBERS MEAN? 8 X 36 7°?

- First number (8) is the **magnification** of the ocular lens. 8x = appears 8 times closer (larger)
- Second number (36) is the **diameter of the objective lens** in millimeters. A larger lens gathers more light.
- Third number (7°) is the **view angle**. Expressed as an angle or as the **field of view** width at 1000 yards.
    - 7 x the conversion factor of 52.5 = 368 ft field of view (FOV); (6.5° = 341' recommended minimum)
- One more spec of binoculars is its **close focus** distance. i.e. its minimum focus length. Range is 4.5 ft & up.
    - Very important for butterflies & flowers. 6.5 ft is good but higher is workable for most.

☆ ADJUSTING BINOCULARS TO YOU AND YOUR EYES

- ***Tutorials & Videos*** *for all of these adjustments are* ***online***
- Perform adjustments in **good light**, approx. 25'- 40' from a **pale wall**. The wall has a **large empty area**.
- **Interpupillary distance**—flex hinge to a true circle
- **Eye relief**— Turn eye cups in for eyeglasses, out for no glasses. May not be all in or out. No gray areas.
- **Diopter** adjustment. Need something detailed to focus on
    - Focus binoculars w/ left eye alone (right eye closed), then adjust right eye alone w/ the diopter wheel

☆ CARING FOR YOUR BINOCULARS

- **Don't clean unless very necessary! Meaning images are noticeably not clear**
    - Fingerprint, face oil, salt spray, whale watching mishap
- Binocular lens **coatings** are very **delicate**—only a few molecules thick! They can be easily scratched.
    - You won't see scratches in the coatings but eventually scratches will cause problems
- **Blow and brush** off first—every time.
- No T-shirt, no tissue. Don't spray fluid lens cleaner directly on lens
- Take cleaning tools with you into field; Small & portable—lens fluid spray, microfiber cloth, LensPen
- **Apply bug spray and sunscreen before you put on your binoculars & away from others. PLEASE**

☆HOW TO GET THE BIRD IN YOUR BINS---THE PHYSICAL PART

- **Don't scan** the birding area w/ binoculars up to your eyes. **See the bird** without binoculars first
- Look with **eyes looking right at the bird. Square** your body to the bird---head, shoulders, hips, feet
- With eyes on bird, raise your binoculars; **Stabilize**--finger/face; elbows/body.
- Find and Focus. Don't see? Lower binoculars and try again.
    - Pick out a **"landmark"** near the bird --fork in tree, bright sun spot, foliage color
- **Spend time** learning how to use your binoculars. **Practice**.
    - Good time is in the parking lot before a birding walk. AND parking lots are good birding sites.

☆THE BIRD IS IN YOUR BINS---NOW COMES THE MENTAL PART

- As you prepare to put binoculars to your eyes, mentally frame a list of **likely** birds. **Habitat, size, season**.
- **"Watch" the bird—Study the bird. Overall** shape/impression, **Size.** Can you ID the bird?
- **How does it do what it is doing?**
    - Is it **cold**? A cold bird's shape is distorted. Head may be **tucked in**, feathers may be **fluffed out.**
- **Head: facial, nape, neck markings and bill.** Colors & **structure of colors** (12 areas on head of a sparrow)
- **Wings and tail**:
    - If perched, note the primary feather **projection** and wing **bars**
    - If flying, note the shape of the tail and the color pattern above and below the wings
- Are the **feathers worn** or faded or fresh? Is **lighting** a factor for colors?
- **Behavior: stance**-upright or horizontal. Is it twitching? What's its feeding style? Scan, sally, dive, probe, lunge.
- Clearly remembering all of the above, open your bird guidebook or the Merlin app & make your identification
- If the bird flies away, can you find it again? Can you ID it at a distance?
- **Learn to see details**. Experience is best.

☆PRECAUTIONS

- **Never look at the sun** through binoculars or a scope
- Do not leave binoculars in a car in the sun on a hot or sunny day.
- Avoid sudden temperature changes and always protect binoculars from **shock**
- **Don't soak** binoculars in water. Even if they are waterproof. Don't let binoculars dry naturally. **Wipe them off**
- Don't try to adjust binoculars beyond their limits
- **Storage**: Avoid high humidity, high temps, or high dust. But, don't seal binoculars in plastic. Let them breath.

☆BIN TYPE-HOW TO CHOOSE

- First considerations: **Power (magnification), & Capacity (objective lens diameter)**
  - **Power:** for Birding, 8x binoculars are the standard.
    Higher power = a narrower field of view and a shakier image.
  - **Capacity:** w/minimum 30 mm objective lens. 42 mm is the birding standard.
- **Next: Budget** $30 to $3000; Serviceable bins in all price ranges above $120. $350-$450 is sweet price range
  - Range of $ in every maker's lineup (53 brands at B&H Photo); U get what U pay 4 within the brand
- **Weight** is your choice. But there is also **Ergonomics.** Fit and feel beyond the weight

☆MORE PURCHASE CONSIDERATIONS—THE TRADE OFFS

- **Size? Intended use determines**: backyard? woodlands? shoreline? any time of day? or only in good light
  - Compact, Mid-sized, Full-sized. Binoculars get heavier with size.
- How's your "shakiness"
  - Image stabilized are available & worth it if they keep you birding. —Opticron, Canon, Fujinon, Fraser.
- **Magnification**? 8x, 10x or higher? 10x means a larger image but also narrower field of view (FOV) & shakier
- Objective **lens diameter**? 25mm, 30, 32, 42, 45? **42 is the birding standard** but 30 or 32 are lighter & smaller
- **Roof or Porro** prism? 8x42 Roof prism is most popular for birding. Does well in low light, generous FOV, EZ to hold steady. But Porros have a wide FOV & a bright image & at lower price range are better than Roof prism
- Warranty? Lifetime warranties are common and "No fault" warranties are offered by some brands.

☆RECOMMENDATIONS/OPINIONS

- Optics is a highly competitive market. There are **53 brands** of binoculars at B & H & **72 Nikon bins** at B & H.
- Buy what you can afford but **BUY ALL YOU CAN AFFORD** or
- Start out frugally while you test out birding. There are quality low priced (>$120) "beginner" binoculars.
- For **backyard birder: Porro prism** < $150
- For **serious hobby birder** and for any/all habitats/seasons/light conditions—
  - **Roof Prism 8X42**: $120 to $3000. **Why?** Right birding combo--weight, FOV, gathers ample light
- **Desirable Specifications:** 8x42 roof prism w/ these numbers: Field of View 6.5° (341') or higher,
  Close Focus 6.5' or less, Eye Relief 16 mm or higher (17 is better), interpupillary distance range 2.2-2.9".
- **Harness**: $16 or more. Lens **cleaning kit**: $6-$25. Blower, goat hair brush, fluid, several thick microfiber cloths
- **Online research**. Lots of reviews available. Reviews often by price. Check "The Audubon Guide to Binoculars"
  - **Read and learn from reviews** but be aware some are not unbiased

☆WHERE TO BUY

- Best shopping is to **try out in hand**. Feel is different. You don't want clumsy and awkward. What is comfortable to one person is not to another. You can compare specifications online but not how a binocular feels to you.
  - Local sellers: Wild Birds Unlimited (Opticron), Dick's, Bass Pro Shop
  - Birding festivals. Optics booths, advice and discounts.
- Online: B&H Photo, Adorama, Optics Planet, L.L. Bean, REI. Amazon sells Maven plus other brands.
- Made in USA? —Maven Optics of Wyoming ("B" line assembled in USA from Japanese made components

☆SPOTTING SCOPES

- **Not necessary but very useful** on the beach for seabirds, across a mountain valley for a hawk, or in a wetland for waterfowl. Even great for hummers. Almost essential for seabirds, ducks, shorebirds
- Angled **eyepiece** or straight? Angled is more user friendly. Especially for multiple users.
- **Full size** (80-95 mm objective lens) or **Compact** (50 or 60 mm)
- Many have **zoom lenses**. 20x to 60x. **30x** up to 45x maximum is the useful power of most scopes.
- You will need a **tripod**. Can't hand hold! There are some image stabilized scopes in the market
- In the field, heavy. Dave's package (scope+tripod+tripod head) weighs 10.0 lbs. You can get a scope backpack.
- Top quality kit go for $4000-$7500. (Including a tripod & tripod head). Dave's Vortex/Manfrotto package=$2000
- Can get in the game w/ a very serviceable and light weight compact package for $850

☆WHAT TO DO WITH OLD BINOCULARS or SCOPES (in good working order)

- **Pass them on**. For love or money. **The best of the best are multi-generational assets.**
    - Donate them:
        - to a local school or to a local group such as Audubon or Friends of Savannah NWR
        - to researchers in the tropics
            - Birders' Exchange; Optics for the Tropics;
            - Amazon Binocular Project

THANKS FOR JOINING THE SUN CITY BIRD CLUB

- *Birding is a great pursuit for a retiree.*
- *"Identifying species or rather learning to identify species is at the heart of bird watching."*
- *--- Dawn Hewitt, Birdwatchers Digest, March/April 2019*
- *Birding is the ultimate Brain Game*
- *A birding walk is good exercise*
- *Birding gets you out of the house—" forest bathing" how birds and trees can lead to health and happiness*
- *Leads to beautiful travel destinations*
- *The people are so nice and helpful.*

Binocular Comparisons. 2/6/2022. For information only. No endorsements are intended or implied…
All are Roof prism; most are 8x42; priced from "Get in the Game" to "Best of the Best"

Brand/Model Pwr X Obj lens (min 30mm obj lens for birding)	Price	Weight.	Field of View (min 341 ft)	Close Focus (5 ft is excellent)	Eye Relief (min 15 mm)	Interpupillary Adjustment
Nikon Prostaff 3S, 8x42	$130	19.9 oz	377 ft	9.8 ft	20.2 mm	2.2" to 2.8"
Bushnell Prime, 8x42	$140	23.3 oz	350 ft	10 ft	24 mm	?
Celestron Nature DX 8x42	$170	22.2 oz	388 ft	6.5 ft	17.5 mm	2.2" to 2.9"
Opticron Oregon 4 PC, 8x32	$185	17.5 oz	423'	5.9 ft	15 mm	2.3" to 2.9"
Vortex Diamondback HD 8x32	$260	15.9 oz	426 ft	5 ft	16 mm	2.2" to 2.9"
Vortex Diamondback HD 8x42	$290	21.8 oz	393 ft	5 ft	17 mm	2.2" to 2.9"
Kowa SV II, 8x42	$305	23.4 oz	361 ft	13.1 ft	19.5 mm	2.3" to 2.8"
Celestron Trailseeker ED 8x42	$380	23.5 oz	426 ft	6.5 ft	17.2 mm	2.2" to 2.9"
Opticron Explorer WA ED-R, 8x42	$345	23.6 oz	393 ft	6.6 ft	17 mm	2.2" to 2.9"
Nikon Monarch 5, 8x42	$280	20.8 oz	330 ft	8.2 ft	19.5 mm	2.2" to 2.8"
Nikon Monarch 5, 10x42	$300	21.2 oz	288 ft	8.2 ft	18.4 mm	2.2" to 2.8"
Opticron Traveler BGA ED, 8x32	$499	15.9 oz	429 ft	5.9 ft	19 mm	2" to 2.9"
Zeiss Terra ED, 8x42	$450	25.6 oz	375 ft	5.3 ft	18 mm	2.3" to 3"
Vortex Viper HD, 8x42	$640	24.5 oz	409 ft	6.5 ft	18.0 mm	2.2" to 3"
Nikon Monarch 7 ATB 8x42	$480	22.9 oz	420 ft	8.2 ft	17.1 mm	2.2" to 2.8"
Maven B3 ED, 8x30	$550	16.25 oz	430 ft	8.2 ft	15.1 mm	2.2" to 2.9"
Zeiss Conquest HD, 8x42	$1000	28 oz	384 ft	6.6 ft	18 mm	2.1" to 2.9"
Maven B1, 8x42	$950++	29.1 oz	388 ft	6.6 ft	18.6 mm	2.2" to 2.9"
Leica Trinovid HD, 8x42	$999	25.8 oz	372 ft	5.9 ft	17 mm	2.3" to 3"
Nikon Monarch HG, 8x42	$977	23.5 oz	435 ft	6.6 ft	17.8 mm	2.2" to 2.9"
Kowa Genesis XD44 8.5x44	$1400	33.2 oz	400 ft	5.6 ft	18.5 mm	2.3" to 2.8"
Vortex Razor UHD, 8x42	$1650	32.2 oz	420 ft	4.5 ft	16.7 mm	2.2" to 3.0"
Leica Noctivid, 8x42	$2749	30.3 oz	407 ft	6.2 ft	19 mm	2.2" to 2.9"
Zeiss Victory SF T, 8x42	$2700	27.8 oz	444 ft	4.9 ft	18 mm	2.1" to 3"
Swarovski NL, 8x42	$2999	29.6 oz	477 ft	6.6 ft	18 mm	2.2" to 2.9"