

# BINOCULARS 4 BIRDING

For SCHHBC New Member Orientation.  
February 26, 2023, 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**

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

- Search “How to focus/clean/store/etc....” Lots of sites. Ex: [bestbinocularsreviews.com](http://bestbinocularsreviews.com)
- YouTube videos.

## ★BINOCULAR TOUR

- **Ocular** lens: nearest the eye. This lens does the magnification.
- **Objective** lens: gathers light
- Internal **Prisms**: prisms erect & reverse the image for proper orientation; & “fold” the light path. =shorter barrels
- Lens & prism **Coatings**: optimize light transmission & image quality. More light transmission, less reflection
  - Better binoculars have coatings on all inside and outside lens surfaces. “Fully multi-coated”
- **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. Rotate in for glass wearers, out for no glasses. Best may not be all in or out.
- **Diopter** adjustment dial. Usually on right ocular lens. Used to focus the binocular barrels separately
- Very good resource is Nikon.com. [https://imaging.nikon.com/lineup/sportoptics/how\\_to/guide/binoculars/](https://imaging.nikon.com/lineup/sportoptics/how_to/guide/binoculars/)

## ★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 Porro and Roof 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? For example, 8 X 36; 7°?

- First number (8) is the **magnification** of the ocular lens. 8x means the scene 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 **field of view** (FOV) width at 1000 yards.
  - 7 x the conversion factor of 52.5 = 368 ft field of view, 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**. For example, Nikon.com. see above
- Perform adjustments in **good light**, approx. 25'- 40' from a **pale wall**. The wall has a **large empty area**.
- **Interpupillary distance**—flex the bin hinge so that you see only one 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 (lines, edges) 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 a degraded image
- **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 staring at the bird**. **Square** your body to the bird---head, shoulders, hips, feet
- With eyes on bird, raise your binoculars; **Stabilize**-- comfortable elbows and stance
- 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.

## ★ IDENTIFICATION--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**. Is the tail notched, is it short or long?
  - If flying, note the color, shape & length 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.
- Repeat the above if you have time, then 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. BUT — **"Don't trust a poor look"** A rules of birding by Al Batt
  - Take a closer look at birds you already know well.

## ☆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-\$500 is sweet price range
  - Range of \$ in every maker's lineup (Nikon makes over 60 models); U get what U pay 4 within the brand
- **Weight** is your choice. But there is also **Ergonomics**. Fit and feel beyond the weight. i.e., comfort

## ☆MORE PURCHASE CONSIDERATIONS—THE TRADE OFFS

- **Size? Intended use determines:** backyard? dim woodlands? bright shoreline or marsh? Any time of day or only in good light?
  - Compact, Mid-sized, Full-sized. Binoculars get heavier with size. Compact bins are about 1 lb. Full size are about 1.5 up to 2 lbs.
- 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. Two examples are the Opticron 8x30 Savannah WP and Nikon 10x42 Aculon A211
- Warranty? Lifetime warranties are common and "No fault" warranties are offered by some brands.

## ☆RECOMMENDATIONS/OPINIONS

- Optics is a highly competitive market. There are **48 brands** of binoculars at B & H & **62 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 (>\$130) "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, lens fluid, 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 may be biased

## ☆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 (very limited selection), 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, S, & RS lines assembled in USA from Japanese 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. 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
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## THANKS FOR JOINING THE SUN CITY BIRD CLUB

- *Birding is a great **pursuit** for a retiree. Meaning the act of: chasing, striving, reaching. a quest, a hunt*
- *"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**. You must ENGAGE*
- *A birding walk is good **exercise***
- *Birding gets you out of the house, out of your own head, and consciously connected.  
" **forest bathing**" how birds and trees can lead to health and happiness*
- *Birding takes Nature (and all that is not Nature) out of the background*
  - *"the more you look at birds, the more you see everything else"*
- *Leads to beautiful **travel destinations** and the **people** are so nice and helpful.*

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Binocular Comparisons. 1/28/2023. 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 (@341+ ft)	Close Focus (@6 ft)	Eye Relief (@15 mm)	Interpupillary Adjustment
Nikon Prostaff P7, 8x42	\$157	20.3oz	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	\$125	24.9 oz	393 ft	6.5 ft	17.8 mm	2.2" to 2.9"
Opticron Oregon 4 PC Oasis, 8x32	\$175	17.5 oz	423'	5.9 ft	15 mm	2.3" to 2.9"
Vortex Diamondback HD, 8x32	\$220	15.9 oz	426 ft	5 ft	16 mm	2.2" to 2.9"
Vortex Diamondback HD, 8x42	\$240	21.8 oz	393 ft	5 ft	17 mm	2.2" to 2.9"
Kowa SV II, 8x42	\$279	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	\$309	23.6 oz	393 ft	6.6 ft	17 mm	2.2" to 2.9"
Nikon Monarch 5, 8x42	\$287	22.2 oz	335 ft	8.2 ft	19.5 mm	2.2" to 2.8"
Nikon Monarch 5, 10x42	\$297	22.6oz	293 ft	8.2 ft	18.4 mm	2.2" to 2.8"
Opticron Traveler BGA ED, 8x32	\$479	15.9 oz	429 ft	5.9 ft	19 mm	2" to 2.9"
Zeiss Terra ED, 8x42	\$500	25.6 oz	375 ft	5.3 ft	18 mm	2.3" to 3"
Vortex Viper HD 2018, 8x42	\$490	24.5 oz	409 ft	6.5 ft	18.0 mm	2.2" to 3"
Nikon Monarch 7, 8x42	\$487	23.6 oz	435 ft	8.2 ft	17.1 mm	2.2" to 2.8"
Maven B3 ED, 8x30	\$550	16.6 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 B1.2, 8x42	\$950+	26.9 oz	420 ft	4.9 ft	18.1 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	\$987	23.5 oz	476 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	32.4 oz	420 ft	4.5 ft	16.7 mm	2.2" to 3.0"
Leica Noctivid, 8x42	\$2849	30.3 oz	405 ft	6.2 ft	19 mm	2.2" to 2.9"
Zeiss Victory SF T, 8x42	\$2900	27.8 oz	444 ft	4.9 ft	18 mm	2.2" to 3"
Swarovski NL Pure, 8x42	\$3299	29.5 oz	477 ft	6.6 ft	18 mm	2.2" to 2.9"
Canon Image Stabilized L IS WP, 10x42	\$1499	38.4 oz	341 ft	8.2 ft	16 mm	2.2" to 3"