

computers well enough you could export your Plover files to a spreadsheet or dBASE IV and get into some serious statistical work. The Plover manual covers all these subjects. Because it is powerful, it will take more time to learn to use Plover and many of its capabilities may not be needed by the novice birder or computer user. I offer these comments as an observation rather than a criticism. Plover is a good program.

Name: BirdBase 2 (1991 Update)

Publisher: Santa Barbara Software Products, Inc.

Address: 1400 Dover Road, Santa Barbara, CA 93103

PC Requirements: DOS 2.0 or+, three floppy or 1 hard drive, 256K (640K for world)

Cost: 3 (US) \$65.00 + \$3.00 SH

2 (World) \$99.95 + \$5.00 SH

Ease of Use: 3 copy-protected, requires key disk, good name search.

Basic Functions: 4 good at updating multiple lists (e.g. life, state, yard)

Power: 3 world-list capability, but more expensive

Design: 4 clean, logical, simple

Overall Score: 17 (US) 16 (World)

BirdBase 2 is a good program for keeping multiple lists. It is easy to learn and has a very good search facility which will accept any part or all of a species' name. As is true of other programs, BirdBase has utilities for addressing the problems of species splitting and lumping. Bird Base has a good manual and tutorial. BirdBase is the only program which offers the ability to deal with birds of the world rather than just North America. It is unfortunate that this ability costs extra. My major problem with BirdBase is that it is copy-protected and requires a key disk to function. This is annoying all the time, but it is critical if your key disk becomes damaged. Major software companies like Ashton-Tate and Lotus abandoned this scheme some time ago because of

user complaints. If the program were not copy-protected and the world list were included in the base price I would give this program an overall score of 19.

Name: BIRDSTAR

Publisher: LJB Expert Systems

Address: 96 Craig Drive, Kitchener, Ontario, Canada, N2B 2J3

PC Requirements: DOS 2.0 or+, one floppy or 1 hard drive, 320K RAM

Cost: 4 \$39.95

Ease of Use: 3 not copy-protected, intuitive but no manual or help

Basic Functions: 2 no built-in species names or sorting codes

Power: 3 databases files could be imported/exported, but not on menus

Design: 3 Clean, logical, limited

Overall Score: 15

BirdStar is an adequate program for simple listing. It is possible to make it more powerful if you have some computer experience and knowledge of dBASE III+. For example, I imported a text file of species names into the BirdStar master file so I wouldn't have to type in each name myself and possibly make a typing mistake. The design is simple and clean. There is no real manual provided. You can search by date, species, place or family. The "families," however, are described not by standard taxonomic classification but by headings like "long-legged waders," and "ducks." Some families are missing from these vernacular groupings. If your needs are simple, and the publisher is still offering the introductory sale price of \$19.95, this program would not be a bad investment as an introduction to computerized bird listing. I like the open attitude of the publishers and expect that this will evolve into a more complete program in the future.

Name: FLEXI-LIST (2.2a)

Publisher: Parkway Software

Address: P.O. Box 275, Villanova, PA 19085

PC Requirements: DOS 2.0 or+, one floppy or hard drive, 256K RAM

Cost: 3 \$50.00 + \$3.00 SH

Ease of Use: 1 data entry very awkward

Basic Functions: 2 uses four-letter name code

Power: 1

Design: 1

Overall Score: 8

FLEXI-LIST includes a file of species names sorted in American Ornithologists' Union order and four-letter bird bander codes. The design is based on the assumption that this be used as a base for creating your own customized lists. This is a sound idea; however, you could just as well spend your time learning a canned program like dBASE IV or LOTUS and develop your own files from scratch. The file creation and bird addition functions are very awkward and would leave a novice quite lost.

ED MAIR is founder and president of the Newburyport Birders' Exchange, an association of birdwatchers who use personal computers. He is the author of A Field Guide to Personal Computers for Bird Watchers (Prentice-Hall, 1985).



by Malcolm Abrams

SONGFINDER

IF IT'S TRUE THAT THE AVERAGE AGE of the American birder is 47, then the average birder has already, or will very soon, suffer moderate hearing loss in the upper frequency range. By age 60, moderate loss or worse is the norm.

Chances are you will still hear dinner party conversations, the dentist's drill, and the blast of traffic. But what you won't hear are the breathtaking sonata of a Winter Wren, the buzzing trills of the Cedar



Blackpoll Warbler,
8900 Hz.



Cape May Warbler,
10,000 Hz.



Brown Creeper,
7000 Hz.



Henslow's Sparrow,
7000 Hz.



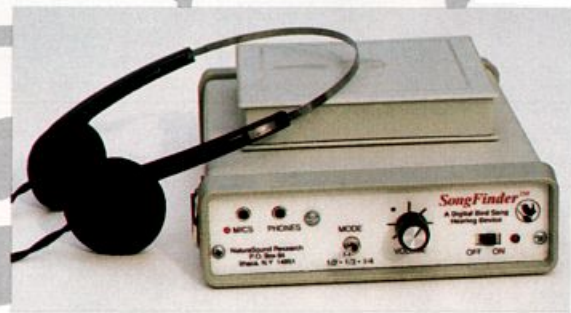
Blackburnian Warbler,
7300 Hz.



Grasshopper Sparrow,
8600 Hz.



Orange-crowned Warbler,
6500 Hz.



The SongFinder helps bring the bird songs you're missing back to life.

ous noises like the snapping of twigs do not sound like small explosions.

And most important of all, the SongFinder is a two-channel binaural (stereo) device so the effect is life-like, allowing the user to judge the direction and distance of incoming high-frequency sounds.

The SongFinder weighs two pounds. A small loose-fitting headset is worn, which positions tiny condenser microphones just above each ear. Each microphone picks up incoming sounds and routes them to the walkman-sized processor, which is worn about the waist. High-pitched sounds are lowered in each of the two channels separately and are then fed back to each ear via miniature earphones which do not impair normal hearing.

Right now the SongFinder is available only from Elliott and Sus-

mann directly at NatureSound Research, P.O. Box 84, Ithaca, NY 14851.

Fully half the sounds made by native songbirds in the outdoors are over the 4,000 Hz range. They are silent to millions of bird listeners. If the SongFinder lives up to its promise, it will give them voices again.

THE SONGWAND

WHEN BIRDERS FANTASIZE, A FAVORITE daydream is a field guide that actually sings bird songs. Sort of a sonogram that comes to life.

Dan Kimball, a software engineer in Santa Barbara, California had the dream as he leafed through an old bird guide he'd used in childhood. "Wouldn't it be nice," he thought, "if you could pass a wand over the sonogram and hear the song."

The SongWand is the materialization of Kimball's wandering, resourceful mind. First he developed peel-off labels called BirdCodes. Each label has a bar code identified by the name of a particular bird. These labels, like stickers, are inserted into your favorite field guide next to the illustration of the matching bird.

The main equipment is a wand/scanner, which *via* a cord, is plugged into a portable compact-disc player. When this scanner is passed over the BirdCode label, the song of that specific bird bursts forth from the CD and is amplified by another piece of equipment, a small speaker.

The force behind the sounds are a set of compact discs assembled from the Cornell Laboratory of Ornithology's birdsound library.

Now if this sounds like a lot of



As the SongWand is moved across the bar code, the pictured bird's song is called up on a portable compact disc player.

stuff to put together, consider this, it is all lightweight and compact enough to be taken into the field. Kimball has designed a small nylon carrying case with velcro closures and compartments that is worn over the shoulder. It carries the wand, compact disc player, speaker, discs and field guide. Total weight is about three pounds while the size is eight inches high by six inches wide by two inches deep.

The main purpose of the SongWand is to help birders brush up on their calls before going into the field. A memory function lets you input a series of calls that you want to study, and a quiz function plays them in random order to test your recognition.

In the field, SongWand can be used to identify the real sounds. So if you think you hear a Black-throated Green Warbler, you can run the wand over the Black-throated Green Warbler bar code and match the two songs.

SongWand will be available in about six months through Kimball's



A nylon field case holds the SongWand, compact disc player, speaker, discs and field guide. Total weight: about three pounds.

company, Interactive Audio, P.O. Box 90538, Santa Barbara, California, 93190, or call 1-800-321-WAND. The price has not yet been determined.

77 ELITE SPOTTING SCOPE

A REVOLUTIONARY SPOTTING SCOPE that Bausch & Lomb claims will set a new standard in the field should be available to birders this Fall.

Equipped with EDPrime, Bausch & Lomb's extra low dispersion glass, the 77mm porro prism Elite scope is said to provide maximum optical color correction by significantly reducing dispersion (separation of light into its component colors) and focusing the three principle wave length groups (red, green & blue) on a single image plane.

"The result," says a Bausch & Lomb spokesperson, "is an incredibly sharp image with unsurpassed definition, high contrast and true colors." Further, says the company official, "the combination of light gathering ability of the large 77mm objective and fully multi-coated optical surfaces provides remarkable image brightness. EDPrime enables the Elite scope to resolve extra fine details at long distances, a critical factor in field identification."

Birders will be able to test the new scope for themselves in April when it will be available at dealers nationwide. The price for the body only will be \$1,863.95. A variety of eyepieces, sold separately, will range in price from \$306.95 for a 30x to \$466.95 for a 20x-60x zoom.

Spacemaster Spotting Scope with Low Dispersion Glass: Bausch & Lomb is

SPECIFICATIONS

77 mm Bausch & Lomb Elite body with eye piece:

	Zoom	Fixed	Wide Angle
Magnification	20x-60x	300x	20x
Objective Lens Aperture	77 mm	77 mm	77 mm
Field of View @ 1000 Yds.	108 ft. @ 20x 62 ft. @ 60x	78 ft.	175 ft.
Near Focus	17 ft. @ 20x	16 ft.	16 ft.
Eye Relief	22mm @ 20x 12mm @ 60x	21 mm	20.7 mm
Exit Pupil	3.1mm @ 20x	2.2 mm	3.8 mm
Weight	3 lbs., 6 oz.	3lbs., 3oz.	3 lbs., 3 oz.
Length	16 7/8 in.	16 7/8 in.	16 7/8 in.

also going to use its EDPrime extra-low dispersion glass on its 60mm Spacemaster, a popular scope that's been around for more than 20 years.

The new model, No. 78-2000 will be priced at \$639.95 for body only and should be available in March.

Objective Lens Aperture: 60mm

Weight: 38.4 oz.

Length: 11.6 inches

TICK CHAPS

NOT ALL NEW INVENTIONS DESIGNED to help birders are high tech. The prototype of a product that prevents Lyme Disease was stitched together on a home sewing machine by a Department of Natural Resources' wildlife manager.

Tick Chaps, a variation on cowboy gear, were designed by Carl McIlquham of Antigo, WI, so that people who love to be in the outdoors can be there without fear. The chaps keep ticks from making contact with your lower legs and from moving up your body to other vulnerable areas.

For years McIlquham had told his wife Barbara that someone just had to make something to protect people from ticks. "One evening about two and a half years ago, I came home, and Carl was working at the sewing machine. I knew then that he was in earnest," Barbara, a third grade teacher, recalled.

Together, they developed and tested Tick Chaps. The thigh-high chaps are made from strong, lightweight nylon. Side zippers make them easy to get on and off. Elastics at the ankles help prevent ticks from crawling underneath the chaps, and the nylon itself is slippery, so ticks have a hard time taking hold. Tick Chaps come in a variety of colors, all light so that ticks are easy to spot.

The truly innovative part of the chap is the "tick flap," an inverted

cuff located at mid-thigh, that impedes the upward movement of any tenacious tick. And for even more protection, each flap overlaps the "killer strip," a band of absorbent material over a non-absorbent backing, where one can apply tick repellent. McIlquham insists that the chaps are effective without using repellents, but if the wearer wants extra protection, repellents containing DEET or permethrin work fine on the chaps. The "flap" and the "strip" minimize evaporation of the repellent, prevent it from rubbing off, and protect the wearer from getting repellent on skin and clothes.

In informal field tests around Wisconsin, the McIlquhams claim that people wearing Tick Chaps end up with 98 percent fewer ticks than those who don't. But perhaps the best testament to their effectiveness is that many state agencies and the Army Corps of Engineers are purchasing the Tick Chaps for personnel in the field.

Right now, Tick Chaps are a cottage industry available through the



A feature of tick Chaps is the "tick flap," an inverted cuff located at mid-thigh designed to impede the upward movement of ticks.

mail from Forest Mate, P.O. Box 600, Antigo, WI 54409. Prices range from \$29.95 to \$34.95.

MALCOLM ABRAMS is a magazine consultant and writer. He is co-author of *Future Stuff* and *More Future Stuff* (Penguin Books).

CAPTURE THE MOVEMENT: VIDEO CAMERAS IN THE FIELD

by Michael Godfrey

A FEW MILES EAST OF PATAGONIA, Arizona, I got my first look at a Zone-tailed Hawk. The experience lasted less than a full second—specifically it lasted only so long as I needed to pick the bird from among the Turkey Vultures in whose company it had enrolled itself, likely for the well published subterfuge of seeming harmless.

The next second found me fumbling desperately with the heavy tripod, recorder, camera, microphone, and the ubiquitous spaghetti of cables attending broadcast-grade video. It takes a few minutes, if all goes well, which in this instance all did, for the birds kettled out over a wash before me, spiraling, mingling, in general making nice for the camera, which happened to be white-balanced and full of fresh batteries and tape. One of the Zone-taileds made a lively dip out of its troupe of skills, enough to make the point, visually.

It's all there on tape now. It turns out there were two Zone-taileds, an adult and a recent fledgling which made a pass at the adult, later interpreted for me as begging behavior. The adult made its turns clockwise with the vultures—the youngster