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On taking field notes

Reasons you may never have considered, for keeping good field notes, and how to do it

by J. V. Remsen, Jr.

MOST READERS OF this journal have progressed beyond (or never entered) the stage of birdwatching when they are interested mainly in adding species to their life list. Most presumably subscribe to this journal for its information content: geographic distribution, seasonal patterns, and population trends of birds. Their interest in birds, while mainly a hobby, has a scientific slant. They are active in the field; this activity may be focused around a single city or county, or it may cover much of the continent, but a significant percentage of time is budgeted towards finding birds. Most readers are pro-

ficient at field identification of at least the expected species at familiar localities. Thus they could potentially produce substantial amounts of valuable information from their field excursions. However, deplorably few readers record their observations in a meaningful or useful way. The purpose of this paper is to show why one should take field notes, how they should be written, and how they can be used.

Why take field notes?

THIS PAPER WAS stimulated by a recent experience in which I attempted to

gather information to supplement my field work on the status of the birds of a small, discrete portion of the California Desert (East Mojave Desert Planning Unit of the Bureau of Land Management). The purpose was to document for B.L.M. the portions of that desert which had values as Primitive Areas and Natural Areas based on the diverse or unique character of their avifaunas, and to publish a detailed, annotated status report for the area. Thus the investigation was of significance to conservation, science, and management. Hundreds of birders had visited the area, but beyond having recorded the date they saw their "lifer" Bendire's Thrasher, Gilded Flicker, or Gray Vireo, many had not recorded a single note from their visits. Thousands of birder-hours which could have yielded much critical information on the local avifauna were, for the purposes of conservation and science, wasted. The vast majority of those with information had recorded only species which they considered unusual for the area or those new to their "year list." As a result, before my own spring field work had begun, I had accumulated from other sources more records for Black-and-white Warbler, a very rare species in California, than Orange-crowned, Nashville, Yellow, Townsend's, MacGillivray's, or Wilson's Warblers, all common migrants in the area. Those with information including more than just unusual species had recorded it in such poor detail that it was almost useless: numerous localities, often hundreds of miles apart or covering many habitats, were lumped in one checklist, and species seen were marked only with an "X" rather than with any indication of relative abundance. Little additional effort would have been required to replace that "X" with a number. Many who had information had recorded their data in such a way that it was prohibitively time-consuming to retrieve records from their field notes; they had visited the area occasionally through the years but could not recollect exactly when, not even which year, and the only way to extract the information was to plough through years of notebooks or checklists. Only three of many birders I contacted had recorded numbers for all birds seen, even common species (thank you Guy McCaskie, Dick Erickson, and Don Roberson).

THE COMMON EXCUSE for not having better field notes is "too busy." However, it is usually the busiest, hardest-working people who have the best field notes. There is usually a direct correlation between those who insist they are too busy and those with the most time on their hands. Very few are willing to admit that laziness was the real cause for the absence of notes. Most birding these days is done via automobiles and with at least one companion; time between stops and the return trip can often be used by passengers to write field notes for themselves, or their driver, as most of my victimized passengers through the years can attest. Relaxation time in front of the television or stereo is a good source of potential field note writing time. One doesn't always have to take time away from other activities to write field notes.

The next most common excuse for lack of field notes is "who would ever use them?" In many cases there may be no immediate demand. But this is poor foresight. Checklists are continuously compiled and updated for National, State, County, and City Parks, National Wildlife Refuges, counties, townships, sanctuaries, etc. In California, many heavily annotated checklists are being compiled for almost all of the 58 counties. Over the next 10 years, the Desert Plan Staff of the Bureau of Land Management will be attempting to compile annotated lists for all of the California Desert, area by area, in deciding which sections will be open or closed to off-road vehicles, mining, grazing, and geothermal development. The "Lat-Long" system of compiling bird distribution is catching on in many western states. All of these endeavors benefit immensely from well taken field notes. You also never know when you, yourself, will become intensely interested in the status of the birds in your favorite locality and agonize over all those days you spent there without recording what you saw. Perhaps of greatest overall significance is the value your field notes will have 10, 25, 50, and 100 years from now. Bird status is constantly changing through time, even in areas not heavily influenced by man, and of course human influence on bird status is very important to establish. Only by meticulously recording numbers of all individual birds seen at precise localities can this type of change be properly documented. See Johnson and

Remson, J.V. 1976	Golden Eagle <u>Aquila chrysaetos</u>
Jan. 4	<u>Thousand Oaks, Ventura Co., Calif.</u> - 1 im. 5 mi. e. of Thousand Oaks
Jan. 6	<u>Eastern Mohave Desert, San Bernardino Co., Calif.</u> : 1 ad. nr. Kelso
Jan. 7	<u>E. Mohave Desert</u> : 1 ad. Sagamore Cyn
Jan. 9	<u>Newberry Spgs, San Bernardino Co., Calif.</u> : 2 ad.
Jan. 28	<u>E. Mojave Desert</u> : 2 ad at Cima Dome
Feb. 4	<u>E. Mojave Desert</u> : 1 ad. Ft. Piute
Feb. 5	<u>E. Mojave Desert</u> : 1 ad. Piute Wash
Feb. 14	<u>Monterey area, Monterey Co., Calif.</u> : 1 im. upper Robinson Cyn.

Figure 1. Example of a Species Account. Dates are placed to the left of the margin and localities, with wavy underline, are to the right. These locality names should agree exactly with the locality names used for your Journal entry for that day. Note that "E. Mojave Desert" would be a locality too large to normally be used but in this case refers to an official name of a "Planning Unit" of the Bureau of Land Management and is followed by a precise locality.

Garrett (1974) for an example of how natural changes in bird distribution have been demonstrated using detailed field notes as the foundation. Most natural history museums or public libraries will gladly accept field notes for their permanent files if these are written in a usable fashion. All persons who do keep good field notes should seek to have them deposited with or willed to some responsible institution.

How to take field notes

I WILL NOW SUGGEST a format for note keeping developed by the innovative Joseph Grinnell of the Museum of Vertebrate Zoology (M.V.Z.), University of California, Berkeley, California. This note-keeping system has been used for decades by scientists associated with the Museum. Although everyone may have personal preferences, following an established, standardized format has the great advantage of being familiar to, and thus more readily used by, a larger number of people. Grinnell's philosophy was that field notes were mainly for the use of others and so a standard format was necessary to facilitate fast retrieval of information. This can really be appreciated in the M.V.Z.

library where one can refer to the field notes of any one of the 100 or more scientists whose work has spanned 70 years and yet have been recorded in a manner familiar to anyone associated with M.V.Z. This system is also widely used by other disciplines involving field biology, e.g., mammalogy (Hall and Kelson, 1959) and herpetology (Stebbins, 1966).

Grinnell's notes are organized by calendar year. Each year's notes are divided into three sections: Journal, Catalogue, and Species Accounts. The Catalogue is the list of specimens collected with all the appropriate locality and measurement data; this part is not of use to most *American Birds* readers. The Journal is basically a diary—a chronological sequence of your field trips with locality, descriptions, weather, and species lists. The Species Accounts are pages devoted to more detailed notes on particular species. The details of the formats are best deduced from Figs. 1-4 and their legends.

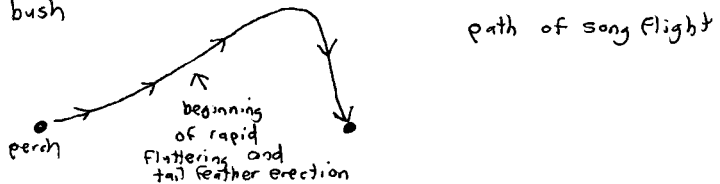
Species accounts

THE SPECIES ACCOUNTS are an easy way to keep track of important information on particular species, (e.g. National Audubon

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Cassin's Sparrow
Aimophila cassinii

May 9 El Cajon, San Diego Co., Calif. One vigorously singing bird in a patch of early successional stage chaparral with tall grass on a hilltop with scattered houses in vicinity. The bird had been located and tape-recorded the previous day by local residents. Guy McCaskie and I arrived at 0610 and the bird was singing as soon as we got out of the car. The song was given from a concealed perch 2-4 ft up in a bush as well as an occasional "sky-larking" song flight in which the bird flew diagonally upward fluttering its wings rapidly, holding its head upwards, and erecting feathers on its lower back (exposing a pale area), almost stopping, and then descending to a concealed perch in a bush



The song had four parts :

brief introductory
low buzz

series of clear, whistled
notes in decelerating
trill

two distinct minor
key notes with 1/2
sec. pause between
them; first much
lower-pitched than
second.



This song was virtually identical to that on the Peterson Western Bird Songs tapes.

This bird also occasionally gave a buzzy song, which seemed to be an

Figure 2. Example of a Species Account for an unusual species. Note that behavior, vocalizations, habitat, and comparison with similar species as well as plumage descriptions are included.

Society Blue List species), facilitating extraction from your field notes at any later time. For instance, if someone is interested in your locality records or age ratios for Golden Eagles, even for those with good field notes,

the researcher would be faced with the tedious chore of ploughing through your notes page-by-page looking for Golden Eagles. If, however, your notes contained pages devoted only to Golden Eagles, the researcher could

Remsen,
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1976

Cassin's Sparrow
Aimophila cassinii

El Cajon, San Diego Co, Calif. [cont.]

May 9
[cont.]

The face was a uniform pale grayish with a faint, diffuse, narrow, paler eye-ring; iris was dark; bill was pale, lower mandible paler than upper; underparts grayish, palest on chin; crown had an indistinct pale median stripe which disappeared by about the top of the head; crown bordered by poorly defined, brownish, broad stripes; each of these stripes had darker, finer stripes within the stripe. The upperparts were more of a brownish gray, with paler edgings on feathers of back; there was a pale area on the leading edge of the wing; The tail showed distinct whitish corners in flight (which McCaskie said were absent or barely visible in Botteri's), Botteri's Sparrow (which I have never seen) is supposed to have a richer brown tone to upperparts with some rusty color in primaries and a more heavily marked face, in addition to a drastically different song.

off Lyons, Phil Unitt, Bruce Broadbooks,
Beth Cooper, Mike Evans, Tim Hennrich,
and John Butler.

Figure 2. (continued).

obtain the needed information from these pages in a fraction of the time. See Figure 1 for an example. Similarly, someone looking for records of a vagrant species and hoping to see your details on the observation would find the Species Accounts very handy. See Figure 2 for an example.

Many of us often make detailed notes on the behavior of common species. If incorporated into one's diary system of notes, they may become very difficult to extract unless the exact date can be remembered. For example, 10 years from now, you may have a hard time remembering when you wrote all those notes on the nest-building behavior of a Gray Vireo you watched one day or the description of the song and calls of that Le Conte's Thrasher you so diligently recorded. See Figure 3 for an example. Be sure to quantify behavioral observations as much as possible. The information content

of a statement such as "some Brewer's Sparrows were watched for a long time feeding in low bushes" can be improved with little additional effort by changing to "seven Brewer's Sparrows were watched for 20 minutes feeding in the crowns of 3-foot high sagebrush." My Species Accounts also often contain drawings or photographs of vagrant species to accompany descriptions, hand-drawn maps for directions to localities, notes on discussions with other birders concerning field identification, comments on inaccuracies in field guide plates, and thoughts of a theoretical nature on why a certain bird does what it does or lives where it lives. Putting together a seasonal report to send to your local *American Birds* Regional Editor is greatly simplified by Species Accounts. Instead of having to study stacks of checklists, you just go through your Species Accounts, which are already filed in Taxo-

Remsen,
J.V.
1974

Red-headed Manakin
Pipra rubrocapilla

Sept. 8

Bella Vista, río Cayaruf, Loreto, Peru: 3♂ + 1♀ ~ 2 mi. inland in understorey of tierra firme forest. The male sits on an exposed branch of a sapling and gives a two-noted frog-like call "chish, thin" (low, buzzy, frog-like) "seet zwanll".

He occasionally flies away from the perch, perches somewhere else for 10-30 seconds, and then returns rapidly in flight to his song perch with a frog-like "zwanll" and a low whirr of the wings as he stops abruptly; in flight on the return he gives 3-4 thin high notes similar to the "seet" above, but each one gets louder as he approaches the perch. Holds wings outstretched for an instant after perching -

Two males were observed for 10 minutes interacting and displaying on the same perch. One bird's posture was normal but the other bird was continually hunched, fluttering its wings, and facing away from the other male. One or both males would leave the perch and then return with the display described above. A ♀ male was observed in the vicinity, but only for a second, and was assumed to be this species.

♂ - all jet black except red crown, nape, face to below eyes. Base of bill pale yellowish.

Figure 3. Example of a Species Account for behavioral observations.

onomic order and hopefully contain all significant information from that season. Species accounts are not written for every species, but for those that you consider unusual or significant.

The Journal

The Journal is straightforward, and is the form of notes kept by most people who keep any detailed notes at all. An example is given in Figure 4. A Journal allows anyone to see what species and how many of each were seen at a given locality on a given day. The general locality should be underlined or somehow highlighted for easy reference. Under the locality heading, the "Area" section describes just where you went at that locality and the type of habitat(s) visited. Others using your notes will find some brief description of the habitat very useful, and you yourself might not be able to recall ten years from now what the place was like; also, places do change through time, and this makes good locality descriptions very valuable. The smaller the locality, the more meaningful the bird list will be. In other words, a locality such as Yosemite National Park is almost useless because of the wide range of habitats within the Park, but specific locality headings for each spot visited such as Bridalveil Camp-

ground, Tuolumne Meadows, Merced Grove, etc., are very useful. Basically, a locality heading should encompass a small geographic area and ideally one habitat. Sometimes on days when a large number of brief stops are made at a wide assortment of places, this system becomes unmanageable, but for most types of birding, it works. If your notes contain precise locality information, they may be used by agencies preparing Environmental Impact Statements and Environmental Assessment Reports and may be sold to these agencies for a fee.

One should always include a list of fellow observers because this gives someone wanting verification of possibly questionable birds on your list the opportunity to contact the other people involved. Also, noting who you were with often makes recollection of details of the day's birding easier. Many times I have used the observer section to find the name of someone I met on some field trip. The "Time" section gives an idea of the amount of birding effort spent at that locality, certainly spending 10 minutes or 10 hours is going to make quite a difference in the thoroughness and accuracy of your species list and number totals. Also, whether your two hours of birding was spent at dawn or mid-day is very important in judging the

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J.V.
1976
Jan. 25

Journal

Salton Sea, Imperial Co, Calif.

Area: Finney Lake, Ramer Lake, Wister Unit, N. land, Davis Rd,
Red Hill, Salton Sea NWR, adjoining roads

Time: 0700-1730 Observers: Jon Dunn, Guy McCaskie, Roger

Higson (England). Temp: 40-75 Sky: sunny wind: 0

Species	Arctic Loon	2 (Sp. Acct)	Am. Avocet	300
	Booted Grebe	1	Black-necked Stilt	20
	Eared Grebe	1000	Yellow-footed Gull (Sp. Acct)	1
	Western Grebe	8	Herring Gull	35
	Pied-billed Grebe	10	Ring-billed Gull	1000
	Double-crested Cormorant	2	Mew Gull	1
	Great Blue Heron	10	Red-tail Dove	50
	Green Heron	1	Mourning Dove	250
	Cattle Egret	1500	Ground Dove	15
	Snowy Egret	20	Greater Roadrunner	2
	[Am. Bittern - 1 - GM, JD]		Burrowing Owl	2
	White-faced Ibis	75	White-throated Swift	2
	Canada Goose	1000	Common Flicker	7
	Snow Goose	2000	Red-naped Sapsucker	1
	Ross' Goose	121	Ladder-backed Woodpecker	2

Figure 4. Example of a Journal. Note that name and year in upper left corner, date to left of margin, and locality heading are repeated on each page since pages are occasionally misplaced.

completeness of the list. Various weather annotations are important in assessing the completeness of the list; wind, temperature, sky conditions, water surface conditions on pelagic trips, and tidal stage are all important. Elevation above sea level is important to record in mountainous areas. All of the introductory material is often lumped in one prose paragraph by most people, including M.V.Z. scientists, but separate headings for each information category make it much easier for anyone trying to obtain information from your notes.

The meat of the journal is the species list. This should be in taxonomic sequence and should have a rough estimate of the number of individuals of each species observed. Exact counts are great but even the grossest estimate is better than the usual "X" on field cards. One can always make some reasonable guess; 1, 10, 100, 1000, 10,000, etc. is better than nothing. When the estimate indeed is an estimate, then rounded numbers should be used: no more exact than the nearest 5 or 10 for numbers below 100 and no more exact than the nearest 50 for numbers above 100, e.g., 15, 20, 25, 30, etc or 100, 150, 200, 250, etc

If you see a flock of Pectoral Sandpipers estimated to contain 100 birds at one pond, 10 on another, and one on a third, recording 111 Pectoral Sandpipers gives the erroneous impression of an exact count. Given the inaccuracies of almost everyone's estimates, recording 100 sandpipers would be more honest.

Many birders cannot see the value in putting down numbers of common species. This is extremely short-sighted. Populations change with time, often dramatically, and only by recording numbers of common species can these changes be documented through time. Many old-timers claim that such-and-such species was much more common or much rarer 20 years ago but without some estimates from those years, all we have are those subjective statements. Your estimates of course cannot substitute for rigorous census data but are certainly an enormous improvement over someone's unsupported recollection of the way things used to be. Indeed, field trips, if properly described in one's field notes, actually can be repeated 20 years later on the same date, time and location for fairly quantitative comparisons. The im-

portance of documenting population changes must be obvious to all readers of *American Birds*.

Short (1969) discusses many ways to improve the information content of daily bird lists by adding notations for age, sex, etc., and these can be added next to the numbers of individuals in your species list. When a Species Account has been written for a species, note this by "Sp. Acct." in parentheses after the number of individuals. For nests which I may not have time to describe in my species accounts, I note N/C (nest under construction), N/4e (nest with 4 eggs), N/4y (nest with four young), etc. after the number total. If you are not 100 per cent confident on your sound identifications, you might note species heard but not seen by an "H.O." (heard only) after the number total. Species passing high overhead and obviously not using the habitat may be noted by an "F.O." (flying overhead). But remember that your notes will be used by others and that any such codes must be clearly explained, preferably each time they are used. Species recorded by others on your field trip but not seen by you should be put in parentheses with the initials of the observer; thus its presence is recorded, but you, yourself, do not have to vouch for the identification, e.g., "(Bachman's Warbler-16-V.R.)." Unusual species or unusual numbers of individuals should be highlighted by underlining to make it easier to locate the more important observations from a locality. I use a single underline for unusual but expected species and a double underline for very unusual species.

A "Comments" section is often useful at the end of a species list to mention overall patterns or trends which are not readily assignable to a species account. For instance, if you wanted to remark that warblers were abnormally abundant on that particular day of migration, or that weather conditions should have produced a migrant wave but did not, or that the habitat is seriously deteriorating in the vicinity, a comments section is the appropriate place.

Joseph Grinnell and his predecessors would shudder to hear that my field notes were actually copied over—anytime a copy is transcribed, there is a chance for error in the copying process. However, it is not always

possible to carry around your field notebook, especially if you use the 6" × 9½" paper favored by M.V.Z. I often carry with me a pocket-sized notebook on which I write notes in the field and then these are transcribed in the evening. This may be a sin, but the positive side is that my notes are legible, whereas I know if they were all written on the spot, the errors due to illegibility would far outweigh those due to inaccuracies in transcription. If you do take your final copy notes with you into the field, be sure to leave at home pages already completed, since loss of irreplaceable field notes is the ultimate sin. This is one good reason to use loose-leaf binders. Another is that your Species Accounts will grow through the year and if the pages are loose-leaf, they may be filed in taxonomic order on a continually revised basis. A third is that with loose-leaf binders, you do not have a worry about buying bound notebooks with the right amount of paper for a year's notes. Loose-leaf pages can be bound by commercial bookbinders at reasonable cost for your safekeeping at the end of the year.

I hope I have converted some readers of *American Birds* to good field note takers. Some converts will certainly give up the endeavor after a time because it takes too much effort and time, but I hope that most will immediately see the value in the system and continue to use it indefinitely.

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