

This reading includes guidelines for developing your journals. Not everything discussed in the reading will apply to how you will prepare a journal for the class however; most of the information is applicable and should be followed. Journal entries are generally prepared at the end of the day. For most individuals it is useful to keep a field note book to help remember details (see page 43 for an example).

THE NATURALIST'S FIELD JOURNAL

**A Manual of Instruction Based on a System
Established by Joseph Grinnell**

by

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I took Notes of a Naturalist during the voyage of the Beagle to my chair atop the cabin, and for several hours have wandered again with Darwin over the pampas of Patagonia, through the Galapagos Isles, across the Pacific to Tahiti, and then on to Keeling in the Indian Ocean. How I long to see with the eyes of that matchless man of science, and to write with his pen! When I come home, I must study more geology. I want to be able to grasp something of the whole scope of nature in the lands and seas I visit; to be broad, not narrow; to be both a naturalist and a humanist, not a mere specialist. In technical work a man of this age must specialize, but in a reconnaissance of a part of the earth's face, whether soil or sea, I want my comprehension, like that of Charles Darwin, to be able to interpret the underlying significance of clouds, hailstones, argillaceous rock, hot springs, cacti, land planarians, ice-borne boulders, carrion beetles, wingless flies, graminivorous birds, nest building fish, viviparous reptiles, dodders, omnivorous rodents, sessile-eyed crustaceans, insect-eating plants, and foraminiferous protozoans! Nature is a chain, a million-knotted web or fishnet of life. Nothing exists of or for itself, but only in relation to other organisms, as Darwin seemed to know more thoroughly than anyone else.

Robert Cushman Murphy, in Logbook for Grace (1947), written from a journal he kept on a trip to the Antarctic as a naturalist on the whaling brig Daisy, 1912-13.

IV

FORMAT AND STYLE

Certain rules apply equally to all three components of the system, or are closely related and have similar origins. Consistency in style and format is one of the great values and requirements of the system. The standardization described here will enhance the value of your notes and allow them to be used -- by yourself and by others -- with efficiency and predictability. These guidelines are meant to have little or no flexibility; consistency is impossible without rules. If you choose to use this system (or are required to) you must follow these guidelines. A system is, by definition, a "complex whole, a set of connected things or parts, an organized body of material..." The content of your Journal, Species Accounts and Catalog will be the important quality that will be judged; it will be most easily evaluated and objectively viewed if it is written within the framework here described.

Duration, Order, and Pagination

All three parts are written on the basis of a calendar year. They are opened on 1 January (or the first day of the year that field work is done) and closed on 31 December. Ideally, a year's notes are then sent to the binder. They should be organized with the Journal first, the Species Accounts second (in respective phylogenetic order, as it is officially recognized for various groups, but with the groups arranged in order of frequency of use, e.g., birds, mammals, amphibians and reptiles, fish, and, finally, plants) and Catalog third. All entries are made chronologically within the sections. The Catalog presents a unique problem in this regard because all collected material is numbered consecutively from the first specimen taken by the collector until the death of the collector. It is likely, then, that the end of the year will find the Catalog entries in mid-page. The best way to resolve this problem is to write "last catalog entry for 19--" prominently under the last entry, then draw a diagonal line from just below the left side of the last line of script to the lower right hand corner of the page.

Page numbers in the Journal may be consecutive through the life of the observer (as they were for Grinnell) or begun anew for each calendar year. It is probably best to number them for each year. I have yet to see an indexed Journal, but indexing is an excellent goal, and it would be done most easily for individual years. There is less need to number the pages of each Species Account, most of which are not likely to exceed two or three pages. Those that cover species studied in depth may include many pages, and would benefit from numbering. In any case, Species Account pages should be numbered on a species by species basis, not consecutively through a series. The Catalog pages are numbered as the Journal pages. Here the argument for consecutive numbering through the years is stronger than it is with the Journal. Choose a pattern and stick with it. In practice it is best not to number any pages until the Journal is complete and all entries are made in the Species Accounts and Catalog. Pagination is an excellent way to assist the passage of New Year's Eve.

Writing On One Side of the Sheet Only

Grinnell's notebook paper was lined on only one side. Commercially available paper is lined on both sides, but only one side is used for notes. There are several reasons for this rule. Most important is the fact that margins

do not work out properly if both sides are used. A margin on the left side of a reversed page is an ugly and distracting thing, and it obligates the writer to write in the direction of the binder holes instead of away from them. Beyond that, script on both sides of a sheet creates problems with xeroxing (a problem not specifically anticipated by Grinnell) because the second side is liable to "show through." Finally, opposite, "left hand" pages are useful for maps and drawings in the Journal, when an area of some size is needed. These can complement the facing text, and don't seriously confuse when they stimulate the xerox sensor.

Neatness, Penmanship, and Space Economy

The value of neatness should be self-evident, but often such evidence is difficult to find. A neatly, evenly written page is far easier to read than one that is scribbled and includes several script styles. Styles of penmanship are usually cast at puberty, but they can be improved. This journal system should be a stimulus to do just that. A little practice will always pay in clearer script. One should not, however, go to lettering to achieve this result. Lettering normally is far too slow. Practice copying something already written on a Journal page. Your speed will improve until the only factor limiting pace is the flow of information from your field notebook through your head, not the mechanics of digit movement.

Neatness can be carried to an extreme. The act of writing neatly should always be a means, not an end in itself. Mistakes -- misspelled or omitted words, improperly written numbers, errors in localities or sentence structure -- are bound to occur. They should be dealt with by neatly crossing out the offending words with a single or at most double horizontal line, and rewriting in subsequent space or just above the written line. The "white out" material, recently introduced into our culture and applied as a liquid that dries and is written over, should never be used in a Journal, Species Accounts, or Catalog. It gives the completed page an appearance properly belonging to masonry, not natural history notes. Furthermore, it often cracks and peels off as it ages.

There is no good reason to use paragraphs in the text of Journals or Species Accounts, and they have no place in the Catalog. The indentations waste space and do not contribute significantly to readability in the required style. Accounts are adequately set off by dates and by the underlining of localities and species names.

Species lists are commonly parts of Journal entries, and usually come at the end of a day or trip account. Much space can be lost by putting these in columns, but this can be done to good effect with sufficient planning. I prefer to make such lists without columns, running the names as the remainder of the text appears, but this is another area where some judgement can be applied, providing that the result maintains neatness and doesn't sacrifice space.

Consecutive Writing

All accounts are written consecutively. Don't start a new page for every new day in your Journal; start the next day on the next line, whether that be on the same or the next page. Every Species Account begins on a separate page but is then consecutive for each entry. The Catalog is consecutive also, as described above. This is an important pattern, often missed by beginners.

When you do come to the bottom of the page, go directly to the top of a new, properly titled page and begin writing your account on the second line. On the first line write the date left of the margin and "continued" just to the right of the margin. Some prefer to repeat the locality information here, but this is unnecessary if the writer is organized enough to keep the pages from getting shuffled or misplaced. The date and content should be enough to return the page to proper order even if temporary disorganization occurs.

Recording the Locality

Every entry (in Journal, Species Account, or Catalog) begins with a description of the locality where the observation (or collection) was made. The precision of the locality information required varies slightly for each of the three parts. These differences will be dealt with in subsequent descriptions of Journal, Species Accounts, and Catalog, but there are a number of principles and format rules that are common to all three.

The locality should be as concise as possible without sacrificing accuracy. Order the locality information in such a way that it goes from the most detailed part to the most general, e.g., 2 miles NNE of Elko, Humboldt Co., Nevada. Always include the county and state. Remember, the main purpose of your locality entry is to allow you or someone else (perhaps decades after your expiration) to go to the same place you made your observations or collections. Distances should be recorded as direct (air) miles or kilometers from a prominent landmark. The nearest post office is commonly used for this purpose. Elevations are often appropriate parts of locality descriptions.

Underlining

Localities are underlined with a straight line. The first line of the locality entry always shows the date on the left of the margin, and begins just to the right of that margin. This first line is underlined from the left to the right side of the page, including the date. Subsequent lines in the locality are underlined only from the margin to the right side of the page. If concisely and properly written, locality entries almost never run more than three lines. Most will occupy a single line. In most cases it is a good idea to strive for locality descriptions that take only one line, but don't hesitate to go beyond that in the interest of completeness. The function of underlining is lost if there is too much of it.

Species English names are underlined with a wavy line in the body of a Journal or Species Account entry (e.g., great blue heron, glaucous-winged gull, or bronzed cowbird) except that species that are the subjects in Species Accounts are not underlined in their own species accounts. All standard names of species are underlined with straight lines wherever they occur (e.g., Ardea herodias, Larus glaucescens or Tangavius aeneus).

In species lists, especially long ones, underlining may be omitted or retained, depending on arrangement. The main purpose of underlining is to draw attention easily to the item of importance; if a majority of the content is underlined, this value is lost.

Abbreviations

Be very frugal in your use of abbreviations. They can be time-saving for you when you are writing, but time-consuming later. The most logical and apparently transparent abbreviation can become hopelessly obscure with the passage of time or to another worker. For all but the most widely used abbreviations, describe in full what they mean in every year's Journal or Species Accounts. Do this without fail! It is best to use only the most obvious abbreviations (e.g., N, S, E, W or variations of them: HQ, km, mm, ha, etc.). Write it out when in doubt. Resist the temptation to go to code in your Journal or Species Accounts.

Capitalization

All bird names in English should be capitalized (Great Blue Heron, Glaucous-winged Gull, Bronzed Cowbird) when written in typescript or printed. In a Journal or Species Account, however, the normal function of capitalization is served more efficiently by underlining. For that reason I seldom capitalize these names. By this means I avoid some decisions and some expenditure of time. Person's names should always be capitalized, however, and other conventions should be followed in this regard, especially with respect to capitalizing the first word in a sentence and the names of cities, counties and states.

Numbers

Substitute numerals for words whenever possible, unless a numeral is obviously awkward. In practice only the word "one" as opposed to the numeral "1" gives trouble here. Never begin a sentence with a single number (1-9); write it out. Please note that these rules are meant for use with this note-taking system. Other more complex rules exist for other prose forms.

Dates

Dates should always be written in the form "12 June 1978." Avoid the use of the potentially confusing "12-6-78" or "6-12-78" or "June 12, 1978". The only possible exception to this rule is with the date that accompanies the locality, and appears in the margin. Because the year involved appears separately, the possibility of confusion with it is eliminated. If something is lost on the left side during xeroxing (as is often the case with bound journals) better it be a few letters in the month than the numerals in the date.

Times

Times are always written according to the international convention, i.e., 1400 for 2:00 P.M., 2400 for midnight, 1933 for 7:33 P.M., 0220 for 2:20 A.M. and etc., NOT 14:00 or 24:00 or 19:33 or 02:20. Also be careful to note in your Journal when times "change," that is, when your time zone goes from Standard to Daylight time and vice-versa or when you travel from one time zone to another. Times are a very important part of quantification in natural history. Carry a watch.

General Style Guidelines

Everything written in the Journal and Species Accounts should be directly quotable in a publication. Write in complete sentences as a general rule; avoid

telegraphic style unless to do otherwise is awkward or affected. Your notes should always be detailed, including even observations you might consider unimportant at the time you are writing. It is not always possible to anticipate the future importance of data. Remember that your Journal is not a diary. It is a document meant for the use of others as well as yourself. It is a scientific document and therefore is not the place for fantasy or reverie. Avoid voluminous personal reflection at all cost. Elliott Coues, in his classic Field Ornithology, published in 1874, offers succinct and very sound advice on field note style that is probably even more useful today than it was a century ago. It applies equally well to Journal and Species Accounts and should be read, reread, and heeded by all. After describing what is in the naturalist's head at the end of a field day, he says the following:

Now you know these things, but very likely no one else does; and you know them at the time, but you will not recollect a tithe of them in a few weeks or months, to say nothing of years. Don't trust your memory; it will trip you up; what is clear now will grow obscure; what is found will be lost. Write down everything while it is fresh in your mind; write it out in full -- time so spent now will be time saved in the end, when you offer your researches to the discriminating public. Don't be satisfied with a dry-as-dust item; clothe a skeleton fact, and breathe life into it with thoughts that glow; let the paper smell of the woods. There's a pulse in a new fact; catch the rhythm before it dies. Keep off the quicksands of mere memorandum -- that means something 'to be remembered,' which is just what you cannot do. Shun abbreviations; such keys rust with disuse, and may fail in after times to unlock the secret that should have been laid bare in the beginning. Use no signs intelligible only to yourself; your note-books may come to be overhauled by others whom you would not wish to disappoint. Be sparing of sentiment, a delicate thing, easily degraded to drivel; crude enthusiasm always hacks instead of hewing. Beware of literary infelicities; 'the written word remains,' it may be, after you have passed away; put down nothing for your friend's blush, or your enemy's sneer; write as if a stranger were looking over your shoulder.

Coues was perhaps the most brilliant and accomplished American ornithologist in the last half of the 19th Century. He was one of Grinnell's primary mentors, though the two apparently never met and Coues died in 1899 when Grinnell was 22. The brief passage quoted above is packed with information on style and content. Read it and respect it and your notes will reflect its good influence. It is the best possible advice.

THE FIELD NOTEBOOK

Your field notebook will be your primary note receptacle; it should be with you at all times -- a functional extension of your cerebral cortex. It will fit in jacket pockets as well as shirt pockets. Don't carry it in a hip pocket or it will warp and age prematurely.

The field notebook was not formally described as a component of the system when I learned it. So great was the emphasis on writing notes directly into the Species Accounts that it was implied that the use of an "auxiliary" notebook was evidence of mental retardation and degeneracy. In fact almost everyone used one, then transcribed their notes into the proper Species Accounts. So keen were the teaching assistants on catching violators that some students were driven to sprinkle water droplets on Journal pages written on dates that rain fell in the vicinity. Years later I met a graduate student who carried a snapshot -- slightly out of focus and a bit tilted -- of one of the instructors writing notes in a field notebook. The photograph had been taken over the professor's shoulder.

The goal of taking species notes directly into the formal account is ambitious, scientifically advantageous, and economical in terms of time, but it is practical under only uncommon circumstances. It is impossible to accomplish, for example, sitting in a moving car or while standing up, and most of us spend a great deal of our time in those two positions. The Journal is written at the end of the day, partly from fresh memory. But details like mileages, numbers, and even species seen cannot be accurately retained even for a few busy hours; these details must be written down at the time of observation. The same is true for most Species Account information. It is also true that the reliability of this approach depends on transcription occurring very shortly after the initial notes were taken -- ideally that evening.

Every one of your field notebooks should be "opened" by writing your name, permanent address, and telephone number in a clearly delineated space on the back cover. I know of several lost notebooks that have been recovered as a result of this precaution. Secondly, the date on which notes begin in that notebook should be written in ink on the front cover, followed by a dash. When that notebook is full, and a new one opened, the final date for notes in that notebook should be entered following the dash.

Every page in the field notebook should be dated. Pages subsequent to the first one on a given day should also have "continued" or an abbreviation of it following the date. The importance of dating each page cannot be overemphasized.

Some workers write on both sides of the field notebook paper. I prefer to write most of my notes on one side, reserving the other side for information that usually doesn't find its way into my formal Journal or Species Accounts -- items like license numbers, titles of books or papers I want to find, directions given me by others, recipes, addresses, maps, shopping lists, abbreviated lecture notes. One of my colleagues uses the inside of the back cover for important telephone numbers; he neatly revises the list when he opens a new field notebook.

Beyond these things, notes are taken chronologically through the day. Journal material is separated from Species Account data when the notes are transcribed that evening. Neatness is not as important in the field notebook as it is in the transcribed copy. You will find that some of what you write will not, in the end, be appropriate for transcription. For example, you may find, while watching birds at a nest, that you improperly described the relative positions of male and female in the vicinity early in your observations; you can correct these in your field notebook as you observe, then transcribe the accurate information only. Mileages can be converted from odometer readings to distances as you transcribe. English measurements can be changed to metric in the transcription.

Field notebooks are filed when complete. They serve as references for materials in the Journal, Species Accounts, and Catalog should some ambiguity arise concerning dates or other information. They are always available also should everything not be transcribed, though this use should be absolutely minimal. I find that I fill 5 or 6 field notebooks a year, spending between 100 and 150 days in the field.

THE JOURNAL

The Journal is the nucleus of your field record. It is always written, ideally in the afternoon or evening of the field day. If you are short of time or exhausted, give the Journal highest priority. It should include the most important aspects of your field day. Written properly, it will be easily read and will provide an introduction to the more detailed records in your Species Accounts and Catalog. Follow this rule: NO JOURNAL THIS DAY, NO SLEEP THIS NIGHT.

Certain information should be included in every Journal entry. The following should be used as a daily check list:

date
 locality
 route
 weather
 habitats (including topography)
 vegetation
 general commentary
 species lists

Date

Date is always recorded, as described earlier.

Locality and Route

Because of the relationship between "journal" and "journey", some workers have called the Journal section of the system the "Itinerary," meaning the record of travel or guidebook. The importance of precise localities and their format have already been described. It is important that you write your journal with the aid of a map of the area covered. From this you may take highway numbers and find names (and correct spellings) of counties, cities and towns. In some cases you will be able to find precise localities and estimate or measure distances to them. Mileages (kilometerages) should be taken from your own notes. These should always be recorded as DISTANCES, not odometer readings. The metric/English problem arises here again. The rule is this: use miles in the United States, until we change, but use kilometers in Mexico, Canada, or wherever you are that measures distances in metric units. Do this in "metric countries" even if your odometer measures in miles. You should check your odometer for accuracy; if it is off more than five percent, adjust your main route distances accordingly. Always record arrival and departure time.

Beware the trap of mileage addiction. Mileages fall in the category of "self generating data." If you travel you will accumulate mileage information. Some persons spend so much time trying to record precise mileage that they miss a good part of the natural history. Distances are very important, but they are most important along secondary roads or trails when they help in describing precisely the location of a base camp, a bird's nest, or a relict patch of rare plants. Anyone can easily find out how far it is from San Francisco to Fresno, or Des Moines to Iowa City.

It is sometimes convenient to abbreviate designations of state (205) vs. federal (26) highways. Interstate designations (I-5) can stand alone. County or topographic maps are often useful for finding the names of smaller roads. When describing a trip, times can be tied conveniently to route (e.g., "we arrived in Bend, 132 miles W of Burns, at 1320").

The locality is a gross description of the route on travel days. Thus one writes "From Olympia, Thurston Co., Washington to Burns, Harney Co., Oregon," or "From Berkeley, Alameda Co. to Lakeport, Lake Co., California." On a shorter, round trip one might write, "From Santa Fe, Santa Fe Co., to Clines Corners, Torrance Co., New Mexico, and return." Details of route are described subsequently, and specific localities where observations or collections were made are described precisely in the text of the Journal entry. Localities reading "Harney Co., Oregon" or "Olympic Peninsula, Washington" are too general. At the other end of the spectrum, one should not detail a complex, long route as the locality. In any case, each day should show only one locality in the Journal.

Localities of base camps should be described in considerable detail. If you are going to be working out of a field camp for some time, it is important to describe the site in terms of altitude, Township, Range and Section, and perhaps latitude and longitude. The importance of having detailed topographic maps in these situations cannot be over-emphasized.

When one remains in the same locality for two or more days it is acceptable to use as a locality, "locality as above," or "locality as 2 September", but these must refer to a previously and properly described locality; it is not a good idea to use such references except for entries made on consecutive days spent in the same place. In other words, don't let such shorthand reference localities "stretch over" days spent elsewhere. Each page should have locality information on it; do not use "locality as above" to refer to previous pages. Individual entries running to second or more pages, however, may be carried with the notation "continued" on the top line of the new page (see examples).

Remember always that your obligation is to facilitate the subsequent location of your working area by yourself and others.

Weather

Weather (atmospheric conditions prevailing at a place and time) has a great influence on animal activity levels, bird migrations, feeding patterns and so on. Climate (longer term patterns of prevailing conditions of temperature, wind, humidity, etc., usually on a regional scale) strongly influences plant and animal distribution and abundance patterns. It is very important to record details of weather where and when you are collecting or making observations, and the Journal is the place for this information.

Cloud cover can be estimated at different times of day and clouds described according to a standard classification system. Wind velocity and temperature can also be estimated under most circumstances, but it is far better to measure these two conditions, especially during extremes. A simple portable wind gauge can be purchased for about \$6.00. A well encased Celsius thermometer costs a bit less. Both of these items should be routinely carried by the serious naturalist.

Always measure temperature in the shade. Use of these devices adds significantly to the precision of your observations and often reduces the number of words necessary for description by eliminating the hemming and hawing that accompany guessing.

Habitats and Vegetation

It is very important to describe the habitats you visit. Vegetation is commonly the major feature of habitats and it can be described in several ways. The most obvious way is to use dominant plants in your description (a plant species list alone is not a description of vegetation; it is a description of the flora. Vegetation is the plant community present on a site). Communities are usually named for their two dominant plant species, and are characteristic of large geographic areas. Community classifications for many areas are available and can be used to good advantage in writing Journal entries. However, the earnest student should be able to describe the flora and vegetation in detail, and should strive to do that. Key out plants, or identify them by other means. If you cannot identify an important species using regional floras or guides, collect a specimen and ask someone else to identify it for you.

Be conscious of the phenology of development of plants. What deciduous species are beginning to leaf out? What percentage of the potential leaf cover is out? Are these trees losing their leaves? Are the buds bursting? What species are flowering? Comments concerning the extent of plant cover, height, and (in the case of trees) trunk diameter are appropriately described. If plant materials are obviously being eaten by animals, make note of the species involved and the extent of the feeding. See the section on plant Species Accounts for additional information.

Topography, soil characteristics and other geologic features are also major components of habitats. These, too, must be described in Journal entries, and the more you learn about them the more succinct, accurate and precise your descriptions will be. Elevations are obtainable from topographic maps. Barometers ("altimeters") are too expensive for most naturalists, but they work well with a minimum of maintenance. Describe bodies of water, including the height of the waterline as calculated relative to a permanent item on the shoreline. Describe width, depth and velocity of streams; map drainages if possible. Mention recent man-made alterations in the habitats and comment on their apparent effects.

General Commentary

This section is the catch-all that serves as the repository for information not appropriately fit into the other categories. Indicate who your companions are; be sure you provide first and last names. Indicate the purpose of the trip or excursion. If you get natural history information from someone, record his or her name and address in your Journal.

When you trap or collect animals by other means describe in detail the dimensions of your equipment and exactly how and where you used it. How many seine hauls did you make? How many snap or live traps did you set out, at what intervals, using what bait? If you used mist nets to catch birds, where were they set, for how long, how big were they, and how many? What species were

taken, and when? Were insects particularly active (one should learn to identify insects at least to Order, and be concerned with more than mosquitos and biting flies). Turn over cowpies and do a scorpion survey.

Don't miss the opportunity to investigate local conditions by talking to residents. Good information can usually be easily separated from bad; your questions usually have much to do with the quality of the answer. Historical information is very important, and this is an excellent source of it. This can be some of the most interesting searching you do, and the information is almost always valuable. A. Starker Leopold has called this "spit and whittle biology." Above all don't fall into the trap of thinking you are more sophisticated than the locals. That is seldom true in any area; it is almost never true in terms of local natural history of the applied variety.

Species Lists

Species lists often conclude Journal entries. These may be made daily or at the ends of trips, or both, depending on the rate at which species are seen and the purpose of such a list. As mentioned earlier such lists may be made in columns or in the same format as the narrative. If the latter form is chosen, the underlining rule is probably best adhered to even though consecutive lines may extend for meters across the page. They do set apart the section. Plant, mammal and bird lists should be separated by introductory words. It often happens that the writer has not seen all of the species observed from the party, but to omit species for this reason would be to omit important natural history information. The writer can, in these cases, place an asterisk by the names of those species that were "observed by others," and enter a footnote to that effect on the page containing the species list. A bird species list is often best prefaced with "Species seen and/or heard today." The inclusion of numbers with these species lists is of great value and should be done whenever possible. If estimates, rather than actual counts, are used, this should be indicated. But put the numbers there. The numbers are critical; they belong in the Journal summary.

The Journal should have the quality of summary, as well as detail. It should direct the reader to Species Accounts by the mention of species names, not explicit directions, such as "see Species Account". The interested reader will look.

Drawings and Maps

The Journal is the one place where material can appropriately and safely be put on the "facing" (i.e., left hand) page, opposite the narrative. One reason for this is that the order of Journal pages is set; after the first one is written each successive one will always be in sequence. This is not true of initial Species Account pages, because they are preceded by the back of an account of another species, and subsequent observations might place a third species in between. Take advantage of this option by using this space in your Journal for sketches and maps. These complement the text well and will in fact be space-saving in the end. The best Journals always include maps and sketches. Some workers (including A.S. Leopold) have used this space to excellent advantage by mounting descriptive photographs there. Do not use colored pencils in making your maps or drawings; most copying methods don't reproduce colors.

When you begin writing a Journal it is a good idea to insure that you cover all of the categories of information mentioned here by creating a heading for each, as has been done in this description and as is shown in one of the Journal examples. This is a perfectly useful format and might be followed indefinitely. You may wish eventually, however, to go to a more continuous narrative format. If and when you do that you should be sure that you always cover the field. The best way to assure such coverage is to review these guidelines frequently, and place a check-list of categories inside the cover of your ring binder where it will invite -- and receive -- attention as you pick up your pen.

JOURNAL EXAMPLES

NOTE: Each of these Journal entries has been chosen to illustrate a specific item of form or style; not all entries are complete. Also, all of the examples that follow were written on paper with light blue lines. These lines are often lost in the process of copying and printing the pages. My own notes are written on paper of the same dimensions used originally by Grinnell and still used at the Museum of Vertebrate Zoology. It offers no great advantage, though, and has the disadvantage of being unavailable commercially.

This is a reasonably straightforward, rather abbreviated journal account of a 450 mile trip on a mostly rainy day. It is written in narrative form (rather than with the use of headings), but there is still information on route, weather, vegetation, habitats, species seen, and of course, date and locality.

S.G. Herman
1978

Journal

April 30 Olympia, Thurston Co., Washington to Malheur Field Station,
Harney Co., Oregon

I left my house in Olympia at 0715, in my Toyota Land Cruiser Station Wagon (1977; mileage 26159.0), with the 1978 Evergreen Ornithology Program. Jerry Scoville followed in his Scout, and an Evergreen van followed him. It was raining and chilly. We drove S on Litterock Road to Litterock, then cut E to the I-5 Freeway, which we followed S to highway (22) at Salem, Oregon (160 miles), then E on (22) to Santiam Junction, then on (20) through Sisters and Bend, and S on (205) to Malheur Field Station, arriving here at 1900, 450.5 miles from my house. It rained until we got to the Columbia River, let up almost continuously until we neared the Santiam Pass, when it rained, then snowed wetly. A few miles E of the pass we had sun patches. The rain stopped except for a few showers near Burns, then it rained again at the Station after dinner. Now (2340) it is clear and chilly. The camas was blooming near Scatter Creek S of Olympia, and some lypices were in near full flower along the freeway just S of Portland. At a rest stop 19 miles N of Portland we saw some evening grosbeaks in a flowering maple, and a coyote trotted across a field on the W side of the freeway 7 miles N of the rest stop. We spent a few minutes looking at a redtail nest at I-5 and the off-ramp to (22) at Salem. We stopped at N. Santiam State Park, 26 miles E of I-5, for lunch. Some people saw a black-throated gray warbler there. The douglas firs there had lichens on their branches, the big-leaf maples were just beginning to leaf

S.G. Herman
1978

Journal

April 30 continued:

out; dogwoods were in full bloom. We stopped at Indian Ford Campground, 6 miles NNW of Sisters, from 1330 until 1400, got gasoline in Sisters at 1430, and turned left at the main intersection in Bend at 1455. 10 miles E of Bend we flushed 4 turkey vultures, a raven, and a black-billed magpie from beside the road - probably a carcass. Between Horse Ridge Summit and Riley we counted 25 kestrels and 4 redtails (90 miles). At 1639 we crossed the Harney Co. line, 47 miles W of Burns. People in one of the other vehicles saw 2 pronghorns 30 miles W of the Harney Co. line. There was much standing water along the road and in the fields, beginning at the Harney Co. line + E. Silver Creek was flowing strongly under the road, and was overflowing in some places. The standing water on both sides of the road just E of Riley was quite high, and I saw no birds on it. We pulled into the Safeway parking lot at Burns at 1732, got some supplies, then gas, and left Burns at 1802. Going S on 205 to Wright's Point we saw a good number of species and individual birds - avocets were probably the most prominent. The high water is very apparent everywhere there. We saw few yellow-headed blackbirds, all ♂♂, western meadowlarks, long-billed curlews, willetts, greater and lesser yellowlegs, killdeer, barn swallows, california gulls, brewer blackbirds, cinnamon teal also along this stretch. We were running late, so hurried the remaining distance to the Station. My van got to

The 30 April 1978 Journal entry shown on the preceding pages was written from the 4 Field Notebook pages shown opposite and on the following example page. The original Field Notebook pages were also lined, but the lines were lost in reproduction.

Compare these notes with the Journal account they contributed to, understanding that fresh memory, as well, was important to the formal record.

Note in particular:

Neatness is of minimal importance in the Field Notebook; it is virtually impossible to maintain when the writer is in a moving vehicle.

All pages are fully dated.

Emphasis is on species and numbers seen, localities, mileage, weather, vegetation, time, route -- in short, those things that are most difficult to remember with precision.

Standard time started today.
30 April 1978

W4

319.3
154.0
160.5

0715 - raining, 26159.0
leaving Olympia.

0734 - 170.0 - on I-5 at Little
rock, Camas in bloom by
Scatter Creek.

0855 - 245.4 Coyote

0903 - 251.8 rest stop
evening grass - banks in maple

0915 - leave, rest stop

0930 260.7 TOYOTA 7.9 gals
= \$5.38

0950 - in Portland, rain seem
to have stopped, but still plenty
cloudy.

1005 - ground squirrel beside
freeway - 286.2

~~ODOMETER~~ RIGHT ON

redtail just S of I-5 308.0

upmes in full bloom -

30 April 1978, cont.

313.7 - 45th parallel.

1045 ^{319.3} at ~~(23)~~ exit. redtail
on nest 40' up in oak. leaves
just past break bud stage, nest
5' down from top of tree - other
trees in area leafed out.
someone saw a scrub jay.

1125 - 45.6 N. San Fran S. P.

raining lightly, dogwoods in full
bloom, lichens on firs. maples just
coming out. me in van

1145 - leaving above. 371.1 at highway

1255 - 425.3 intersect ~~(23)~~

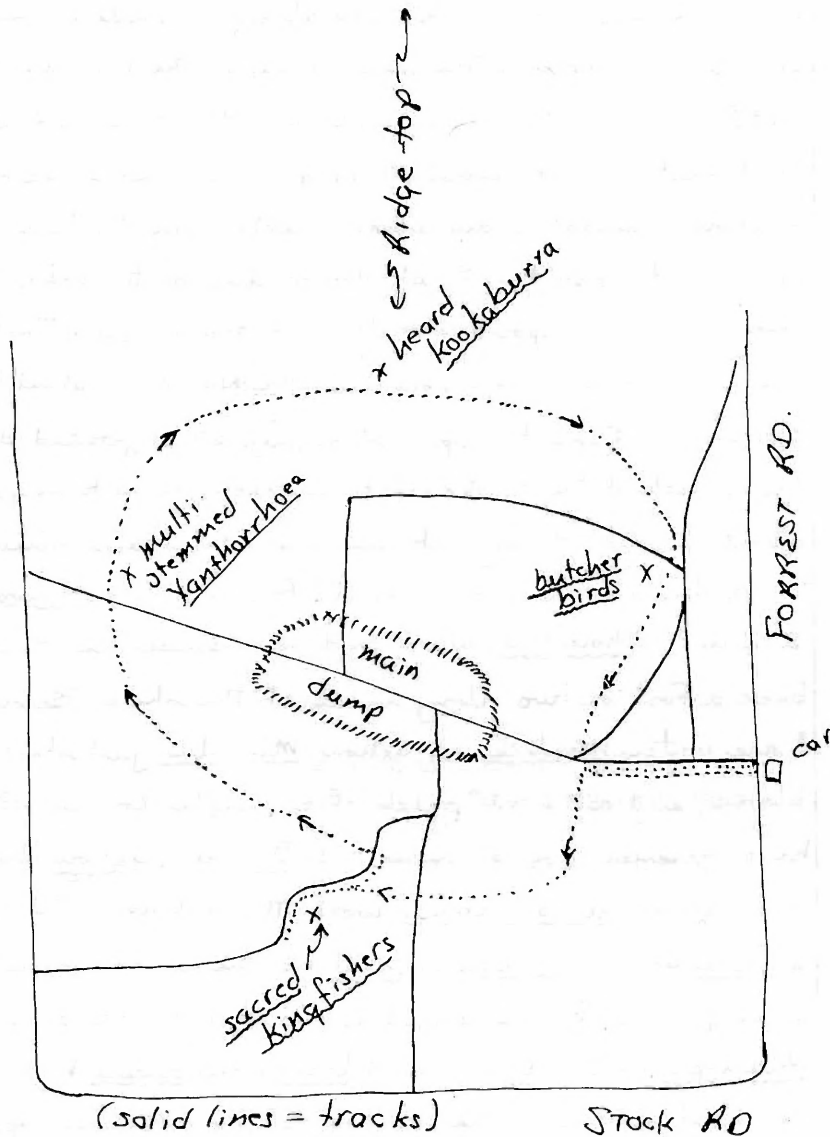
1325 - 445.4 - Indian Ford C.G.
robin. golden-mantled ground squirrel.
2 y. b. sapsuckers, house wren "twenty"
y. r. warbler, downy woodpecker.

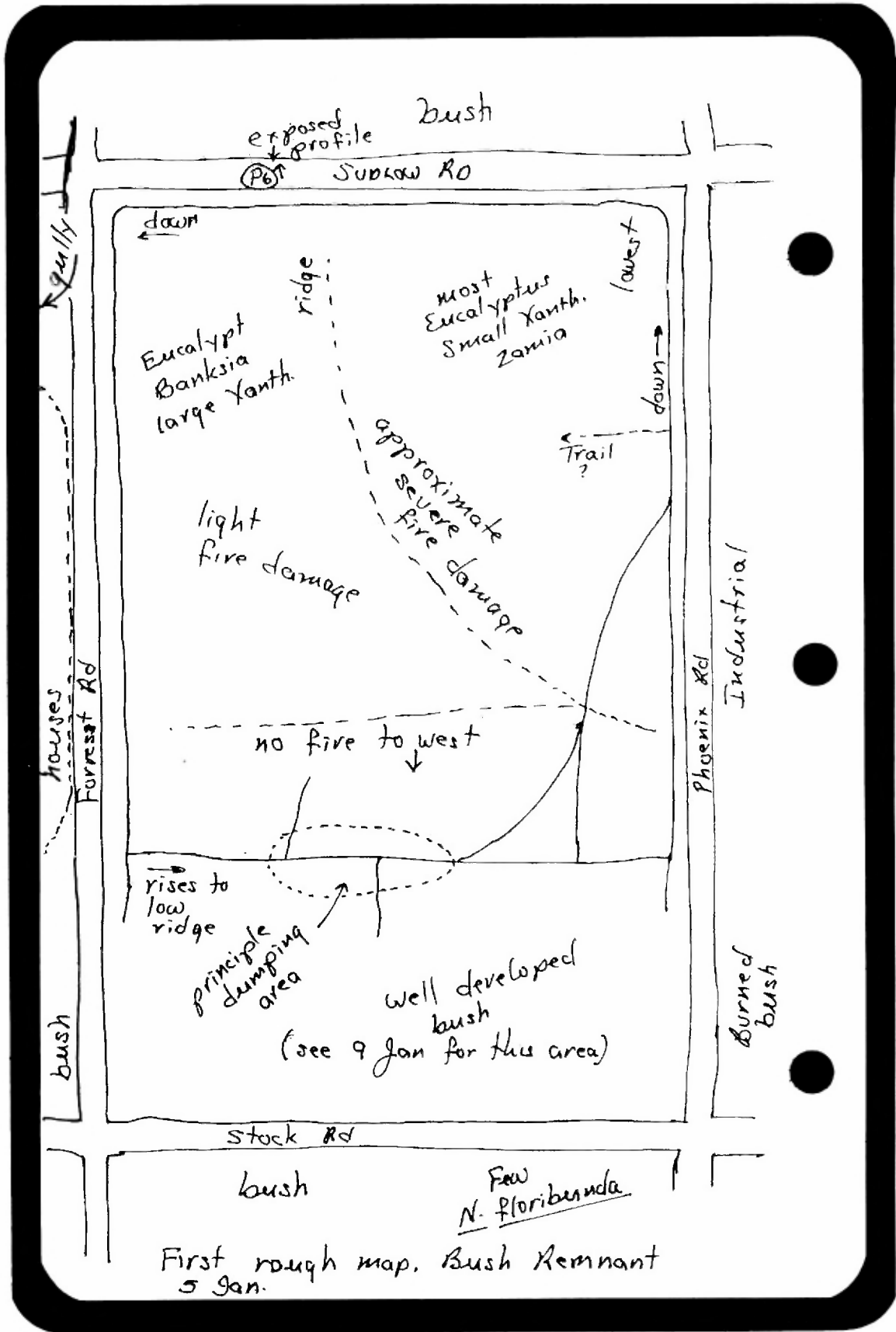
1412 457.1 Sisters.

1415 TOYOTA 427.8 11.0 g
\$ 8.27

An excellent sketch map here,
opposite Journal account for that
day. "W.A." means West Australia.

ROUTE MAP - 22 January
East





First rough map. Bush Remnant
 5 Jan.