

ON COLLECTING PLANT SPECIMENS FOR THE HERBARIUM

(A proposal for standardizing certain methods of procedure)

Experiences of the past season have brought out most forcefully the need for an outline of certain standardized methods of procedure to serve as a guide to the field worker engaged in obtaining plant specimens for the Forest Service herbarium. I am not aware of the existence of any such outline at the present time, and strongly feel that not only the field worker but also those who may later refer to the herbarium are at a distinct disadvantage unless more thought be given to certain points involved in collecting plant specimens. Particular emphasis should be given to the filling out of the collection form 767. It would be highly desirable to put into each field worker's hands a set of instructions covering some of the more important phases of plant collection. This set of instructions should perhaps be in bulletin form, and might be divided into two parts, namely: (1) The actual collection of and handling of plant specimens, and (2) the filling out of the herbarium form 767.

I. Collecting and handling plant specimens

This part of the paper should include a discussion of such points as the desired stage of development of various groups of plants at the time the plant is collected, and whether or not material of more than one stage of development is essential. If more than one stage of development of a species is necessary, the field worker should be informed as to whether the more mature stage for the species should bear the earlier collection number, and hence the same form 767 be used, or a new collection number be assigned and another form be made out. In the first event, it should be stressed that it

is absolutely necessary to be certain that material collected at the later stage represents the same species as previously collected.

The field worker should be given a better idea of the number of pressed specimens of the various size classes of plant species that are necessary for an adequate mount to be made. For example, is an individual specimen of a fairly large species enough to send to the Forest Service herbarium in Washington when perhaps part of the specimen will be used for identification purposes? This section of the paper might also embody some hints as to the equipment necessary, the use of the vasculum, and some aids in securing better dried specimens, such as the use of narrow strips of scotch tape on unruly species when first put into the folders. The collector should be clear as to whether he is to bend or to cut in half certain species that are too long for the plant press. He should know where on each folder to put his collection number; and he should know in what order to put the folders when preparing them for transport to the herbarium.

II. The filling out of form 767

There seems to be a great deal that might be done toward clarifying and standardizing the field procedure with respect to filling out form 767 for collected plant material. The form will be discussed along these lines in the order of the various entries to be made.

Collector's number. — The first letter of the collector's last name should precede the collection number. This number should run consecutively from year to year, rather than begin anew each year or every other year.

Date of collection. — The date the plant specimen is collected.

Botanical name and common name. — Should be left blank on the form.

Form 787
(Revised Apr., 1928)

HERBARIUM OF THE FOREST SERVICE
U. S. DEPARTMENT OF AGRICULTURE

Collector's No. _____ Date of collection _____

Botanical name _____

Common name _____

State _____ County _____ Forest _____

Exact locality _____
(Sec., T., and R., Thompson Meadow)

Altitude _____ feet. Slope _____ Soil _____
(Steepness and direction) (Deep clay loam, shallow)

Type _____
(Woodland, timber, park, etc.) (Weed, browse, grass) (Density in tufts)

Use _____
(Overgrazing, close, moderate, light)

Distribution _____ Abundance _____
(Where generally found)

Forage value _____
(Palatability) (Grazed by C., H., S., and G.) (Season grazed)

Other data _____
(Habitat, etc. of plant) (Flowering period) (Period of seed dissemination) (Other notes)

Collector's name _____

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State, County and Forest. — If the plant is not collected on a national forest, the approximate distance and direction from the nearest national forest should be specified.

Exact locality, and Altitude. — Give this data as nearly as possible.

Slope. — It should be specified as to whether steepness is to be expressed in "percent" or in "degrees."

Soil. — It would be helpful to the field worker if he had available some information on which soil classifications are based. In the Atlas of American Agriculture, Part III ("Soils of the United States" by C. F. Marbut, U.S.D.A., 1935) is a classification defining what is meant by sands, sandy loams, loams and clays, which would appear to have a definite place in the proposed set of instructions.

Type. — The vegetation type is to be inserted here. It is not clear

as to whether the old grazing reconnaissance type designations are to be used or not. In either event the outline should set up and define the more important vegetation types that the field worker may encounter.

Density in tenths. — The value to be inserted in this space should be defined. It might be the total crown density of all vegetation, the crown density of all vegetation within reach of livestock, or the density of the individual species collected. This value will in any event be a whole number and not a fraction. Example: a density of two tenths would be written "2" and not ".2".

Principal associated plants in order of abundance. — From one to three plant species should be mentioned here. There appears to be not only here, but under the caption "Distribution", a bit of inconsistency, since the field worker is not given credit for being able to definitely determine the species of any given plant collected, and yet he is asked to name the species associated with the one collected, as well as state (under "Distribution") that the species he sees and collects is the same as one he may see some place else, but does not collect.

Use. — It is felt that unless the plant collector has the opportunity of looking at the species on the ground at the close of the grazing season, this space should be left blank.

Distribution. — Standardized terms describing the topography, exposure, vegetation type, soil, and perhaps soil moisture, should be used if this caption is to be retained.

Abundance. — There are many rather loose terms commonly used to describe the abundance of a plant species; but before any terms are used, one should understand what are to be the limits as to how much territory is being

taken in when the field worker states that a plant is "rare", or "abundant." In the work of the past season, terms describing abundance of a plant species collected on the Burgess Spring Experimental Range were used only for the distribution of the species concerned over that area. The following terms describing abundance of a plant species were used:

1. Abundant
2. Locally abundant
3. Frequent
4. Locally frequent
5. Infrequent
6. Rare

There are in reality but four divisions of abundance under the above system (abundant, frequent, infrequent, and rare). The two terms preceded by "locally" are used only when there are localized areas where the plant species may be "abundant" or occur "frequently", but where these areas are not extensive enough to permit one to use the unqualified term. As an example, in the foothill region of the Great Valley, Erodium botrys may be "abundant", whereas Eschscholtzia californica may be only "locally abundant", and the occurrence of Brodiaea capitatum may be "infrequent." The adoption of standardized terms for the expression of abundance is to be strongly urged.

Forage value. — It is felt that until we arrive at a more satisfactory system of expressing palatability indices of plants, the research worker should leave this space blank when filling out the form.

Grazed by, and Season grazed. — Unless the collector has the opportunity of closely observing the plant at various times throughout the grazing season, it is felt that it is far better to leave these spaces blank,

since the field work of the past season has brought out most clearly the fact that grazing men as a group know all too little as to what the animal eats and at what stage of development he eats it.

Other data. — Filling in remarks under the various captions here is perhaps desirable, but should not be indulged in without some rather exact data.

Collector's name. — If two or more plant collectors are working together, the name of the one whose series of collection numbers is being used should appear first on this line.

It is hoped that some of the above suggestions will in time result in a more systematized method of procedure in the collection of plant species for herbarium specimens.