

species is known in Arizona only from collections made on the University of Arizona campus, but elaborates further: "This species was grown in the early grass garden of the University as stated on the label of a Toumey collection made in 1892. Collections by Griffiths and Thornber made in 1901, 1902, and 1903, are labeled 'Campus, U. of A., Tucson'." He also comments: "If this species actually did become established in Tucson outside of the grass garden it is highly improbable that it has persisted for nearly fifty years without detection."

Examination of the *Tragus racemosus* folder at ARIZ in the summer of 1977 revealed that the only specimens from Arizona were those mentioned above by Gould. However, while botanizing in the Chiricahua Mountains (Cochise County) in September of that year, we encountered *T. racemosus* in abundance in Rucker Canyon. In this area it grows thickly as a weed in the sandy soil of the roadside from the top of the pass (ca. 1750 m) for a distance of some ten miles as one descends toward the east where the elevation is ca. 1525 m. *Tragus berteronianus* occurs here also, but appears to be rather rare. In fact, we were able to find only two or three small colonies in the entire ten mile stretch. Curiously, the two species did not appear to form mixed stands.

As an additional check of our determinations, we collected young inflorescences of plants considered to represent the two different species. These were preserved in the standard 3:1 absolute alcohol-acetic acid solution for cytological study. Subsequent examination of acetocarmine squashes revealed a chromosome number of $2n = 20$ for *T. berteronianus*, and $2n = 40$ for *T. racemosus*. This is in accord with information in the literature which indicates that the former species is a diploid, whereas *T. racemosus* is tetraploid. Voucher specimens, as cited below, are deposited in ARIZ, with duplicates at US. Collection numbers are those of the authors.

Tragus racemosus (L.) All., 6875, $2n = 40$; *T. berteronianus* Schult., 6880 & 6882, $2n = 20$.

That *Tragus racemosus* is not a recent invader of Rucker Canyon is attested to by a specimen collected there more than 30 years ago, incorrectly identified as *T. berteronianus*, and placed in that folder at ARIZ where we found it in 1977. The collectors are F. W. Gould & H. S. Haskell 4514. The label reads: "In sand along broad wash, *Juglans-Cupressus-Platanus* woodlands; altitude 5700 feet; entrance to Rucker Canyon recreational area. Chiricahua Mountains. Oct. 5, 1946." — JOHN R. REEDER & CHARLOTTE REEDER, Herbarium, University of Arizona, Tucson 85721.

REVIEW

A Survival Handbook to Sierra Flora. By NORMAN WEEDEN. 1975. iv. + 406, illus. Interface California Corporation. \$5.95. ISBN 0-915580-03-9.

In the past few years there has been a veritable explosion in the number of 'popular' wildflower guides at the disposal of the interested amateur botanist. Most professionals would view this book as part of the exploitation of this market. Weeden's flora (W), however, is potentially of interest to the practicing botanist.

Essentially W is a series of keys to montane, subalpine and alpine Sierran plants, supposedly including all species listed by Munz and Keck (M&K) from above 1066 m and 2438 m on the western and eastern slopes of the range respectively. *Erigeron*, *Carex*, *Cryptantha* and *Plagiobothrys* are not treated by W at the specific level, and the keys presented are not all entirely new, being mostly in the Abrams-M&K mold. Illustrations are provided for most of the genera, and are useful although a few border on primitive-art (i.e., Poaceae) and are not at all helpful. A glossary of 350 terms is provided. Brief habitat and morphological descriptions are also given for most of the taxa. Numerous infraspecific taxa are omitted.

The pretension of survival in the wilderness by consuming wild plants is one unfortunate intimation of the book's title. Weeden does present information on the edibility of many taxa, but many are cast aside with an "edibility unknown".

I have carried W along with M&K in the field for the past two seasons to test the usefulness of the former, and I have generally found W's keys useful, but at times ambiguous. The most frequent problem with W's keys is the improper simplification of morphological terminology. There are few errors, and only one glaring misspelling.

From this field comparison, and making the calculations below, I would say that W deserves a place in the botanist's backpack if weight is costly. One is most likely to go astray with W's keys when botanizing near the lower boundaries of his stated elevational ranges: numerous species common within his limits are not keyed. If we take P to be the probability of keying an unknown, P_r being a correct determination and P_w an incorrect determination, and if we assume $P = .95$ for M&K and $P = .65$ for W (my estimate !), then $P_r \text{ gram}^{-1}$ for M&K is .0006, and $P_r \text{ gram}^{-1}$ for W is .0023. Clearly, then, W wins on a weight basis if determination error is tolerable. However, $P_w \text{ gram}^{-1}$ for W is .0012, compared to $P_w \text{ gram}^{-1}$ for M&K of .0003, so that M&K is more exactly accurate on a weight basis.

Botanists do tire from lugging around heavy books in the field, and we do need accurate field guides to introduce the objects of field botany to the people. Weber's *Rocky Mountain Flora* is exemplary in this regard ($P_r \text{ gram}^{-1} = .0016$; $P_w \text{ gram}^{-1} = .0001$!). Weeden's book does not quite approach this ideal, but it does serve a distinct need. — DEAN WM. TAYLOR, Department of Botany, University of California, Davis 95616.

Vascular Plants of the Nevada Test Site and Central-Southern Nevada: ecological and geographical distributions. By JANICE C. BEATLEY. 1976. vii + 308, 28 figs. Technical Information Center, U. S. Energy Research and Development Administration, Springfield, Virginia 22161. \$9.75. ISBN 0-87079-033-1.

Inaccessible botany is often the product of the distance which botanists are able to travel in their mostly random wanderings during vacations. In the case of the area covered by this floristic volume, long distances from major botanical centers and governmental access restrictions have conspired to make the flora of the 5100 km² of the Nevada Test Site and vicinity poorly known. Janice Beatley, assisted in the field at times by several other botanists, has amassed a significant number of collections (25000) in the past fifteen years, and has produced several previous plant checklists for the area. Culminating this effort is the release of this much-needed and reasonably priced book.

The area covered lies on the phytogeographically important transition zone between the Sonoran and Great Basin floristic regions. An introduction presents the background on the previous lack of floristic work in the area. Maps giving the physiographic and political features of the area comprise the first 3 figs., and the fourth gives a generalized vegetation map. Unfortunately, several of the categories in the legend to the latter map are nearly indistinguishable due to poor reproduction. Figs. 5–28 are well chosen photographs of plant habitats.

The bulk of the book is divided into 2 parts: 1) Desert Environment and Vegetation (66 pp.); and 2) Vascular Plants (190 pp.). The first part presents a detailed description of the habitat types in southern Nevada, and is perhaps our most comprehensive description of such to date. Numerous site data are reviewed, including climatic and soil parameters. Kinds of vegetation of the area are discussed in a semi-hierarchical classification: Mojave, Transition and Great Basin deserts subdivided into kinds of sites (bajadas, mountains, arroyos, springs) or plant associations, the latter being typified by phytosociologically uninformative 'genus-genus' or 'genus-common name' epithets. The second part is a catalogue of the flora arranged alphabetically, listing 1093 taxa, describing habitat, local range, and phenology. Keys and descriptions of the taxa are not given. The author justifies this omission by stating that these identification tools "are (or will be) available for nearly all of the taxa in the various floras of adjacent areas." This omission is unfortunate. Keys in



Taylor, Dean William. 1978. "A Survival Handbook to Sierra Flora by Norman Weeden." *Madroño; a West American journal of botany* 25, 108–109.

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