

CAREX MEASUREMENT PROJECT – 2017

A FINAL REPORT ON THE 2017 NPSNM GRANT
PROVIDED TO
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During 2017 Jim McGrath used the 2017 NPSNM grant of \$1493 to measure 93 *Carex* specimens in 107.75 hours at the UNM herbarium. The rate at which McGrath performed these task was 1.16 hours per specimen. In the grant request McGrath estimated measuring 87 specimens at the rate of 1 hour per specimen at \$15 per hr. Therefore, McGrath measured more specimens and spent more time per specimen than was originally projected. In actuality, McGrath performed the measurements at the rate of \$12.11 per hr. The documented time does not include breaks, other project tasks, and the time it takes to get to and from the herbarium from McGrath's home in Edgewood, NM, a distance of about 30.5 miles.

McGrath also requested that the grant cover the cost of transportation to and from UNM herbarium. In 2017 McGrath made 37 visits to the UNM herbarium to work on the *Carex* Measurement Project. The original grant application request was for 22 visits to the UNM herbarium. A total of \$188 of the grant was projected to cover transportation costs at the rate of \$0.14 per mile X 61 miles round trip X 22 days. Therefore, the cost of 15 additional visits to the UNM herbarium was donated by McGrath (a \$128 value at the rates projected in the original application).

McGrath and his three colleagues, Max Licher, Glenn Rink, and Dr. William Norris (the Southwest *Carex* Working Group) wish to thank the Native Plant Society of New Mexico for supporting our study of the genus *Carex*. The meticulous task of measuring specimens has been both productive and rewarding. Whenever most floras of recent vintage include descriptions of species, measurement ranges of particular characters are most often plucked from previously published floras. The reality is that there is neither time nor the funding available to take actual measurements relevant to a particular part of the botanical world. But we in the Southwest *Carex* Working Group have chosen to find a way to make our species descriptions as accurate as possible by reflecting measurement ranges that can be expected in New Mexico or Arizona.

The measurement work has revealed some significant results. McGrath has consistently found that measurements of specific characteristics of New Mexico specimens are consistently at the lowermost end of measurement ranges reported in the *Carex* section of Volume 23 of Flora of North America (FNA). In several cases, the lower end of measurement ranges have been expanded as a result of the measurement work. Sometimes the measurement ranges were altered even for *Carex* species that occur in Arizona as reported by Rink and Licher (2015) in *Cyperaceae*. Sedge Family. Part 1: Family description, key to the genera and *Carex* L. (Canotia11: 1-97).

The 2017 *Carex* Measurement Project led to the discovery of a new addition to the New Mexico flora: *Carex radiata* – the eastern star sedge. The Southwest *Carex* Working Group had earlier agreed with

the original determination by collector Brian Reif that three specimens collected in New Mexico are the rosy sedge – *Carex rosea*. But these two species as well as a third sedge, the Appalachian sedge - *Carex appalachica*, are very closely related. The three New Mexico specimens found in the Sangre de Cristo and Jemez Mountains represent a disjunct population because the three species are eastern species, none of which had been firmly documented further west than the far eastern edges of Oklahoma, Kansas, Texas and Nebraska – except for the three New Mexico specimens. However, McGrath noticed discrepancies in his measurements of the three specimens with known measurements of the three species. So our Southwest Carex Working Group sent the three specimens to Dr. A. A. Reznicek, a widely known authority on the genus *Carex* at the University of Michigan, for his review. Dr. Reznicek concluded that the three New Mexico specimens are, in fact, *Carex radiata* and not *C. rosea*. Thus, we add *Carex radiata* and also remove *Carex rosea* from the New Mexico flora.