ORAL PRESENTATION

FOUR NEW ARAPHID DIATOMS (BACILLARIOPHYTA) FROM RIVERS IN NORTH AMERICA

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Without taxonomic descriptions of new taxa found while enumerating algae from large national and regional programs like NAWQA and EMAP, ecological understanding of closely related microbes will continue to be a challenge in applied phycological studies for North America. Four new Fragilaroid species of diatoms from rivers located in different regions of the continental US were described. The first two are named in honor of the late Dr. Charlie Reimer: *Fragilariforma reimeri* sp. nov. and *Staurosira monita* sp. nov., where the latter species epithet was chosen to signify nobility. The other two larger araphid diatoms *Staurosirella magna* sp. nov. and *Staurosirella elegantula* sp. nov. were described to emphasize the dimensions of the first diatom and the outline of the second. *F. reimeri* (found in Alaska, Idaho, Missouri, Montana, Washington and Wyoming), has cruciform valves with a broadly rounded, tumid central area, narrower rounded apices and very fine striae more than 30 in 10 microns. This taxon with irregular cruciform shape in smaller specimens had been observed by other researchers in collections from Yellowstone National Park, but always reported as unknown. *S. monita* found in New Mexico and Montana and is a small rhomboid diatom with a deep mantle and alternate striae along the valve axis, shifting from parallel in the central area to radial toward the apices. *Staurosirella magna* found in Oregon and has heteropolar, lanceolate narrowly rounded apices and a length up to 76 microns. *S. elegantula* was originally discovered in Oregon and is heteropolar, has lanceolate shape with broadly rounded apices and hollow spines. It is unclear whether these taxa have been lumped under other names in the literature, but it is probable that at least some of these new taxa are being observed for the first time due to their distinctive morphology. Besides detailed morphological analyses at the LM and SEM levels, a comparison with similar taxa from the literature is presented. Ecologically *F. reimeri* and *Staurosira monita* have quite different ecologies based on our limited data. The first is a mountain diatom that prefers much lower conductivities, circumneutral pH, and lower nutrients (TN and TP) than *S. monita* which is found mostly in desert streams with high conductivity, pH, some nutrients and temperatures. The two *Staurosirella* species were found at the same site, thriving in cold water low in nutrients, circumneutral pH and low specific conductivity. The finding of these four

species in streams from several states in the US suggests that the knowledge of the araphid flora in the country is still far from complete.