

their journals and also describe one or possibly two other large kelps (*Nereocystis luetkeana* (Mert.) Post. & Rupr. in picturesque language. The journals do not mention freshwater algae in any detail, although a mineral spring feeding into the Missouri River near Great Falls Montana, which played an important role in treatment of their Shoshone guide Sacagawea, is currently dominated by *Chara*. This lecture will present a summary of the botanical legacy of the Lewis and Clark expedition, and especially its physiological findings, which remain largely unknown.

118

A NUTRITIONAL ANALYSIS OF THE TURF ALGAL DIET AND FECAL PELLETS OF THE GREEN TURTLE, *CHELONIA MYDAS* L

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In 1978, the green turtle, *Chelonia mydas*, was listed as threatened in the United States under the Endangered Species Act. Any knowledge gained from an understanding of the diet and how it affects this species' ability to survive is crucial. Turf algae, the primary component of the diet of *Chelonia mydas*, and turtle fecal pellets were collected from Kaloko-Honokohau National Historical Park on the island of Hawaii at monthly intervals. The turf algae and fecal pellets were subjected to nutritional analyses for protein, carbohydrate, lipid, ash, and caloric content. The fecal pellets were higher in protein content than the turf algae, which may be related to fermentation carried out by bacteria in the turtle hindgut that increases the amount of protein available for absorption. From the nutritional data, assimilation efficiencies were calculated for the green turtle.

119

MARINE ALGAE OF POHNPEI AND ANT ATOLL WITH COMPARISONS TO OTHER PACIFIC ATOLLS AND ISLAND GROUPS

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A study of benthic marine algae collected from Pohnpei Island and Ant Atoll, Federated States of Micronesia, documented the occurrence of 113

species of red algae (Rhodophyta), 60 species of green algae (Chlorophyta) and 17 species of brown algae (Phaeophyta), many of which are new records for Pohnpei, Ant Atoll and Micronesia. Added to reports from the literature, a total known marine benthic flora of Ant and Pohnpei (exclusive of Cyanobacteria and crustose coralline algae) now stands at 241. The high island, volcanic nature, and larger size of Pohnpei which is very different from the low, calcareous geomorphology of smaller Ant Atoll, led us to expect higher species numbers from Pohnpei relative to Ant, and greater differences in their algal floras than we found. Comparisons of the Ant-Pohnpei algal flora were also made using Jaccard and Sorensen's indices to Ifaluk Atoll (Caroline Islands), Enewetak Atoll (Marshall Islands), the Northern Mariana Islands, and the distant south Pacific island groups of Fiji and French Polynesia. Biogeographical investigation of the marine algae flora revealed that Ant Atoll and Pohnpei have a large number of widespread and Indo-Pacific species, but very few probable regional endemics.

120

EXPLORATION OF MORPHOLOGICAL VARIATION WITHIN THE GENUS *PEDIASTRUM* MEYEN 1829 (CHLOROPHYCEAE, CHLOROPHYTA)

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Monographic works on the green algal genus, *Pediastrum* Meyen 1829 (Chlorophyceae, Chlorophyta), have described species, varieties and forms based on such characteristics as the size and shape of the marginal cells, pattern of cell wall sculpturing and extent of cell wall sculpturing. Depending on the author, the number of taxa assigned to the genus *Pediastrum* varies. Due to the lack of quantitative value to these characteristics, it has been difficult for other researchers to assign appropriate taxonomy to wild isolates. A molecular phylogeny including multiple strains from both culture collections and wild samples confirms relationships found by previous molecular studies on fewer taxa, in which the family Hydrodictyaceae forms a monophyletic group within the Sphaeropleales, and that the genera *Hydrodictyon* and *Sorastrum* are derived from *Pediastrum*. *Hydrodictyon* forms a monophyletic clade and consists of three species, *H. reticulatum*, *H. africanum*, and *H. patenaeforme*. Multiple isolates of *H. reticulatum* reveal little genetic variation between different geographic localities. Inclusion of wild isolates permits a more thorough exploration of morphological variation within the genus *Pediastrum*, and what characters may be taxonomically informative, particularly in the species *P. boryanum* and *P. duplex*. Wild isolates