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Subject: Woodchuck (*Marmota monax*) Photo Images

While I would not state that other photographic images of woodchucks do not exist, it is my belief that I have captured some images which may be uncommon, and others in existence would most certainly not be of those photographed on my property. I spent a great deal of time beginning in the year 2003 observing and photographing free living woodchucks on our 10 acre property, and have taken hundreds and hundreds of photographs. Beginning in 2005, I began also video filming. I had no preconceptions beginning this project as I knew very little about woodchucks, mostly seeing fleeting glimpses of them, and mostly by roadsides. Photos and filming are done from within our home, through our windows. Using this approach, the woodchuck does not smell me nor, seemingly, consider me a threat. After having taken numerous photographs beginning early in the year 2003, I began research in June by contact with 7 Ponds Nature Center in the Dryden area. I later contacted the Smithsonian Institution after having received a small illustrated child's book entitled Woodchuck at Blackberry Road, a Smithsonian's Backyard publication. I received a return phone call from Joy Gold with the Department of Vertebrate Zoology. Ms. Gold kindly provided me with information on some reference material which I have since reviewed.

To date, material I have reviewed includes: The Smithsonian's Book of North American Mammals (1999), Walkers Mammals of the World (1991), Marmots-Social Behavior and Ecology by David P. Barash (1989), a Smithsonian article entitled A Groundhog's 'Day' Means More to Us Than It Does To Him by Bil Gilbert (Feb. 1985), Mammals of Wisconsin (1961), an article from Pennsylvania Game News entitled Woodchuck Defense by W.Z. Bradley (1945), Lives of Game Animals by Seton (1928), Wild Animals of North America-a National Geographic Society publication (1967), numerous issues of the National Wildlife Federation's Ranger Rick magazines, and The World of the Woodchuck with text and photographs by W.J. Schoonmaker (1966). Mr. Schoonmaker's achievements include serving as an assistant zoologist at the New York State Museum in Albany and later as museum exhibits planner. Additionally, I have searched through several other books at my local library, and reviewed various internet web sites, including Lynne Charles Hog Haven web site.

The woodchuck has been called by a number of names including: Shukka, Chuck, Wejack, Wood-shock, Ground Pig, Whistle Pig, Whistler, Thickwood Badger, Canada Marmot, Monax, Weenusk, and the Red Monk. Monax is an American Indian word meaning "the digger". According to Education World web site, the American Indian believed the woodchuck to be a wise and sensible animal. Woodchuck remains were present in the Indian mounds in Aztalan, Jefferson County, Wisconsin, which is one of the most important archaeological sites in Wisconsin. Indian lore has it that their forbears began life as animals and the woodchuck was recognized as the "grandfather" of the earliest inhabitants of the area.

In Professor Barash's book, Marmots-Social Behavior and Ecology, he says "Among all species of marmots, nursing only rarely occurs above ground". I have more than one photo, long shots, of the female nursing. Professor Barash says "However, given the extreme difficulty of obtaining even these data, I do not feel especially apologetic, and would be delighted to defer to anyone with more, either now or in the future". Page xv, Preface.

Professor Barash's work on marmots was supported by "the Society of Sigma Xi, the Theodore Roosevelt Memorial Fund, the Olympic National Park Natural History Association, the Glacier National Park Natural History Association, the Research Foundation of the State University of New York, the Graduate School Research Fund of the University of Washington, the National Institute of Mental Health, the Centre National de la Recherche Scientifique, the Harry



Frank Guggenheim Foundation, and the National Science Foundation". Page xvii, Preface. Professor Barash spent three years of springtime observations of free living woodchucks in central New York State in 1971, 72, and 73 combined with one summer, 1972, and two autumns, 1971 and 72. He further states "Field biologists will recognize that the number of hours spent actually observing represents only a small fraction of the total time necessarily devoted to the field research, which also includes trapping time, waiting in bad weather, and just doing the maintenance necessary to keep alive." Page xv, Preface. At last inquiry, Professor Barash was employed with the University of Washington in the Department of Psychology in Seattle, Washington.

Woodchucks have been described by many as solitary, aggressive mothers, asocial, the mother being intolerant of her young with behavior highly agonistic. Professor Barash, who uses some like descriptions, also says that "generalizations cannot be considered successful if their success occurs at the cost of artificially leveling otherwise significant features of a species' behavioral landscape". Page 139. Professor Barash also says "Woodchucks are the most aggressive of the well-studied marmots, but the low frequency of observed interactions among them makes generalizations difficult" (page 171). By contrast, W.J. Schoonmaker writes "Usually, though, the chucklings are very affectionate toward each other and more so toward their mother. In return, most mother woodchucks are gentle and kind and show a great deal of motherly love" (pages 65-66).

A document entitled NIH:Breeding and Experimental Facility for Woodchucks, the Enteric Diseases Branch of the Division of Microbiology and Infectious Diseases, National Institute of Allergy and Infectious Diseases, dated October 2, 1992, states it has a requirement for the continued development and use of sequelae such as chronic hepatitis and hepatoma. The contractor will be responsible for the development and maintenance of a colony of breeding *Marmota monax* capable of yielding 100 weaned pups per year; for the performance of experimental protocols on woodchucks with viral agents, vaccines, and therapeutic agents; and for the maintenance of experimental animals. According to the Cornell University web site, a percentage of the wild woodchuck population in the United States is infected with the woodchuck hepatitis virus which is similar to human Hepatitis B. The only two animals available for hepatitis B studies are the chimpanzee, an endangered species, and the woodchuck. Dr. Michalak, of the Molecular Virology and Hepatology Research Laboratory at Memorial's Faculty of Medicine, said the woodchuck model has become a key contributor of his research and is solving some of the mysteries surrounding human hepatitis B virus. Dr. Michalak would like to expand his woodchuck colony. Over the past few years the demand for American woodchucks has risen significantly and prices have gone up so Dr. Michalak want to use Canadian woodchucks. The woodchuck model has also become the accepted way, in some situations, to test drugs against HIV.

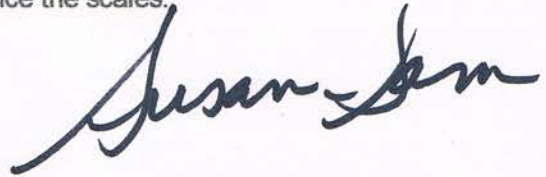
In Bil Gilbert's article, he describes woodchucks as having "curmudgeonly ways". He also comments on the abilities of the woodchuck pertaining to hibernation, considering preparation "in many ways the most interesting and instructive of their activities". He comments on the speculation that something akin to hibernation might be advantageous for long voyages through the heavens or the possibility of induced hibernation benefiting patients undergoing or recovering from certain types of medical treatment.

Bil Gilbert says a chuck residence may consist of 50 feet or more of tunnels, some of which may extend ten or 12 feet below the surface. He describes the burrow as having several small sleeping "rooms" dug above the main tunnel, as well as having a comode room. Schoonmaker dug out eleven chuck dens. The longest, considering only the main burrow and not the side galleries, was twenty-four feet, while the average length of all of these was about fourteen feet (pages 104-106, The World of the Woodchuck). Schoonmaker says that while all dens differ somewhat, all are basically alike consisting of one main entrance, one spy hole, one excretion chamber in use, and one nest. The nest area, used for sleep or rest, and nursery for early care of chucklings, may be about twenty inches to three feet below ground surface and is about 16 inches wide and fourteen inches high.



W.Z. Bradley suggests that a marble statue should be erected in honor of what the woodchuck has done for the United States of America. He suggests several companies that could pay a liberal sum toward the statue because the woodchuck has "sold" thousands of rifles and cartridges. Further, binocular, telescope companies, the one man business gunsmiths, stock specialists, wildcat cartridge designer manufacturers, custom hand loader and private maker of barrels also owe "Mr. Chuck's statue" a tidy sum. He also suggests the nation in general should donate as well for the reason that chuck hunting experience has been a training ground for those in Service.

Man, the domestic dog, and the red fox are the chief enemies of the woodchuck. According to information contained in Mammals of Wisconsin, the woodchuck in Wisconsin by 1950 had almost been extirpated and was under protection in 1961. I believe the woodchuck needs defense and that generalizations about the woodchuck being aggressive, intolerant of her young, etc., as described in much literature about this creature, is not deserved. I also believe my hundreds of photographic images help to balance the scales.

A handwritten signature in black ink, appearing to read "Susan J. M." with a stylized flourish at the end.