

# **PALEONTOLOGICAL RESOURCES PRESERVATION: HOW THE FOREST SERVICE DISCOURAGES ROCK AND MINERAL CLUBS FROM COLLECTING INVERTEBRATE FOSSILS AND PLANTS**

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DISCLAIMER: THE FOLLOWING IS MY OPINION AFTER READING, AND TRYING TO UNDERSTAND, PART 291 PALEONTOLOGICAL RESOURCES PRESERVATION RULES EFFECTIVE MAY 18, 2015, AS PUBLISHED IN THE FEDERAL REGISTER.

Recently the Federal Register published new rules for collecting common invertebrate and plant fossils on land managed by the US Forest Service (USFS), and presumably soon to be copied by the BLM. In my opinion these new regulations are among the most inelegant that I have observed in the federal bureaucracy. I just want readers to understand that the new fossil collecting regulations will/could affect fossil collecting field trips by individuals, rock and mineral clubs and university/college/K-12 students. The implementation of the rules marks a sad day in the world of science.

The new laws have their birth in the fossil collecting rules and regulations implemented under the Omnibus Public Land Management Act of 2009 Paleontological Resources Preservation subtitle (The Act). I have explained the 2009 Act in previous articles and noted that the law was written to protect vertebrate fossils on public lands, mainly from commercial collectors, but also disallowing individual collecting privileges without a permit. I supported most, but not all of the, tenets of the Act.

One part of the 2009 law that I supported was the “fact” that common invertebrate and plant fossils could be collected by recreational collectors:

## ***Subtitle D--Paleontological Resources Preservation***

### ***SEC. 6301. DEFINITIONS.***

***In this subtitle: CASUAL COLLECTING-*** *The term ‘casual collecting’ means the collecting of a reasonable amount of common invertebrate and plant paleontological resources for non-commercial personal use, either by surface collection or the use of non-powered hand tools resulting in only negligible disturbance to the Earth’s surface and other resources. As used in this paragraph, the terms ‘reasonable amount’, ‘common invertebrate and plant paleontological resources’ and ‘negligible disturbance’ shall be determined by the Secretary.*

However, the USFS has reinterpreted the 2009 Act as mandating similar collecting rules for invertebrate and plant fossils as The Act provided for vertebrate fossils. The USFS believes the new onerous rules will provide “for the preservation, management, and protection of paleontological resources on National Forest System lands (NFS), and insures that these resources are available for current and future generations to enjoy as part of America’s national heritage.” It appears to me that the USFS unilaterally decided to change the intent of the 2009 Act that was approved by the US Congress. Instead of following US Law (The Act) the agency went “overboard” and came up with a new set of rules that appear almost unenforceable, and are a disincentive for using geology as a gateway for young adults to move into STEM (science-technology-engineering-math) fields. I believe the agency paid scant attention to the differences between protection for scarce dinosaur bones and

protection for tens of thousands of species (hundreds of thousands of individuals) of invertebrate fossils. And, they ignored the tenets of the 2009 Act.

The new regulations became law on May 18, 2015, on USFS lands and likely will soon be followed on lands managed by BLM and other agencies. The draft edition of these rules came out a year ago and several people offered comments as to the ridiculous and unworkable nature of the proposal. It seems as if the agency paid little attention to concerns of citizens (and what the 2009 Act promised for collectors of invertebrate and plant fossils) and the new laws appeared April 18 in the Federal Register and are now with us permanently.

I have always tried to work, for decades, with federal land agencies in protecting fossil resources. However, this time the USFS has simply gone overboard with trying to define and protect items that need little or no protecting. It is easy to understand the 2009 Act written to protect vertebrate fossils. I guarantee that you will not understand fully the new laws written to protect thousands of invertebrate fossils and plants. We are concerned about the reading and comprehensive understanding abilities of our K-12 students. These new rules are written to confuse scientists and others with advanced degrees. And yet the USFS notes that it is not their responsibility to explain and educate but that collectors need to read and understand the Federal Register.

As I interpret a portion of laws, and this is a stretch, USFS land is open to casual collecting of common invertebrates unless posted. But, take the term casual collecting---what does that mean to you? To me the terms indicates perhaps the Colorado Springs Mineralogical Society (CSMS) Fossil Club (or just a single individual) planning for a couple of weeks to head out to some fossiliferous limestone with a crack hammer, a big pry bar, bags, etc. to have a great time on the slopes. The 2009 Act defined it as: The term `casual collecting' means the collecting of a reasonable amount of common invertebrate and plant paleontological resources for noncommercial personal use. However, the USFS in their infinite wisdom decided not use the term hobby collecting or recreational collecting (that is what most rock and mineral club members do) but to redefine casual collecting as generally happenstance without intentional planning or preparation.., the view of casual collecting as an activity that generally occurs by chance without planning or preparation. So now I am thinking casual collecting involves tiptoeing through the daisies enjoying the colors and looking down and spying a “common fossil” and deciding to pick it up and stick it in your pocket. The terms without planning or preparation really bothers me as I ALWAYS prepare when heading out into the field! Anything with planning would require a permit (more later). Why would the USFS decide to use a definition from Merriam-Webster’s Dictionary when Congress had defined casual collecting in the 2009 Act? So, casual collecting involves common invertebrate and plant paleontological resources which means plentiful and not rare or unique. The final definition also incorporates a geographical factor of wide-spread distribution, which means that the resource is distributed over a relatively large geographical area. This final definition also clarifies that not all invertebrate and plant paleontological resources are common; some are not common because of their context or other characteristics and, therefore, are not eligible for casual collection. Therefore, an Authorized Officer of the USFS will decide which invertebrates are common----I certainly see this as a problem. For example, I am out pounding on some limestones looking for some “common” snails and as usual I bag several hunks of the rock. I get back to the garage and begin to trim the rocks and there is a brachiopod shell not on the “common” list. Well, I have broken the law several times---what happens to the brachiopod shell? In olden days I would take it to a museum and turn it in for study. Today I stick it on a hidden shelf or chuck it in the valley (fearing the Authorized Officer would close the locality due to a rare species). And, I probably collected “too many” snails (broke the law), and I had planned to go hunt for fossils (broke the law), and on and on. In constructing the rules, the agency simply

did not understand about the nature of invertebrate fossils---large numbers of different species often occur together and often in prodigious numbers of individuals. What Authorized Officer is going to find time to study all fossil-bearing rocks in their District and then decide about collecting opportunities on these outcrops? I am frightened that the USFS will not have adequate time to study outcrops and therefore decide to simply close the rocks to casual collecting. But of course since I plan for my collecting trips I am not eligible for casual collecting. The term non-commercial personal use as used in the definition of casual collecting clarifies the types of use allowed under casual collection, and means uses other than for purchase, sale, financial gain, or research. OK, so a casual collector cannot sell fossils collected; however, a collector cannot use his collection for research! Whoa. I spent my career working with students and amateur collectors of all ages and encouraged individuals with interesting fossils to read and study the primary literature, make critical decisions, and then write up and submit an article for a journal, newsletter, or present a poster/podium talk at a professional meeting. Now the agency is telling me (and the students) that a permit is required for this activity! That action would turn off anyone interested in providing information about the interesting fossil to the professional community or the general public. Research is likewise not considered to be a personal use and, therefore, requires a permit. Overkill and a lack of understanding that not all research takes place in a research university. There is also a reasonable amount provision: A person may remove up to 100 pounds in weight per calendar year, not to exceed 25 pounds per day. Development of this reasonable amount criterion reflects, in part, the view of casual collecting as an activity that generally occurs by chance without planning or preparation. This definition of casual collecting is not following the intent of the 2009 Act approved by congress. I have collected in many localities where different geologic units are stacked one on top of another and many/ most contain common invertebrate fossils. Perhaps the fossils are embedded in a limestone or sandstone and one needs to return to their garage in order to use a splitter to help extract the individuals. A strong back might be able to haul out 75 pounds of rock hunks. But wait, the agency states the reasonable amount limit established for casual collection is an absolute specified amount, and is not a "per locality" or "per bed" or "per fauna" limit. Amounts collected at different locations, from different beds, and/or representing distinct faunas would all contribute cumulatively to the established total reasonable amount annual limit... The reasonable amount limit would apply to the entire amount of material removed in a year, including fossils and any enclosing matrix. Treating invertebrate fossils in matrix the same as collecting petrified wood (petrified wood has its own collecting rules based on weight) is ridiculous. And, if you trim rocks in the field be warned that discarded material would be considered as disturbed surface material in context of the negligible disturbance criterion. In my opinion, this rule will be impossible to enforce unless a "Ranger" checks you on the way out of the field. Again, upon returning home I would trim the matrix off the fossils and perhaps even extract the complete fossil from the matrix---that is an important rule in paleontology: do not try and extract the fossil in the field as Mike's Law states that it will break right down the center. So, after working the fossil out of the matrix at home I now have an 8 oz. specimen rather than 15 pounds as I discarded 14.5 pounds of matrix in the back yard rock pile! What a way to discourage hobby collectors. And, if you want a real chuckle (the sad but true thing) read the following regulation: Non-powered hand tools mean small tools that do not use or are not operated by a motor, engine, or other power source. These tools are limited to small tools that can be easily carried by hand such as geologic hammers, trowels, or sieves, but not large tools such as full-sized shovels or pick axes. OK, you can collect with geologic hammers or small shovels but not with pick axes or full-sized shovels. Personally I would love to see a court case where a person was issued a ticket because the shovel handle was too long? Wonder what the size range is?

There is also the onus of non-causal collectors (virtually everyone except the daisy tiptoes as far as I can tell) filing for a permit. My students and I usually collected fossils, including specimens for the University collections

(requires a permit), at times when weather permitted. In today's world the collecting would come to a standstill since the turnaround time on a permit from an Authorized Officer would not be in a day or two! In addition, public rock and mineral clubs such as CSMS have active groups of young people (Pebble Pups and Earth Science Scholars) and adults (Fossil Interest Section) who love to go on collecting field trips but who now must apply for a permit to collect fossils since the groups often study their specimens (research) with the intention of submitting information for peer review and publication. Yes, young people can do research! The new rules prohibit causal collecting if there is any hint of research.

I am greatly disappointed in the agency as I strongly believe their actions will discourage children and young adults from deciding on a career in a STEM field. Geology and paleontology are often the gateway for students entering a field of science as a career. What are children interested in? Fossils, especially dinosaurs, are well known to millions of children. They are not interested (usually) in algebraic equations---but they might decide on a career in math later in life as they study fossils. The United States badly needs STEM career students and I believe the agency overkill regulations are discouraging these students from entering science and are detrimental to educating students. The agency's response: The Department expects that casual collectors, including children and students, would be encouraged by the knowledge that uniform standards now exist for casual collecting (try to explain that to an 8 year old) that will be applied consistently across the Agency. The respondents' suggestion that conditions established for casual collecting would serve as a disincentive for collection and result in loss of interest and further pursuit of knowledge in paleontology and science are conjectural and not substantiated. Well, I don't believe the agency is out working with these students on a daily basis! Individuals who wish to develop paleontological expertise or education by collecting paleontological resources in a manner beyond the scope of conditions established for casual collection are not precluded from doing so under the regulations; however, a permit would be required. If you, the reader, thought the above was sort of ridiculous wait until you try and decipher the permit system. If I read the law correctly (and perhaps I am too dense to understand), any collecting other than causal would require a permit---remember no planning and no research. OK, the provisions (some shown below) of the permit system are absolutely amazing: Applicants for permits must provide the following records and information to the Authorized Officer in support of an application. Show citation box: (a) The name, titles, academic or professional affiliations, and business contact information of the applicant and all persons who would be named on the permit; (b) The applicant's current resume, curriculum vita, or other documents that support an applicant's qualifications; (c) A detailed scope of work or research plan for the proposed activity. This must include maps, field methods, associated records, estimated time and duration of field season, proposed field party size, and specific information regarding storage, stabilization, and curatorial arrangements for collected specimens and data; (e) Identification of a proposed repository for collected specimens, including written verification that the proposed repository agrees to receive the collection of paleontological resources and associated records and acknowledges that all costs will be borne by the applicant and/or approved repository, unless otherwise addressed in a separate written document;... (1) The applicant has a graduate degree in paleontology or a related field of study with a major emphasis in paleontology from an accredited institution, or can demonstrate training and/or experience commensurate to the nature and scope of the proposed activities; (2) The applicant has experience in collecting, analyzing, summarizing, and reporting paleontological data and experience in planning, equipping, staffing, organizing, and supervising field crews on projects commensurate to the type, nature and scope of work proposed in the application; and finally, Permit applications are anticipated to require an average of 5.5 hours to complete, and permit reports are anticipated to require an average of 13 hours to complete.

As I try to interpret the permit system I really have lost all faith in the USFS. For example, examine the CSMS where the Fossil Group and an active Pebble Pups/Earth Science Scholars might explore for fossils on USFS land. First of all, any exploration would require a permit since this obviously is not casual collecting as both groups like to conduct research on fossils with some publication—but examine the permit regulations. Many/most rock and mineral clubs do not have members with an advanced degree in paleontology; Even fewer clubs have members with experience in collecting, analyzing, summarizing, and reporting paleontological data and experience in planning, equipping, staffing, organizing, and supervising field crews; So perhaps (again trying to understand the regulations) if a club did apply for a permit for the Fossil Interest Section members, someone would need to: locate an approved repository for fossils the group might collect--- Fossils stored in repositories remain the property of the United States and storage cases cost money! Museums might not want the fossils, and if they did, who would pay for the cases? It would cost “someone” 5.5 hours to complete each permit application, and another 13 hours to write up a final report. So, what the USFS has done is effectively shut down informal collecting of invertebrate fossil and plants by any organized group such as rock and mineral clubs and their affiliates if members wanted to conduct research on collected specimens. If the Pebble Pups/Earth Science Scholars Take an “educational Field Trip” for casual collecting the Authorized Officer may withhold specimens that have been determined not to be common invertebrate and plant paleontological resources---take it away from the kid. On the other hand, the law seems totally unenforceable and civil disobedience (generally unintentional) will be rampant. Instead of fostering cooperation between agency personnel and community groups and educational institutions, the law will create another schism that the country does not need. So what is the answer (although I doubt the agency is listening)? First of all, use the original definition of casual collecting as listed in the 2009 Act and get rid of the provisions about happenstance without intentional planning or preparation., the view of casual collecting as an activity that generally occurs by chance without planning or preparation. Better yet call it by what it really is---hobby collecting or recreational collecting.

Eliminate the permit system unless the agency is dealing with bona fide researchers usually associated with universities or museums. Encourage fossil collecting by children and encourage hobby collectors to visit a university or museum with interesting finds and discoveries. And if the agency has an area of rare or uncommon fossils simply close the area to collecting---judiciously examining the “rare” fossils. Previous to the enactment of these new collecting rules the USFS/BLM had a perfect solution to protecting rare and critical invertebrate fossils--- they simply closed the area to collecting. An exemplary case is the ammonite beds near Kremmling, Colorado. Seeing the need to protect these exceedingly large and beautiful specimens from further collecting, the Agency simply closed the outcrops and posted the land. The weight limitations of collecting, modeled after the petrified wood regulations, need elimination. Petrified wood is usually 100% percent fossilized wood. Invertebrate fossils usually have matrix attached---why should the matrix count as part of a limit?

And finally, revise the section on degradation of the landscape and the size of the tools. Emphasize the need for collectors to backfill holes and keep damage to a minimum. Educate collectors rather than threaten people with all these onerous “size of tools” laws. I find it almost, but not quite, humorous that the USFS is worried that some kids out digging fossils are going to create more damage to the surface than one rogue mountain biker, or horseback rider, or ATV rider. Around Colorado Springs the claim jumpers and night diggers seeking “mineral wealth” are the chief destroyers of the landscape, not legitimate mineral collectors. As stated previously, I have long been a supporter of federal agencies protecting resources, where needed, but also working with concerned citizens to allow multiply use of agency land. The rules now in place for collecting of invertebrate fossils and

plants are simply mind boggling, and in my opinion, do not follow the intent of the 2009 Act approved by Congress.

I am at a loss about any action except that I will contact my Senator and Congressman. I will report their unilateral redefinition of causal collecting as originally approved by Congress but also their actions inhibiting children and young adults from becoming interested in STEM careers (although the USFS does not believe this statement; however, they are not out here in the trenches). My final question is why does the USFS want to punish groups of concerned individuals (rock and mineral clubs) who try very hard to help educate children and adults of all ages about the interesting aspects of science? The new collecting rules may be found in: <https://www.federalregister.gov/articles/2015/04/17/2015-08483/paleontological-resources-preservation>