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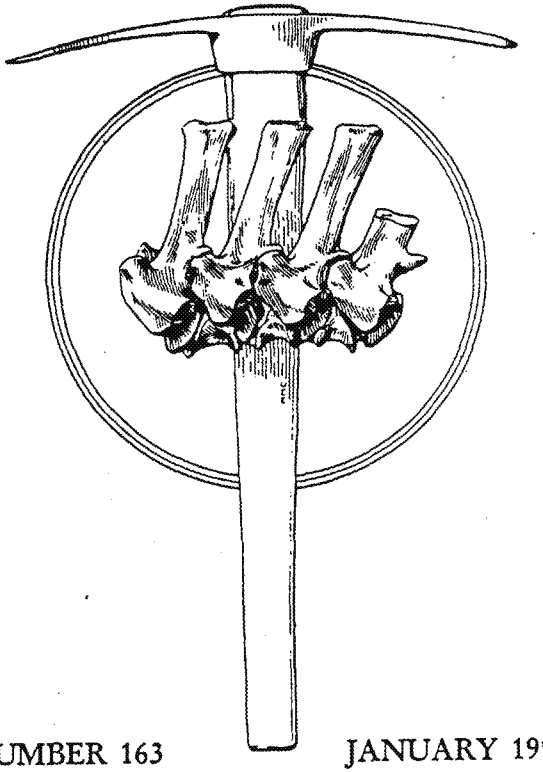

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NEWS BULLETIN

— COMMITTEE REPORTS —

Conformable Impact Mitigation Guidelines Committee

The Committee for Conformable Impact Mitigation Guidelines has been active for five years. Robert E. Reynolds was appointed Committee Chair by SVP President Michael O. Woodburne in 1989. The Committee is presently submitting the final draft of guidelines.

An informal "committee" dealing with the subject of conformable guidelines has been active since about 1976, as California agencies were attempting to conform to CEQA (the California Environmental Quality Act) and NEPA (the National Environmental Protection Act). By 1978, museum curators, planning agencies, and salvage paleontologists in California had focused on preserving vertebrate fossils from construction impacts. Meetings with planners, curators, and paleontologists at the San Bernardino County Museum in Redlands, Calif., were the first to address consistency in procedures. Later meetings at the University of California, Riverside, addressed the impacts that voluminous salvage collections made on the repositories of not-for-profit universities and museums. Dr. Woodburne, aware that this was or would become a national issue, developed an SVP committee to study the issues.

Guidelines that had been tested by federal, state, and municipal authorities in the states of California, Arizona, and Nevada were summarized. These were reviewed by regulatory agencies, contract paleontologists, and museum curators, revised, and submitted for general SVP membership review in 1991. Comments and changes were incorporated in a series of reviews by a committee representing state and federal agencies, curators, and salvage paleontologists. Final review was conducted by SVP Executive Committee officers.

I herewith submit the final draft of the Standard Guidelines for the Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources. (Robert E. Reynolds, Chair)

ASSESSMENT AND MITIGATION OF ADVERSE IMPACTS TO NONRENEWABLE PALEONTOLOGIC RESOURCES: STANDARD GUIDELINES

INTRODUCTION

Vertebrate fossils are significant nonrenewable paleontologic resources that are afforded protection by federal, state, and local environmental laws and guidelines. The potential for destruction or degradation by construction impacts to paleontologic resources on public lands (federal, state, county, or municipal) and land selected for development under the jurisdiction of various governmental planning agencies is recognized. Protection of paleontologic resources includes: (a) assessment of the potential for property to contain significant nonrenewable paleontologic resources which might be directly or indirectly impacted, damaged, or destroyed by development, and (b) formulation and implementation of measures to mitigate adverse impacts, including permanent preservation of the site and/or permanent preservation of salvaged materials in established institutions. Decisions regarding the intensity of the Paleontological Resource Impact Mitigation Program (PRIMP) will be made by the Project Paleontologist on the basis of the paleontologic resources, not on the ability of an applicant to fund the project.

ASSESSMENT OF THE PALEONTOLOGICAL POTENTIAL OF ROCK UNITS

Sedimentary rock units may be described as having (a) high (or known) potential for containing significant nonrenewable paleontologic resources, (b) low potential for containing nonrenewable paleontologic resources, or (c) undetermined potential.

It is extremely important to distinguish between archaeological and paleontological (=fossil) resource sites when defining the sensitivity of rock units. The boundaries of archaeological sites define the areal extent of the resource. Paleontologic sites, however, indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire rock formation, both areal and stratigraphic, therefore define the scope of the paleontologic potential in each case. Paleontologists can thus develop maps which suggest sensitive areas and units that are likely to contain paleontological resources. These maps form the bases for preliminary planning decisions. Lead agency evaluation of a project relative to paleontologic sensitivity maps should trigger a "request for opinion" from a state paleontologic clearing house or an accredited institution with an established paleontological repository.

The determination of a site's (or rock unit's) degree of paleontological potential is first founded on a review of pertinent geological and paleontological literature and on locality records of specimens deposited in institutions. This preliminary review may suggest particular areas of known high potential. If an area of high potential cannot be delimited from the literature search and specimen records, a surface survey will determine the fossiliferous potential and extent of the sedimentary units within a specific project. The field survey may extend outside the defined project to areas where rock units are better exposed. If an area is determined to have a high potential for containing paleontologic resources, a program to mitigate impacts is developed. In areas of high sensitivity, a pre-excavation survey prior to excavation is recommended to locate surface concentrations of fossils which might need special salvage methods.

The sensitivity of rock units in which fossils occur may be divided into three operational categories.

I. HIGH POTENTIAL. Rock units from which vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered are considered to have a high potential for containing significant non-renewable fossiliferous resources. These units include, but are not limited to, sedimentary formations and some volcanic formations which contain significant nonrenewable paleontologic resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical, and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas which contain potentially datable organic remains older than Recent, including deposits associated with nests or middens, and areas which may contain new vertebrate deposits, traces, or trackways are also classified as significant.

II. UNDETERMINED POTENTIAL. Specific areas underlain by sedimentary rock units for which little information is available are considered to have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.

III. LOW POTENTIAL. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils. Such units will be poorly represented by specimens in institutional collections. These deposits generally will not require protection or salvage operations.

MEASURES TO MITIGATE ADVERSE IMPACTS RESULTING FROM DEVELOPMENT

Measures for adequate protection or salvage of significant nonrenewable paleontologic resources are applied to areas determined to have a high potential for containing significant fossils. Specific mitigation measures generally need not be developed for areas of low paleontological potential. Developers and contractors should be made aware, however, that it is necessary to contact a qualified paleontologist if fossils are unearthed in the course of excavation. The paleontologist will then salvage the fossils and assess the necessity for further mitigation measures, if applicable.

Areas of High Potential

In areas determined to have a high potential for significant paleontologic resources, an adequate program for mitigating the impact of development should include:

(1) a preliminary survey and surface salvage prior to construction;

(2) monitoring and salvage during excavation;

(3) preparation, including screen washing to recover small specimens (if applicable), and specimen preparation to a point of stabilization and identification;

(4) identification, cataloging, curation, and storage; and

(5) a final report of the finds and their significance after all operations are complete.

All phases of mitigation are supervised by a professional paleontologist who maintains the necessary paleontologic collecting permits and repository agreements. The Lead Agency assures compliance with the measures developed to mitigate impacts of excavation during the initial assessment. To assure compliance from the start of the project, a statement that confirms the site's potential sensitivity, confirms the repository agreement with an established institution, and describes the program for impact mitigation, should be deposited with the Lead Agency and contractors before work begins. The program will be reviewed and accepted by the Lead Agency's designated vertebrate paleontologist. If a mitigation program is initiated early during the course of project planning, construction delays due to paleontologic salvage activities can be minimized or avoided.

RECOMMENDED GENERAL GUIDELINES

These guidelines are designed to apply to areas of high paleontologic potential.

Assessment Before Construction Starts.

Preconstruction assessment will develop an adequate program of mitigation. This may include a field survey to delimit the specific boundaries of sensitive areas and pre-excavation meetings with contractors and developers. In some cases it may be necessary to conduct field survey and/or a salvage program prior to grading to prevent damage to known resources and to avoid delays to construction schedules. Such a program may involve surface collection and/or quarry excavations. A review of the initial assessment and proposed miti-gation program by the Lead Agency before operations begin will confirm the adequacy of the proposed program.

Adequate Monitoring.

An excavation project will retain a qualified project paleontologist. In areas of known high potential, the project paleontologist may designate a paleontologic monitor to be present during 100% of the earth-moving activities. If, after 50% of the grading is completed, it can be demonstrated that the level of monitoring should be reduced, the project paleontologist may so amend the mitigation program.

Paleontologists who monitor excavations must be qualified and experienced in salvaging fossils, and authorized to temporarily divert equipment while removing fossils. They should be properly equipped with tools and supplies to allow rapid removal of specimens.

Provision should be made for additional assistants to monitor or help in removing large or abundant fossils to reduce potential delays to excavation schedules. If many pieces of heavy equipment are in use simultaneously but at diverse locations, each location may be individually monitored.

Macrofossil Salvage.

Many specimens recovered from paleontological excavations are easily visible to the eye and large enough to be easily recognized and removed. Some may be fragile and require hardening before moving. Others may require encasing within a plaster jacket for later preparation and conservation in a laboratory. Occasionally specimens encompass all or much of a skeleton and will require moving either as a whole or in blocks for eventual preparation. Such specimens require time to excavate and strengthen before removal and the patience and understanding of the contractor to recover the specimens properly. It is thus important that the contarctors and developers are fully aware of the importance and fragility of fossils for their recovery to be undertaken with the optimum chances of successful extraction. The monitor must be impowered to temporarily halt or redirect the excavation equipment away from the fossils to be salvaged.

Microfossil Salvage.

Many significant vertebrate fossils (e.g., small mammal, bird, reptile, or fish remains) are too small to be visible within the sedimentary matrix. Fine-grained sedimentary horizons and paleosols most often contain such

fossils. They are recovered through concentration by screen washing. If the sediments are fossiliferous, bulk samples are taken for later processing to recover any fossils. An adequate sample comprises 12 cubic meters (6,000 lbs or 2,500 kg) of matrix for each site horizon or paleosol, or as determined by the supervising paleontologist. The uniqueness of the recovered fossils may dictate salvage of larger amounts. To avoid construction delays, samples of matrix should be removed from the site and processed elsewhere.

Preservation of Samples.

Oriented samples must be preserved for paleomagnetic analysis. Samples of fine matrices should be obtained and stored for pollen analysis. Other matrix samples may be retained with the samples for potential analysis by later workers, for clast source analysis, as a witness to the source rock unit and possibly for procedures that are not yet envisioned.

Preparation.

Recovered specimens are prepared for identification (not exhibition) and stabilized. Sedimentary matrix with microfossils is screen washed and sorted to identify the contained fossils. Removal of excess matrix during the preparation process reduces storage space.

Identification.

Specimens are identified by competent qualified specialists to a point of maximum specificity. Ideally, identification is of individual specimens to element, genus, and species. Batch identification and batch numbering (e.g., "mammals, 75 specimens") should be avoided.

Analysis.

Specimens may be analyzed by stratigraphic occurrence, and by size, taxa, or taphonomic conditions. This results in a faunal list, a stratigraphic distribution of taxa, or evolutionary, ecological, or depositional deductions.

Storage.

Adequate storage in a recognized repository institution for the recovered specimens is an essential goal of the program. Specimens will be cataloged and a complete list will be prepared of specimens introduced into the collections of a repository by the curator of the museum or university. Adequate storage includes curation of individual specimens into the collections of a recognized, nonprofit paleontologic specimen repository with a permanent curator, such as a museum or a university. A complete set of field notes, geologic maps, and stratigraphic sections accompany the fossil collections. Specimens are stored in a fashion that allows retrieval of specific, individual specimens by researchers in the future.

Site Protection.

In exceptional instances the process of construction may reveal a fossil occurrence of such importance that salvage or removal is unacceptable to all concerned parties. In such cases, the design concept may be modified to protect and exhibit the occurrence within the project's design, e.g., as an exhibit in a basement mall. Under such circumstances, the site may be declared and dedicated as a protected resource of public value. Associated fragments recovered from such a site will be placed in an approved institutional repository.

Final Report.

A report is prepared by the project paleontologist including a summary of the field and laboratory methods, site geology and stratigraphy, faunal list, and a brief statement of the significance and relationship of the site to similar fossil localities. A complete set of field notes, geological maps, stratigraphic sections, and a list of identified specimens accompany the report. The report is finalized only after all aspects of the program are completed. The Final Report together with its accompanying documents constitute the goals of a mitigation project. Full copies of the Final Report are deposited with the Lead Agency and the repository institution.

Compliance.

The Lead Agency assures compliance with measures to protect fossil resources from the beginning of the project by:

(1) requesting an assessment and program for impact mitigation which includes salvage and protection during initial planning phases,

(2) by arranging for recovered specimens to be housed in an institutional paleontologic repository, and

(3) by requiring the Final Report.

The supervising paleontologist is responsible for:

(1) assessment and development of the program for impact mitigation during initial planning phases,

(2) the repository agreement,

(3) the adequacy and execution of the mitigation measures, and

(4) the Final Report.

Acceptance of the Final Report for the project by the Lead Agency signifies completion of the program of mitigation for the project. Review of the Final Report by a vertebrate paleontologist designated by the Lead Agency will establish the effectiveness of the program and adequacy of the report. Inadequate performances in either field comprise noncompliance, and may result in the Lead Agency removing the paleontologist from its list of qualified consultants.

DEFINITIONS

A QUALIFIED VERTEBRATE PALEONTOLOGIST is a practicing scientist who is recognized in the paleontologic community and is proficient in vertebrate paleontology, as demonstrated by:

(1) institutional affiliations or appropriate credentials,

(2) ability to recognize and recover vertebrate fossils in the field,

(3) local geological and biostratigraphic expertise,

(4) proficiency in identifying vertebrate fossils, and

(5) publications in scientific journals.

A PALEONTOLOGICAL REPOSITORY is a publicly supported, not-for-profit museum or university employing a permanent curator responsible for paleontological records and materials. Such an institution assigns accession and catalog numbers to individual specimens which are stored and conserved to ensure their preservation under adequate security and climate control. The repository will also retain site lists of recovered specimens, and any associated field notes, maps, diagrams, or associated data. It makes its collections of cataloged specimens available to researchers.

SIGNIFICANT NONRENEWABLE PALEONTOLOGIC RESOURCES are fossils and fossiliferous deposits here restricted to vertebrate fossils and their taphonomic and associated environmental indicators. This definition excludes invertebrate or botanical fossils except when present within a given vertebrate assemblage. Certain plant and invertebrate fossils or assemblages may be defined as significant by a project paleontologist, local paleontologist, specialists, or special interest groups, or by Lead Agencies or local governments.

A SIGNIFICANT FOSSILIFEROUS DEPOSIT is a rock unit or formation which contains significant nonrenewable paleontologic resources, here defined as comprising one or more identifiable vertebrate fossils, large or small, and any associated invertebrate and plant fossils, traces and other data that provide taphonomic, taxonomic, phylogenetic, ecologic, and stratigraphic information (ichnites and trace fossils generated by vertebrate animals, e.g., trackways, or nests and middens which provide datable material and climatic information). Paleontologic resources are considered to be older than recorded history and/or older than 5,000 years BP.

A LEAD AGENCY is the agency responsible for addressing impacts to nonrenewable resources that a specific project might generate.

PALEONTOLOGIC POTENTIAL is the potential for the presence of significant nonrenewable paleontological resources. All sedimentary rocks, some volcanic rocks, and some metamorphic rocks have potential for the presence of significant nonrenewable paleontologic resources. Review of available literature may further refine the potential of each rock unit, formation, or facies.

PALEONTOLOGIC SENSITIVITY is determined only after a field survey of the rock unit in conjunction with a review of available literature and paleontologic locality records. In cases where no subsurface data are available, sensitivity may be determined by subsurface excavation.

Development Committee

In 1994, the reins of the Development Committee passed from David Archibald to John Wible. John would like to thank Dave for his years of service as the Chair of the Committee and for facilitating the transition. In June 1994, John met with the Executive Committee and representatives of Smith, Bucklin and Associates (SBA) in Chicago. The Development Committee was charged with organizing a new fund-raising campaign to meet the growing financial needs of the Society, in particular to enable the *Journal of Vertebrate Paleontology* to increase the number of pages published each year and, thereby, reduce the current 18-month backlog of manuscripts. Working with Dave Krause (SVP President), Mark Thorsby, and Pamela D'Argo (SVP Business Office), a fund-raising plan for 1994–95 campaign will be developed. (John R. Wible, Chair)

Editorial Report, *Journal of Vertebrate Paleontology*

Introduction

Traditionally, the *JVP* annual report has served to summarize the status of the journal, including areas covered by published papers, the number and disposition of submitted manuscripts, and average lag time between acceptance and publication. In recent years, the *JVP* has experienced rapid growth in number of submitted manuscripts, with a resultant increase in lag time. Growth of the journal thus prompts reexamination of the mission of *JVP*, its published length, and the source/amount of support necessary to publish it. Accordingly, a second purpose of this report is to present information on manuscript submission, acceptance, and publication, in order to provide the basis for development of a long-term management plan for the *JVP*.

For historical reasons, the annual report for the *JVP* is based on a fiscal rather than calendar year; consequently, the present report covers the period 1 July 1993 through 30 June 1994. Data for previous reporting periods, not always complete, have been accumulated from several sources, including published issues of *JVP*, editorial reports, and information contained in the *JVP* editorial files. Submitted manuscripts are considered to have only two possible fates, acceptance and rejection. The "rejection" category thus includes manuscripts which are rejected outright, returned with encouragement to submit (these often come back but are sufficiently different to warrant the complete review process; they can be analogized