

## LITHIC RAW MATERIAL IDENTIFICATION/COLLECTION FORM INSTRUCTIONS

The purpose of the *Lithic Raw Material Identification/Collection Form* is to provide partial documentation of lithic material source sites submitted for inclusion to the University of Denver's Lithic Material Reference Collection (LMRC). As such, it is necessary to complete as much of the form as possible. Generally, this form should be completed in conjunction with the *Colorado Management Data Form*. No additional documentation is necessary if the source locality does not exhibit a cultural component, however, if evidence of cultural use is identified, a *Prehistoric Archaeological Component Form* and/or an *Historic Archaeological Component Form* must be completed and submitted as part of the site documentation. Please use continuation pages, labeled with the form name and the site number, when necessary. In addition to the University of Denver's LMRC, a copy of the *Lithic Raw Material Identification/Collection Form* must be submitted to the Colorado SHPO office, as part of the full site documentation, and to be included in the repository of state cultural resource database. Out of state source localities should be documented with the *Lithic Raw Material Identification/Collection Form*, accompanied by the appropriate resource form(s) from the state of origin. Out of state source locality documentation must not be submitted to the Colorado SHPO office.

1. Collection Reference Number: The University of Denver will issue a unique, sequential code number for each submitted collection. This designation will permanently identify the collection at the University of Denver and may be referenced in related documents.
2. Resource Number: The resource number (Smithsonian trinomial number) issued by the Office of Archaeology and Historic Preservation (OAHP) or applicable out-of-state site number. Resource numbers will be issued by OAHP for both non-cultural material source localities and newly recorded lithic source areas with cultural components. Contact OAHP staff (303-866-5216) to obtain a number.
3. Temporary Resource Number: Temporary numbers are developed and assigned by the researcher or organization recording the locality.
4. Site/Source Name(s): If applicable, identify the site name(s) and where possible identify the name of the specific material type associated with this source locality (e.g., Barger Gulch Site; Kremmling Chert or Troublesome Formation Chert). Also, identify any resource names that may be associated with this particular source locality, include local names.
5. Related Sources: Identify any known source localities yielding the same lithic material. If possible, provide the resource number and/or site/source name.

## RESOURCE DESCRIPTION

6. Site Physiography/Description: Provide a detailed description of the source locality, including a location description, access, and elevation. The site description should include a discussion of the local terrain, identification of significant drainages, and topographic features, and area vegetation communities. Discuss the general exposure or physical setting of the source locality.
7. Resource Dimensions: Give the dimensions (metric) and orientation of dimensions (N/S, E/W,...) for the resource. Provide metric area of the resource and determine acreage. Dimensions should correspond to the scaled area on sketch map and plotted on United States Geographic Survey (USGS) quad map.

\*USGS Map: Attach a 1:1 scale photocopy portion of a United States Geological Survey (USGS) quad map to the form. The resource locality(s) should be clearly located, drawn to scale, and clearly labeled. Very small localities should be shown with a dot, but boundaries of larger sites should be drawn to scale showing the shape of the site in its relationship to the topography.

\*Sketch Map: Provide a site sketch map of the source locality, including the surrounding area. Draw the map to scale, and include a north arrow, the date, and a complete key. Identify locations within resource where lithic samples were collected.

8. Material Source: Check all that apply.
  1. Outcrop/Vein: An exposure of lithic material as bedrock or strata projecting through overlying cover of detritus and soil. Bedded materials, particularly cherts, are thinly laminated to massive in structure, even-bedded, and can be several centimeters to meters thick.
  2. Nodules in Carbonate Deposits: The lithic material is identified as chert or flint nodules occurring in limestone deposits. Nodules usually occur in rounded ellipsoid shapes, several centimeters in size and flattened in the plane of the bedding. The purer the limestone, the more irregular the shape of the nodules. Commonly nodules are concentrated along particular bedding planes, although spacing appears to be random.
  3. Glacial Deposition: Lithic material deposited as a result of glacial activity. *Glacial till* deposits occur as non-sorted, non-stratified sediment. *Moraines* are deposits laid down in fairly regular (usually linear) pattern and make a recognizable land form. *Glaciofluvial deposits* are sorted and layered by the movements of glacial streams, and may occur as irregularly conical mounds, straight steep ridges, winding ridges, and outwash.

4. Surface Gravel(s): Deposited or exposed lithic material occurring as uncemented, rounded waterworn pebbles/cobbles. The origin of this material may be associated with earlier fluvial activity.
  5. Alluvial Deposition: Lithic material is present in the detrital deposits resulting from the operations of a stream or river. This includes sediments laid down in river beds, flood plains, lakes, fans at the foot of mountain slopes, and estuaries.
  6. Erosional Surface: A land surface shaped by the disintegrating, dissolving, and wearing action of streams, ice, rain, winds, and other land and atmospheric agencies. Erosional activity will impact outcrops, glacial deposits, alluvial deposits, etc. and can involve sheet wash, gully erosion, etc. Lithic material is exposed as a result of erosional activity.
  7. Volcanic Deposition: Lithic material produced as a result of specific volcanic eruptions or lava flows. Volcanic rock can occur as basalt, rhyolite, obsidian, andesite, dacite, and other materials.
  8. Concretions: A nodular or irregular concentration of certain constituents of sedimentary rocks and tuffs developed by the localized deposition of material from solution, generally about a central nucleus. The concretion is generally harder than the enclosing rock.
  9. Desert Pavement: Lithic material exposed on the desert crust. Desert pavement occurs when loose material containing pebbles or larger stones is exposed to wind action the finer dust and sand are blown away and the pebbles gradually accumulate on the surfaces, forming a sort of mosaic which protects the finer material beneath from attack.
  10. Isolated Material: An isolated, worked lithic source not directly associated with identifiable geologic formations or episodes of secondary deposition. This includes worked material sources, such as boulders, petrified wood trunk, etc., but does not include core reduction localities not directly associated with the material source, or isolated, unworked pieces of lithic material (i.e. quartz crystals, isolated cobbles of quartzite, chert pebbles, or fragments of petrified wood).
  11. Other: Identify this category only when the above criteria does not apply. Provide explanation.
9. Material Morphology/Size: Provide a description of the lithic material as it exists at the source, include size range where appropriate. Secondarily deposited materials can include pebble (4 mm to 64 mm dia.), cobble (64 mm to 256 mm dia.), and boulder (>256 mm dia.) forms. Primary sources may exhibit massive outcrops, angular fragments, tabular pieces, nodules, etc.

10. Geologic Context: Provide pertinent geologic data for the resource locality. This data may be unavailable, particularly for secondary sources. Identify the geologic formation associated with the source area, and if possible, provide a description of the formation as it is manifested within the general area. Include any available data concerning associated geologic epochs, stratigraphy, geomorphology, and climatology. All geologic survey maps and other reference sources must be cited.

## **MATERIAL DESCRIPTION**

11. Material Type Description: Identify material type(s) (i.e., chert, chalcedony, quartzite, obsidian, etc.) present at this source locality, and provide a general description of the observed material, include, color ranges, evidence of mottling/banding, range of texture, inclusions, fractures, cortex/patina description, and any additional pertinent information.
12. Texture: Check all that apply. Provide a description of the texture range identified at the source locality.
  1. Glassy: Material exhibiting the luster and texture of glass (i.e., obsidian, crystal, pitchstone, etc.). Conchoidal fractures are excellent, exhibiting high definition.
  2. Semi-Glassy: Material similar to glass in nature but exhibiting reduced luster and increased texture (i.e., vitreous basalt, very fine chalcedony, etc.). Conchoidal fractures range from excellent to good.
  3. Fine Grained: Material exhibiting granular structure that is small or invisible to macroscopic analysis (i.e., chalcedony, chert, siltstone, rhyolite, etc.). Conchoidal fractures are good, exhibiting distinct definition but not sharp.
  4. Medium Grained: Material exhibits small but macroscopically visible granular structure (i.e., coarse chert, fine to medium grain quartzite, etc.). Conchoidal fractures are fair, exhibiting marginal definition.
  5. Coarse Grained: Material exhibits easily visible granular structure (i.e., coarse grain quartzite and basalt, etc.). Conchoidal fractures are poor; little evidence of conchoidal fracture.
  6. Other: Provide data concerning texture description.
13. Color: Describe a range of material colors present at the source locality. If available, provide the appropriate Munsell code number(s) and standardized color name. If applicable, designate use of the Munsell Color Chart for Rocks and/or the Munsell Color Chart for Soils.

14. Physical Appearance: Check all that apply. In addition to color, identify other observed characteristics of the material.
1. Banding: A striped or layered pattering in the material, most often manifested as color or shade variation or texture change.
  2. Mottling: The material exhibits spots or blotches of different color or shades of color.
  3. Inclusions: The material is not homogeneous, and may exhibit, crystalline structures, fossils, mineral pockets, etc.
  4. Fossilized Material: The material is fossilized wood (petrified wood), bone, shell, etc.
  5. Cortex Present: Natural surface or rind on lithic materials.
  6. Patination: The material exhibits a thin, generally light colored layer produced by weathering. This is an alteration of the surface by molecular or chemical change, and not to be confused with sand blasting.
  7. Thermal Alteration: The material, as collected from the source, exhibits evidence of thermal alteration, including color change, crazing, exfoliation, increased luster, and/or pitting.
  8. Other: Identify other pertinent physical characteristics that were observed.
15. Transparency: Check all that apply.
1. Opaque: No light is observed through the material, except along the extreme edges of thinned material.
  2. Translucent: Light is observed through the material, there is no definition of image as would be found in transparent materials.
  3. Transparent: The material is clear or semi-clear, allowing light passage and image definition.
16. Thermal Alteration: Check all that apply. Thermal treatment alters siliceous materials by exposure to controlled heat, making the stone more vitreous. Provide data concerning thermal alteration experimentation. Indicate use of controlled or uncontrolled atmosphere.
1. No Experimentation: The material was not submitted to thermal alteration experimentation.
  2. No Change: The material is static, there are no observed changes as a result of thermal

alteration experiments.

3. **Luster:** A glossy, reflective texture that is not present or is present only in a diminished state with material not subjected to thermal alteration. A lustrous characteristic is often only observed on freshly fractured surfaces.

4. **Color Change:** Material exhibits color alteration (i.e, color change, shading, etc.) as a result of increased thermal exposure.

5. **Potlidding:** Plano/convex flake leaving a concave scar. This feature is a result of differential expansion and contraction, but lacks compression rings of force. This may be a natural occurrence or associated with intentional thermal alteration

6. **Crazing:** Minute surface cracks, generally cross-hatched, causing the surface to be weakened. Common to overheated siliceous materials.

7. **Exfoliation:** The material surface is delaminated or scaled as a result of overheating.

**Discussion:** Provide additional information concerning evidence of thermal alteration.

17. **Similar Materials:** Identify any known materials or material sources that exhibit similar characteristics to this material. Provide names, resource numbers (if available), general location, and any other pertinent information.

## **DOCUMENTATION**

18. **Cite Associated References:** Provide reference information for documents/reports that provide data concerning this material source.
19. **Recorder(s):** Enter the full name of the recorder(s).
20. **Date:** Date(s) the resource was recorded.
21. **Recorder Affiliation:** Provide the name of the recorder's organization, agency, or company.
22. **Address:** Provide address of the company/agency with whom the recorded is affiliated
23. **Phone Number:** Provide phone number of the company/agency with whom the recorder is affiliated.