

Guidelines for Collecting and Preparing Mineral Specimens

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It is possible to find vast quantities of specimens during your average 4 hour collecting excursion. How will you protect the pieces that you pick up throughout the day? How many specimens do you plan to bring home? When they do get home, are they ready to be displayed or do they need some extra attention first? The following guidelines may help you streamline your collecting practices.

Ethics – Learn the collecting laws for your state.

- Get permission. Respect private property and mineral claims.
- Be aware of the land you are on. It could be National Forest, State, BLM, Wilderness, Tribal or other.
- No high-grading! Alert claim owners to significant finds and be willing to give them up if asked.

Field preparedness – Be ready to protect the pieces that you collect throughout the day

- Backpack, bucket or flats for putting pieces in while collecting.
- Hammers, chisels, pry bars, shovels, flat head screwdriver, brushes or brooms, safety goggles.
- Wrapping material – Toilet paper, paper towels, tissue paper, independent newspapers (Alibi, College Times), newspaper, plastic grocery bags.
- Labeling – Note cards, masking tape or paper with a permanent marker
- Small (pocket sized) case for wrapping and storing the tiny crystals that would otherwise be lost.

Collecting In the field

- Make sure to have flats or some other cleared space to set material while digging
- Divide into great, okay and junk while you are digging. It is okay to leave damaged or even perfect minerals behind.
- When you find a great piece, set it aside specially in its own flat or wrap immediately.
- If you're on the go, wrap specimens well and then put into your pack tightly so they don't rattle.
- Use separate boxes for each locality visited during a trip so as not to confuse your-self.
- Once you have filled a box or bag, transport them to your vehicle for unloading or put them somewhere safe (from rock fall or tipping over) for later collection.
 - If you see a flat or pile of rock while collecting, leave it alone unless you are given allowances by the person who just finished collecting them.

Field trimming – smaller specimens are easier to carry.

- If there is a large amount of matrix attached to the specimen, field trimming may be necessary.
- Always hold the desired part in your hand, slightly protecting the desired crystal.
- Hit the matrix with a hammer (away from the main body) to break off edges and chunks.
- Avoid striking directly into the specimen as the shock could break your crystals
- Really bulky pieces should be broken by placing a foot on the piece and then striking with a large sledge. Your foot will keep the pieces from flying while securing the rock for full impact.
- If your mineral breaks, that's okay. You need to understand how the matrix acts under pressure before trimming the best stuff.
 - Classify the matrix – friable, stable, hard, soft, brittle etc. Does it break on a straight plane? Can you control the direction of the split? Identifying these properties in the field will help you decide how to trim your specimens later.

Field wrapping – Protect specimens from falls, spills, crashes, rattles and bangs.

- It is good to have several types of wrapping material with you while collecting.
- Newspaper, paper towels, toilet paper and plastic grocery bags are good.
- Flats or a backpacks are preferred to bucket collecting
- Buckets are okay, as long as specimens are wrapped prior to putting them in there.
- The best collecting will result in many flats that have only one layer of protected specimens.

- Close the lid and write an index card or use tape to ID locality, date and other pertinent info.
- Techniques – full wrap with extra padding centered above the desired piece. Good for backpacks and buckets.
- Techniques – Bird’s nest – crinkle a length of wrapping material and wind it around and slightly under the specimen. Specimens are then placed snugly against each other side by side.
- Nesting is a great for showing your specimens at the end of the day for potential ID Help or plain bragging rights.

End of the day – Bring home manageable amounts of material.

- Stop collecting soon enough that you can rough-sort your treasures
- Look at and re-evaluate minerals that you collected. You should touch each and every piece to determine if you really want to keep it.
- Now is the time to finish field trimming and then wrapping specimens for final transport home.
- Unwanted specimens are subject to the “Rock Release Program.” It is best to release these in their natural environment so that future rock hounds don’t wonder why this “xyz” mineral is found somewhere that does not make sense.

Mineral specimen prep

- When you get home it is important to start working on your specimens.
- Check the mineral against lists of substances that would damage your specimen.
- Determine if cleaning is necessary and which pieces are worth the effort.
- Make sure there are no big cracks that would make the piece fall apart during trimming.
 - If so, use diluted white glue/water to strengthen before trimming
- Soak in water or spray and brush gently to remove first crust of dirt.
- Trim specimen before doing aggressive cleaning to reduce surface area.
- Use brushes of various materials to remove some extra dirt. (less hard than the mineral)
- Use a water gun for deep cleaning. (start far away and move progressively closer)

Trimming

- After field trimming, begin more delicate trimming methods
- Most potential for damage (delicate crystals) = chisel and hammer
- Least potential for damage = compression splitters (Hydraulic or screw type)
- Okay but often scoffed = saws
- Sand box and rubber mallets
- Leaving some matrix is preferred, but in proportion to the size of the crystal
- It is OKAY to break damaged or unsightly minerals to better preserve the best part
- Available trimmers are expensive, learn to improvise
 - Modify a bench vise, modify a hydraulic jack
- Techniques – after positioning the stone for trimming, wrap it so that the good piece (and the rest) don’t go flying across the room or into your eye.
- Use pliers for nipping the edges (similar concept to field trimming with glancing pressure)
- Trim incrementally, cautiously approach the specimen.

Cleaning – Make your collection SHINE.

- Reference John Sinkankas’ books or other data sets for mineral solubility charts
- Caution – some minerals, especially fibrous ones, can be damaged by water. It can physically deform delicate features and even chemically attack some crystals.
- Use water gun regularly. A little acid, neutralize, and then spray with water. Repeat until you are happy.
- Iron staining – Iron Out, muriatic acid or Oxalic Acid.
- Deeper stains and chemical removal of matrix – Hydrofluoric acid (HF) contacting your skin can be deadly, extreme caution is advised. There are very few instances when such a strong acid should be used, even in dilute concentrations. If you have a piece that you think needs an HF treatment, consider sending it away to a professional.

- Tough stains may be protected by thin coatings of carbonate. Try dissolving the thin coating with vinegar before reintroducing it to the other cleaners again.
- Soda Water is (Baking soda and water) used to neutralize acids.
- Soak in soda water for 2x time that it was in any acids
- Ultrasonic cleaners – use a wetting agent (detergent) for better effectiveness.
- Improving luster – Fluorite and some other minerals can be enhanced with Armorall or other sprays. Spray and then immediately rinse.

Storage

- Either put into flats, drawers or into cabinets for display.
- Make sure the flat is large enough to accept a lid without damaging the mineral
- Include an identifying card (one per box or one per mineral)
- Fold up boxes (Jewelry supply stores or mineral box manufacturers)
- Enjoy and share. It is best if you can open a drawer or remove a lid to display all of the minerals contained inside. This makes for quick browsing and encourages interaction with your collection.

Dispose of unwanted pieces

- Every collector will develop a waste pile from trimming the pieces that they bring home.
- Just because there are no “Show Specimens” does not mean that they are ugly or useless.
- Use debris for Rock Mulch, Planter Beds, Garden Paths, Sculpture, etc.
- Take the remainder to the dump or take them back into the field (rock release program)
- Give pieces away “Free Minerals”
- The benefits - you will:
 - Refine your collection
 - Learn more about minerals through personal experience
 - Begin recognizing better pieces more easily
 - Bring home less material, allowing you to manage your collection and the amount of space in your yard. Less junk = more opportunity to go out and collect.

Where to get stuff

- Flats – 2” depth - found underneath Smith’s generic soda 12 packs (use two –lid and base)
- Flats – copy paper boxes, sold for \$1 at office supply stores (copy center). Cut to desired depth.
- Flats – Purchased as 2”, 3” 4” depth from box supply companies
- Wrapping material – The Alibi is good and free. Pick up a bunch before going out. Use a full sheet per specimen.
- Local suppliers – IJS, Thunderbird, Rio Grande, Southwestern Minerals, Mama’s Minerals.
- Shannon’s Minerals – flats, specimen boxes, water guns, trimmers, mineral tack
- Fossil supply – flats and specimen boxes
- Ward Scientific – mineral ID, Boxes
- Grocery Stores – Flats, beer flats, other thin boxes (Top and Bottom)
- AGMC – Rent the trimmer or organize a trimming party.
- From your friends

Reference Books

Compton, Robert R.; Geology in the Field, Published by John Wiley & Sons, October 2 1985, ISBN 0471829021;
Link: <http://amzn.com/0471829021>

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Sinkankas, John; Field Collecting Gemstones and Minerals, Published by Geoscience Press, 1995, ISBN 0945005008; Link: <http://amzn.com/0945005008>

Sinkankas, John; Gem Cutting: A Lapidary's Manual, Published by Literary Licensing, LLC, May 19 2012, ISBN 1258353245; Link: <http://amzn.com/1258353245>

Sinkankas, John; Gemstone & Mineral Data Book: A Compilation of Data, Recipes, Formulas and Instructions for the Mineralogist, Gemologist, Lapidary, Jeweler, Craftsman and Collector, Published by Geoscience Press, April 1 1994, ISBN 0945005016; Link: <http://amzn.com/0945005016>

Sinkankas, John; Mineralogy for Amateurs, Published by Van Nostrand Reinhold; 1964, ASIN B0000CMCNF; Link: <http://amzn.com/B0000CMCNF>